

Webex WFO User Guide

For Deployments with New WFM

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Agents

Agents interact with customers or process back office work related to those contacts.

WFM glossary

This glossary provides explanations of terms used in WFM.

A - H

Abandon rate

Absence

Backlog management

Business unit

Contract

Contract schedule

Contract time

Day off

Daylight Saving Time (DST)

Default scenario

Dynamic shrinkage

Employment type

Group pages

Handled within

Hourly availability

L - N

Managing staff

Midnight break

Must have

Nightly rest time

O - R

Occupancy

Optional columns

Personal activity

Preference

Ready time adherence

Real time adherence

S - Z

Scenario

Self-scheduling

Service level

Shift category

Shift trade

Shift trade request

Shrinkage

Skill

Skill types

Weekly rest time

Workload

Work time

Log in to Webex WFO

The login page allows you to log in using your Webex WFO credentials or an external identity provider. Before a user can log in, an administrator has to create an identity for the user in Webex WFO. Administrators must navigate to Application Management > User Configuration > Users to create new users.

Prerequisites

- An administrator has created your user identity in Webex WFO.
- You have received an activation email from Support.
- Direct login is the default login. You can change your default login configuration on the Set up IAM authentication page. Your administrator can configure an external IdP or multi-factor authentication on the IAM Authentication page.

Procedures

Activate your Webex WFO account

Activate your Webex WFO account

1. Follow the link provided in your activation email from Support. The link directs you to reset your password on the Webex WFO login page.
2. Enter a unique password that adheres to the password complexity requirements detailed below.

> **IMPORTANT** The link in your activation email can only be used once, and it works for 24 hours. If you were not able to use the link in your activation email follow the troubleshooting procedure Troubleshoot login issues

Log in to Webex WFO

Log into Webex WFO with your Webex WFO credentials

Follow this procedure if your organization does not use an external identity provider.

1. Navigate to the Webex WFO login page based on your region.

   https://login.calabriocloud.com/

   https://login-eu.calabriocloud.com/

   https://login-aus.calabriocloud.com/

   https://login-ca.calabriocloud.com/

   https://login-uk.calabriocloud.com/

   https://login-sgp.calabriocloud.com/

   https://ae1.calabriocloud.com/

   https://in1.calabriocloud.com/

2. Enter the email address associated with your Webex WFO account.
3. Click **Next**.
4. Enter the password associated with your Webex WFO account.
5. Click **Next**. If successful, you are directed to Webex WFO.

Log into Webex WFO using your organization's external identity provider

Follow this procedure if your organization does use an external identity provider.

1. Navigate to the Webex WFO login page based on your region.

   https://login.calabriocloud.com/

   https://login-eu.calabriocloud.com/

   https://login-aus.calabriocloud.com/

   https://login-ca.calabriocloud.com/

   https://login-uk.calabriocloud.com/

   https://login-sgp.calabriocloud.com/

   https://ae1.calabriocloud.com/

   https://in1.calabriocloud.com/

2. Enter your email address.

3. Click **Next**.
4. Click **Company Login**. You may see **Direct Login** and **Company Login** buttons depending on your organization.

   NOTE You may be redirected to your organization's external identity provider to authenticate your session. If so, follow the onscreen prompts to authenticate.

5. Enter your password.
6. Click **Next**. If successful, you are directed to Webex WFO.

Log into Webex WFO using multi-factor authentication

Follow this procedure if your organization uses multi-factor authentication.

1. Navigate to the Webex WFO login page based on your region.

   https://login.calabriocloud.com/

   https://login-eu.calabriocloud.com/

   https://login-aus.calabriocloud.com/

   https://login-ca.calabriocloud.com/

   https://login-uk.calabriocloud.com/

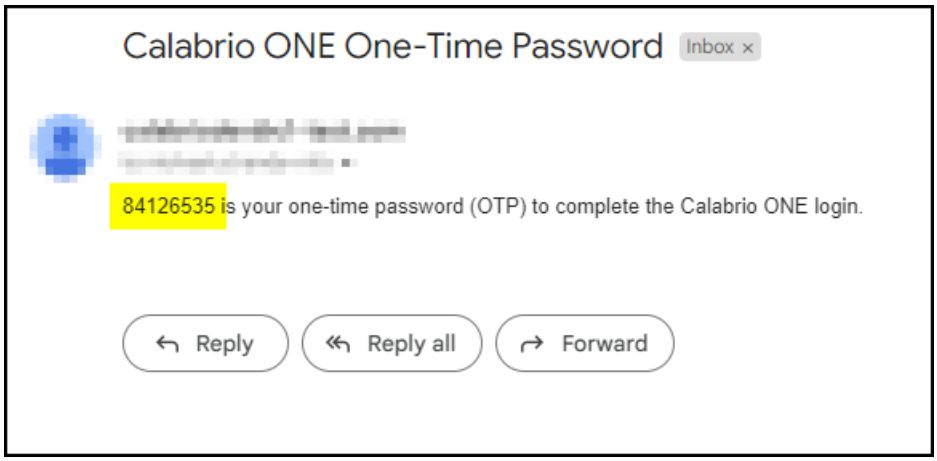
   https://login-sgp.calabriocloud.com/

   https://ae1.calabriocloud.com/

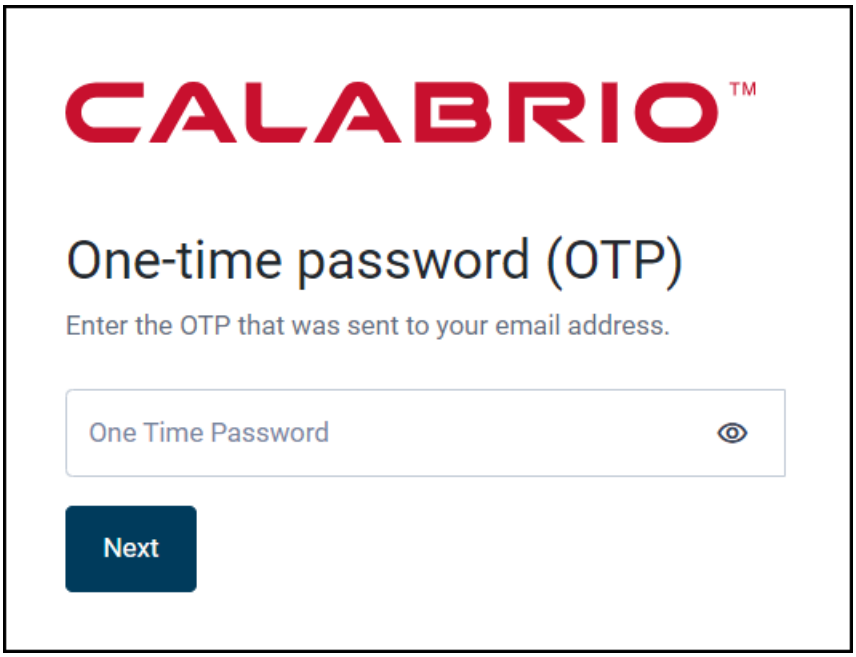
   https://in1.calabriocloud.com/

2. Enter the email address associated with your Webex WFO account.
3. Click **Next**.
4. Enter the password associated with your Webex WFO account.
5. Webex WFO automatically sends an email to your account with a one-time password. Navigate to your email account and copy the one-time password located in the body of the email.

   IMPORTANT The password expires in five minutes.



6. Enter the one-time password on the Webex WFO login page.



7. Click **Next**. If successful, you are directed to Webex WFO.

NOTE If you do not receive a one-time password email within one minute, check your spam folder or work with your IT administrator to ensure the one-time password email from "supportservices_noreply@calabriocloud.com" is not blocked.

Password complexity requirements

The following password complexity requirements are only applicable to direct logins. That is, logging in using a Webex WFO email address and password. If your organization uses a company login (commonly referred to as single sign-on), then your password complexity requirements are determined by your identity provider.

Passwords must conform to the following rules.

- Must be a minimum of 8 characters.
- Must contain at least one of each of the following.

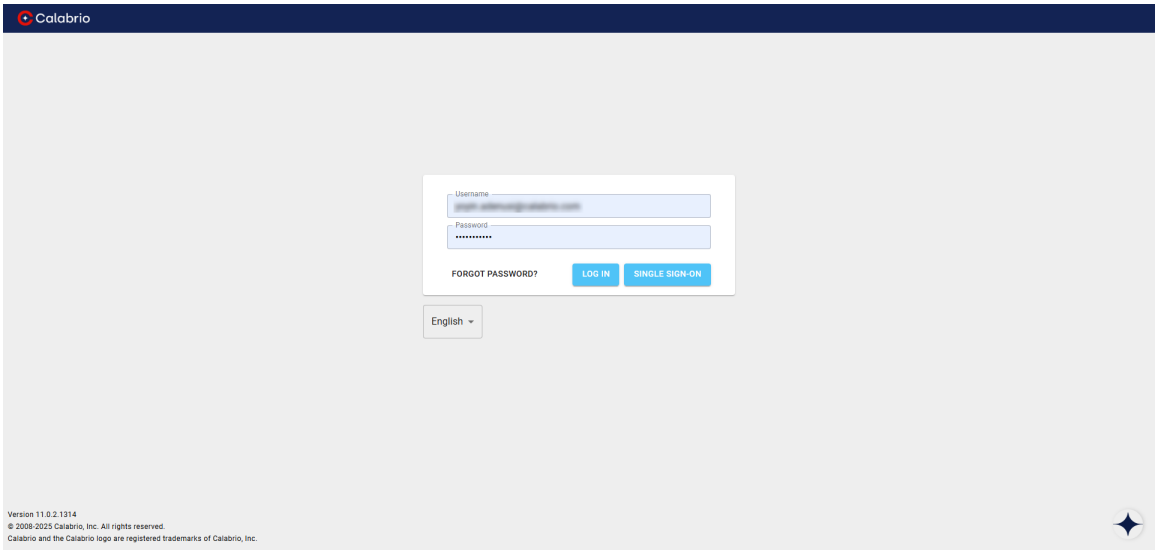
  Uppercase letters
  Lowercase letters
  Numbers 0-9
  Special characters `! # $ % & ( ) , . / : ; = ? @ ^ ` |`

- Cannot contain your name or email address.

NOTE Passwords do not expire.

Legacy login only

The following rules only apply to the legacy login page. These rules apply when you create or edit a user, or when you change or reset a password.



Example legacy login page

These rules apply only where you configure a password that is controlled by Webex WFO. If a user enters a password for an external system that is not controlled by Webex WFO, Webex WFO will not validate the password (for example, ACD configuration).

NOTE A user can be created without a password (manually or automatically via ACD sync). A user without a password cannot log in. That user must use the "Forgot Password" link and set up a password.

- Passwords cannot contain any white spaces (blanks).
- Passwords must be at least eight characters long. An administrator can increase the minimum length on the Password Policy page in Application Management.
- Passwords must contain characters from three of the following four categories:

Category	Description
Uppercase letters	A–Z Uppercase unicode characters: http://www.fileformat.info/info/unicode/category/Lu/list.htm
Lowercase letters	a–z Lowercase unicode characters: http://www.fileformat.info/info/unicode/category/Lu/list.htm
Numbers	0–9
Special characters	The following characters are allowed for a tenant database password: `! # $ % & ( ) , . / : ; = ? @ ^ ` |` The following characters are allowed for all other passwords: `! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [ ] ^ _ ` { | } ~`

Related topics

- Log in to Webex WFO with your subdomain URL
- Set up IAM authentication

- Configure SAML authentication
- Troubleshoot login issues

Log in to Webex WFO with your subdomain URL

NOTE This is a new feature that is not yet generally available. Both the current and new subdomain-based login paths will run in parallel until customers transition to the new login flow.

If you are looking for the legacy login page's help article, click Log in to Webex WFO. You can log in to Webex WFO using either the legacy login experience or the subdomain-based login experience detailed in this article.

The login page allows you to log in using your Webex WFO credentials or an external identity provider (IdP) such as Okta, OneLogin, and more.

Direct login, also referred to as IAM Authentication, is the default login method. Direct login means you log straight into Webex WFO itself by entering your email address and password on the login page. Your administrator can change your default login method on the Set up IAM authentication page. From the IAM Authentication page, your administrator can configure an external IdP or multi-factor authentication.

Before a user can log in, an administrator has to create an identity for the user in Webex WFO. Administrators must navigate to **Application Management** > **User Configuration** > **Users** to create new users.

Prerequisites

IMPORTANT Your organization must use identity and access management (IAM) single sign-on (SSO). To configure IAM SSO navigate to **Application Management** > **IAM Authentication** > and select the **Enable IAM Authentication (Direct Login)** or **Enable IAM External Authentication Entity (Company Login)** checkbox.
The subdomain-based login experience detailed in this article is not compatible with legacy SSO configurations through the **Authentication** page in **Application Management**.

- An administrator has created your user identity in Webex WFO.
- This login page is only available to Cloud Webex WFO users. It is not available to Teleopti WFM and on-prem Webex WFO users.

Procedures

> **NOTE** If you forgot your password, enter your email address on the login page and click **Next**. Then click **Forgot my password**.

Identify your login page

Webex WFO has different login pages, and it's important to know which version your organization uses. Refer to the list below to correctly identify the login page used by your organization.

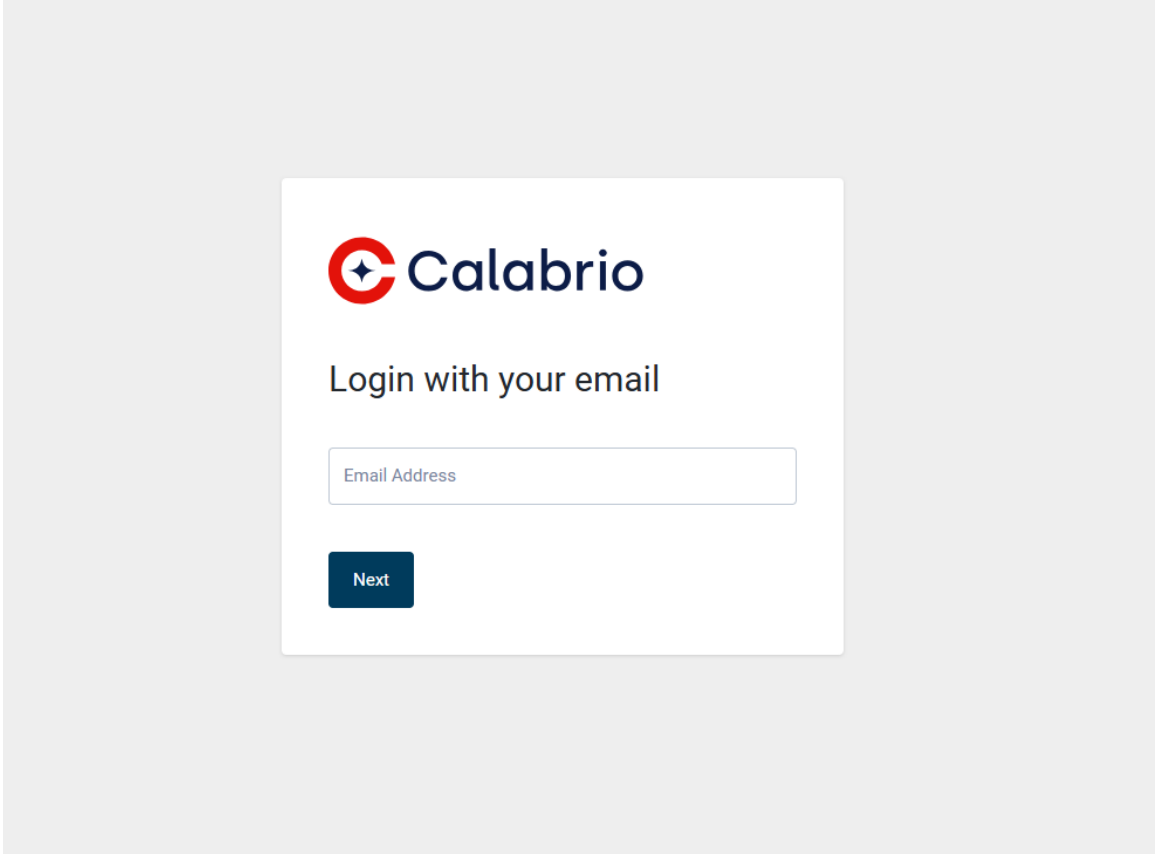
- If your login URL includes a subdomain in the URL then this Help article is the right place for you. A subdomain is the part of a URL that comes before the main domain name. Continue referencing this Help article for information relevant to your organization. The following is an example.

  `[placeholder].calabrio.one`

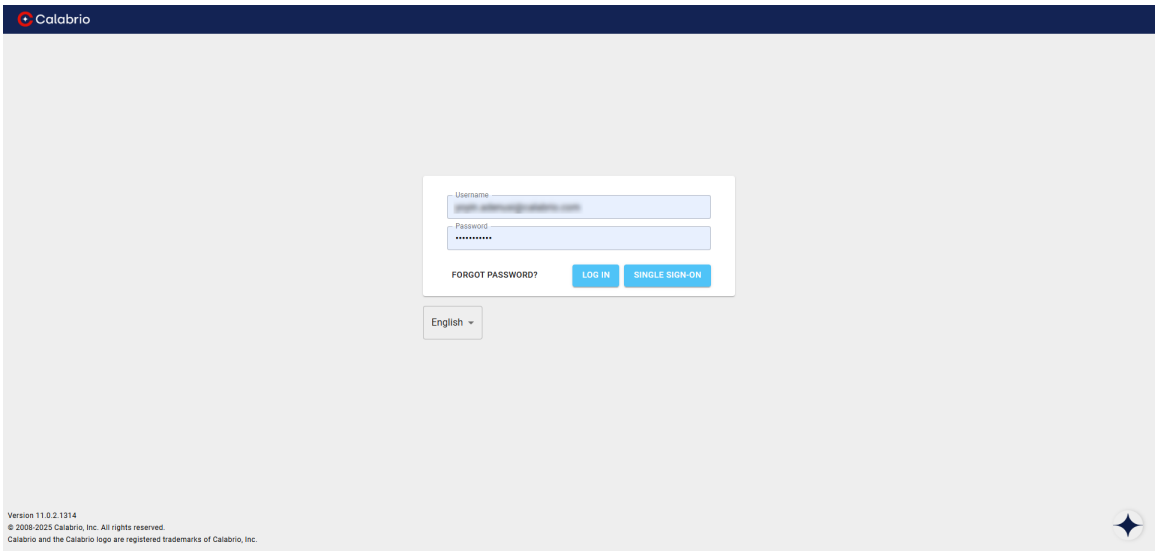
  Where [placeholder] is the unique subdomain for your organization's tenant account.

- Your tenant subdomain URL is located at **Application Management** > **Administration** > **Global Settings** > **Tenant Subdomain URL** as a read-only field.
- If your login page looks like the image below, and your login URL does not have a unique subdomain, then refer to Log in to Webex WFO for information relevant to your organization.



- If your login page looks like the image below, then you are on the legacy login experience. Refer to Log in to Webex WFO for information relevant to your organization.



WFM only:

- If your organization only uses Cisco Teleopti WFM, then refer to Log in to Cisco Teleopti WFM for information relevant to your organization.
- If your organization uses Azure Virtual Desktop (AVD) to access WFM, then refer to Guidelines for accessing WFM through Azure Virtual Desktop (AVD) for information relevant to your organization.

Activate your Webex WFO account

Activation is a one-time process. If your account is already activated, then view the Log in to Webex WFO procedures.

Activate your Webex WFO account if you have direct login

1. Navigate to the login URL for your organization.
2. Enter your email address.
3. Click **Forgot my password!**.
4. Enter your email address. This email address must match the email address of your Webex WFO user identity that your administrator created.
5. You receive an email, and you must click the link in the body of the email.
6. You are routed to a webpage where you must enter your new password. Follow the on-screen prompts. Enter a unique password that follows the password complexity requirements detailed in Password complexity requirements. After you successfully complete this procedure, proceed to one of the Log in to Webex WFO procedures.

Activate your Webex WFO account if you have SAML Single-Sign-On (SSO)

1. Navigate to the login URL for your organization.
2. Enter your email address. You are redirected to your identity provider (IdP).
3. Follow the onscreen prompts to log in using your IdP. Afterwards, you are routed back to the Webex WFO login page. No further steps are required.

Log in to Webex WFO

Log in to Webex WFO with your Webex WFO credentials (direct login)

Follow this procedure if your organization does not use an external identity provider.

1. Navigate to the Webex WFO login page using the URL unique to your organization.
2. Enter the email address associated with your Webex WFO user account.
3. Click **Next**.
4. Enter the password associated with your Webex WFO account.
5. Click **Next**. If successful, you are directed to Webex WFO.

Log in to Webex WFO using your organization's external identity provider

Follow this procedure if your organization uses an external identity provider.

1. Navigate to the Webex WFO login page using the URL unique to your organization.
2. Enter the email address associated with your Webex WFO user account.
3. Click **Next**.
4. Click **Company Login**. You may see a **Direct Login** or **Company Login** button depending on your organization.

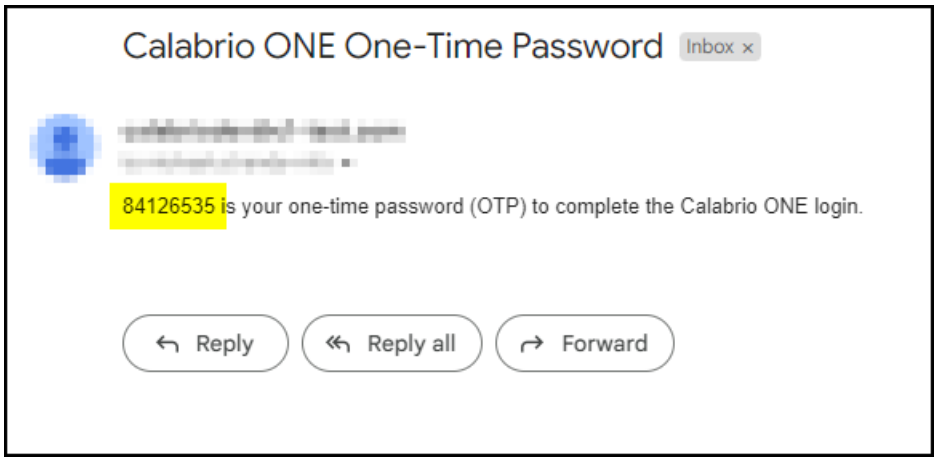
> **NOTE** You may be redirected to your organization's external identity provider to log in. If so, follow the onscreen prompts to complete the log in process.

Log into Webex WFO using multi-factor authentication

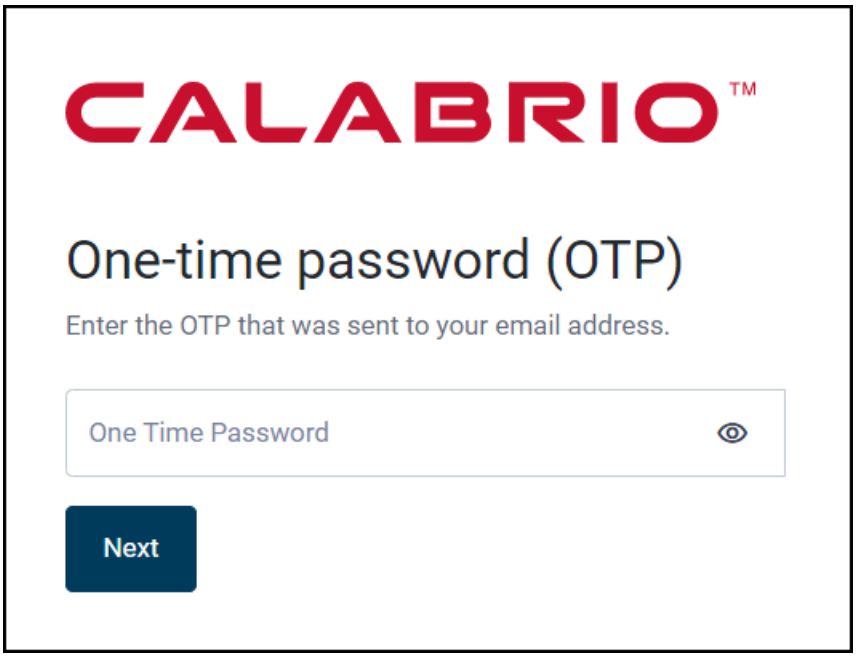
Follow this procedure if your organization uses multi-factor authentication.

1. Navigate to the Webex WFO login page using the URL unique to your organization.
2. Enter the email address associated with your Webex WFO user account.
3. Click **Next**.
4. Enter the password associated with your Webex WFO user account.
5. Webex WFO automatically sends an email to your account with a one-time password from "supportservices_noreply@calabriocloud.com". Open the email and copy the one-time password located in the body of the email.

> **IMPORTANT** The password expires in five minutes.



6. Enter the one-time password on the Webex WFO login page.



7. Click **Next**. If successful, you are directed to Webex WFO.

NOTE If you do not receive a one-time password email within one minute, check your spam folder or work with your IT administrator to ensure the one-time password email from "supportservices_noreply@calabriocloud.com" is not blocked.

Password complexity requirements

Passwords must conform to the following rules.

- Must be a minimum of 8 characters.
- Must contain at least one of each of the following.

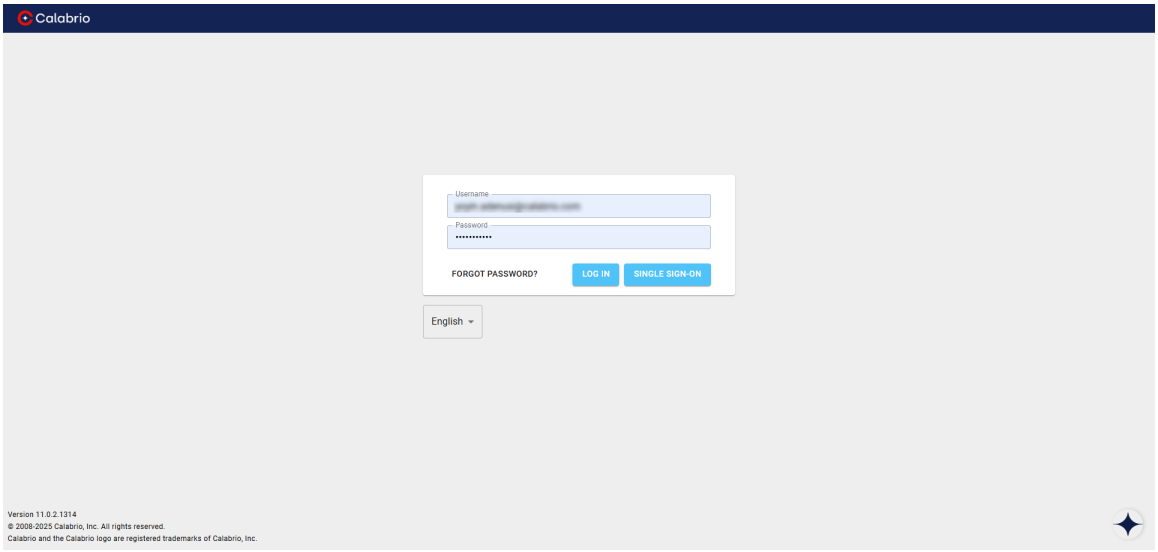
  Uppercase letters
  Lowercase letters
  Numbers 0-9
  Special characters ! # $ % & ( ) , . / : ; = ? @ ^ ` |

- Cannot contain your name or email address.

NOTE Passwords do not expire.

Legacy login only

The following rules only apply to the legacy login page. These rules apply when you create or edit a user, or when you change or reset a password.



Example legacy login page

These rules apply only where you configure a password that is controlled by Webex WFO. If a user enters a password for an external system that is not controlled by Webex WFO, Webex WFO will not validate the password (for example, ACD configuration).

NOTE A user can be created without a password (manually or automatically via ACD sync). A user without a password cannot log in. That user must use the “Forgot Password” link and set up a password.

- Passwords cannot contain any white spaces (blanks).
- Passwords must be at least eight characters long. An administrator can increase the minimum length on the Password Policy page in Application Management.
- Passwords must contain characters from three of the following four categories:

Category	Description
Uppercase letters	A–Z Uppercase unicode characters: http://www.fileformat.info/info/unicode/category/Lu/list.htm
Lowercase letters	a–z Lowercase unicode characters: http://www.fileformat.info/info/unicode/category/Lu/list.htm
Numbers	0–9
Special characters	The following characters are allowed for a tenant database password: `! # $ % & ( ) , . / : ; = ? @ ^ ` |` The following characters are allowed for all other passwords: `! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [ ] ^ _ ` { | } ~`

Related topics

- Log in to Webex WFO
- Set up IAM authentication
- Configure SAML authentication
- Troubleshoot login issues

Troubleshoot login issues

IMPORTANT Before a user can log in, an administrator must create an identity for the user in Webex WFO. Administrators must navigate to Application Management > User Configuration > Users to create new users.

IMPORTANT A user's email addresses must be valid and configured on the customer SMTP prior to adding a new user to Webex WFO or updating an existing user's email address in Webex WFO. Otherwise, Webex WFO cannot send emails to the user's email address. This message is only applicable to organizations that have configured users to receive activation and welcome emails to set their passwords.

These troubleshooting procedures only apply to the legacy login experience detailed in Log in to Webex WFO. These procedures are not applicable to the subdomain-based login experience detailed in Log in to Webex WFO with your subdomain URL.

Troubleshooting

Activation link expired

The link in your activation email can only be used once, and it works for 24 hours. If you were not able to use the link in your activation email follow the procedure below.

1. Navigate to the Webex WFO login page.
2. Enter your email address.
3. Click **Next**.
4. Click **Direct Login**.
5. Click **Forgot my password!**. Follow the prompts to create a new password. This will activate your account.

Homepage error

You log in but there are no tabs in the navigation bar. You see the following message. “This user does not have permission to access this application. Please contact your system administrator and ensure that your license is configured correctly.”

1. Log out of Webex WFO by hovering over your name in the upper right-hand corner.
2. Click **Log out**.
3. Clear all cache and cookies for the Webex WFO site and try again.

   NOTE The method for removing cache and cookies varies depending on your web browser.

You did not receive an activation email or forgotten password email

1. Check your email spam folder or junk folder.
2. Ensure that the email address “supportservices_noreply@calabriocloud.com” is not blocked by your IT department.
3. Check that the email address is in the **Identity logon** or **Application logon** column and is correctly spelled in the People module in WFM and in the Users section in Application Management in Webex WFO.

Your email address is incorrect

- Check that the email address is in the **Identity logon** or **Application logon** column and is correctly spelled in the People module in WFM and in the Users section in Application Management in Webex WFO.

Merge multiple duplicate users

Both sets of users must be active. One set of users must *not* be synced from an ACD.

1. Select **Merge multiple duplicate users at once**. Webex WFO looks for possible matches based on first name and last name. Results appear in the table. The arrow points to the primary user, who will remain active after the merge. This user’s name also appears in bold.
2. (Optional) To remove a set of duplicates from the merge, clear the check box next to the name.
3. (Optional) To change which user is the primary user, click the arrow. The arrow changes directions, and the other user’s name now appears in bold.
4. Click **Save**. A confirmation dialog opens.
5. Click **Yes**.

Related topics

- Configure SAML authentication
- Log in to Webex WFO
- Move an agent to a non-agent role or a different business unit

Your homepage dashboard

Your homepage dashboard is powered by Data Explorer and is customized to your role. Your role and permissions determine how the homepage works. Some users can create their own homepage, while others can view one or more homepages supervisors and administrators create and share.

Prerequisites

- You have valid Webex WFO login credentials
- A supervisor or administrator has created a dashboard for your role
- Administer Dashboards permission (optional)
- View WFM Dashboard permission (required for WFM users to see a homepage dashboard)
- View QM Dashboard permission (required for QM users to see a homepage dashboard)

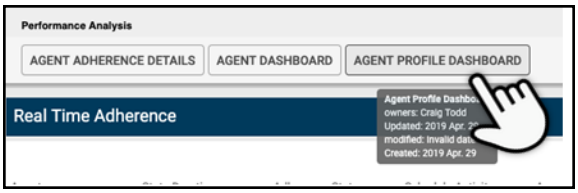
Page location

Home

Procedures

View another dashboard

If you have access to multiple dashboards, you will see buttons with the different dashboard names at the top left of the home page. Click the button for the desired dashboard. The dashboard you select becomes the one that is displayed when you log in or return to the homepage from elsewhere in Webex WFO.



Create your own dashboard

If the toolbar at the top of the page includes Data Explorer, you have permission to use it to create your own dashboard and homepage. The Related Topics section lists topics that can help you create your own dashboard.

Related topics

- Manage the list of Data Explorer dashboards and reports
- Create a Data Explorer report
- Create a dashboard
- Set your homepage

Learn more about Webex WFO with TIP

With TIP, users receive timely contextual assistance based on their needs. This content sits within the application, giving users the advice they need when they need it. Use TIP to ease onboarding.

Information in TIP varies based on the Webex WFO permissions you have. Agents do not see as much content as administrators.

TIP cannot be turned off for individual users or roles.

Prerequisites

- Your organization uses Webex WFO Cloud.

Page location

All pages > star icon (lower right corner of the page)



Procedures

Access TIP

- Click the star icon (lower right corner of the page). TIP opens.

To do this	Go to this section in TIP
Take an orientation tour	Get Started This section is designed for people new to Webex WFO. Tours vary by page and are tied to users' permissions. Orientation tours are available in several languages based on the user's browser settings. See "Localization and supported languages" in the *Webex WFO Installation Guide for Cloud Deployments* for a list of available languages.

Configure notifications

Webex WFO can inform users about system events via messages called notifications.

The notifications can be in real time or delivered in summary form on a schedule you set up.

Notification recipients are organized in notification groups. The group defines the type of event that triggers a notification, the members of the group (just yourself or multiple members), how often you receive notifications, and the method used to send them.

Your access to what you can configure and the method of delivery depends on your login and the permissions configured for your role. Those permissions define which system events you can be notified about.

Login Type	What You Can Configure
Non-administrator users	Notifications for yourself via alert or email
Administrators	■ Notifications for yourself via alert or email ■ Notifications for a group via email

Field descriptions

The fields on the Notifications page are described below.

Field	Description
Notification Scope	Choose the scope of the notification group: notifications just for yourself or notifications for multiple users.
Notification Group Name	A unique name for the notification group.
Notification Types	Select the type of notifications you want to receive. The types available to you are determined by the permissions set for your role on the Roles page.
Real Time Notifications	Complete this section to receive notifications in real time.
Summary	Complete this section to receive notifications as summaries.
Delivery Method	Choose the method you want to use to receive notifications. If you opt for email delivery and the notifications are just for you, not for multiple users, the email address used is the one configured for you on the Users page in the Username field.
Email Distribution List	(“These notifications are sent to multiple users” option only) In the field below the list pane, enter an email address, and then click **Add**. Once in the list pane, you can click the pencil icon to edit an address or the X icon to delete an address.
Number of Notifications	Defines how many notifications Webex WFO sends for an event. The system reports some events as they occur, while others are reported every time the system polls. By specifying this number you can make sure you are not sent many notifications for the same event.
Summary Configuration	Select the conditions under which you want to receive a summary report.
Schedule	Use this section to configure the delivery of notification summaries.

Field	Description
Send Summaries Every <time period>	Enter how often Webex WFO sends a summary to you. The default time period is every 24 hours.
Starting Date and Time	The date and time the summary period starts.

Notification types

There are three types of notifications:

- Informational—An expected event has taken place
- Warning—A condition exists that will lead Webex WFO to stop working if it is not corrected
- Error—A condition currently exists that could cause Webex WFO to stop working

Notifications can be sent in the following ways:

- Alerts displayed in the application
- Emails sent to a designated distribution list

Tenant administrator and user notifications

This table lists the notification types available when you log into Webex WFO as a tenant administrator or other user.

Notification	Description and Solution
Agent Login (Support)	**Informational:** An agent has logged in to Webex WFO. **Solution:** No action needed.
Agent Logout (Support)	**Informational:** An agent has logged out of Webex WFO. **Solution:** No action needed.
Analytics Data Server Error (Support)	**Error:** The Analytics Data Server is not communicating with the Analytics grid server. **Solution:** Check the Analytics Data Server logs, and

Notification	Description and Solution
	verify its connectivity. Check if the database is accessible.
Approaching low disk space (Support)	**Solution:** Free up used disk space or add additional storage.
Approaching recording capacity (Support)	**Solution:** Add another Record server.
Bulk Contact Export Error (Business)	**Error:** Webex WFO failed to transmit the bulk contact export file. **Solution:** Verify the bulk contact export target location settings.
Bulk Contact Export Success (Business)	**Informational:** Your Webex WFO bulk contact export request was successful. **Solution:** No action needed.
Capture Plugin Data Server Error (Support)	**Error:** The capture Data Server is not communicating with the Webex WFO Application server. **Solution:** Check the capture Data Server logs, and verify its connectivity. Check if the database is accessible.
Cisco JTAPI Install Failure (Support)	**Error:** Your Cisco JTAPI installation has failed. **Solution:** Review your Cisco JTAPI installation procedures and retry the installation.
Cisco JTAPI Install Success (Support)	**Informational:** You successfully installed Cisco JTAPI. **Solution:** No action needed.

Notification	Description and Solution
Client Installation Error (Support)	**Error:** Webex WFO was not installed correctly on desktop. **Solution:** Verify the Smart Desktop installation. Refer to the *Installation Guide for Cloud Deployments* for more information.
Contact Goal All Users Completed (Business)	**Informational:** Alerts the goal creator and all users assigned to a Contact Goal when all tasks in the Contact Goal are completed. **Solution:** No action needed.
Contact Goal Completed (Business)	**Informational:** An agent has successfully completed his or her Webex WFO QM contact goals. **Solution:** No action needed.
Contact Goal Created (Business)	**Informational:** You have successfully created a Webex WFO contact goal. **Solution:** No action needed.
CTI Plugin Data Server Error (Support)	**Error:** The CTI Data Server is not communicating with the Webex WFO Application server. **Solution:** Check the CTI Data Server logs, and verify its connectivity. Check if the database is accessible.
Data Server Connected (Support)	**Informational:** A Data Server has been connected to Webex WFO. **Solution:** No action needed.
Data Server Disconnected (Support)	**Error:** A Data Server is not communicating with the Webex WFO Application server.

Notification	Description and Solution
	Solution: Check the Data Server logs, and verify its connectivity. Check if the database is accessible.
Data Server Missed Heartbeat (Support)	**Error:** A CTI Server, SIPREC Signaling Server, or Recording Server has been disconnected from the wfoadapter server for at least ten minutes. A tenant task checks the server connection every five minutes. If the connection fails two of these checks, Webex WFO sends this alert and continues to send the alert every five minutes until the server is reconnected. **Solution:** Check that the server computer is running. Check that the server service is running. Check that the server computer is connected to the network and can access the wfoadapter server via the network.
Delayed Storage Retrieval Complete (Business)	**Informational:** Your data in storage has been successfully retrieved. **Solution:** No action needed.
Desktop Client Async Logs Complete (Support)	
Desktop Client Async Logs Error (Support)	
Evaluation Appeal Request (Business)	**Informational:** Either of the following occurred: ▪ A user appealed an evaluation that you completed. ▪ A user appealed an evaluation completed by someone else, but you have both scope over the evaluated contact and the Edit Any Evaluation permission.

Notification	Description and Solution
	Solution: Review the evaluation and any comments entered by the user.
Evaluation Audit (Business)	**Informational:** An evaluation you are associated with has been updated. This notification is sent to both the agent associated with the contact and the person who updated the evaluation. **Solution:** No action needed.
Evaluation Needs Approval (Business)	**Informational:** A Webex WFO QM user has completed an evaluation. **Solution:** Save the evaluation.
Exceeded low disk space (Support)	**Solution:** Free up used disk space or add additional storage.
Exceeded recording capacity (Support)	**Solution:** Add another Record server.
externalStorageLocationError (Support)	**Error:** During a run of the Archive Contact Handler task, Webex WFO encountered an error connecting to an external storage location. **Solution:** Check the configuration of your external storage location and test your connection to it.
Failed to Capture Desktop (Support)	**Error:** A Webex WFO QM user cannot make desktop recordings. **Solution:** Verify the Webex WFO Smart Desktop configuration.
Failed to Record Screen (Support)	**Error:** The alert reads as follows: **EXAMPLE** Desktop Event: <version number> -

Notification	Description and Solution
	Screen Recording failed to start. This notification occurs when a user has failed to record screen for a single call. The user is configured correctly to record screen, and the Smart Desktop attempted to record screen, but the attempt was unsuccessful. **Solution:** If the problem occurs consistently for a single device using Desktop Recording, verify the installation of the service on that PC. Uninstall the Smart Desktop, restart the PC, and reinstall the Smart Desktop on the affected PC. Contact Support if the problem persists.
Failed to Record Voice (Support)	This notification is caused either by an error originating from Smart Desktop or from CTI Signaling. **Smart Desktop** **Error:** If Smart Desktop is the cause of the error, the alert reads as follows: **EXAMPLE** Desktop Event: <version number> - Voice Recording failed to start. This notification occurs when a user has failed to record voice for a single call. The user is configured correctly to record voice, and the Smart Desktop attempted to record voice, but the attempt was unsuccessful. **Solution:** If the problem occurs consistently for a

Notification	Description and Solution
	single device using Desktop Recording, verify the installation of the service on that PC. Uninstall the Smart Desktop, restart the PC, and reinstall the Smart Desktop on the affected PC. Contact Support if the problem persists. If this problem occurs on many phones in a Server Recording environment, verify the service is not running near capacity and that the configuration is correct. Contact Support if the problem persists. **CTI Signaling** **Error:** If CTI Signaling is the cause of the error, the alert reads as follows: **EXAMPLE** Signaling Server Event: Voice recording failed to start. This notification occurs when the CTI Signaling server could not initiate a call with an associated recording server. The "Details" line of the event message indicates one of two categories for this failure: "Details: No SIP INVITE"—This error occurs when the CTI Signaling server did not receive a SIP INVITE message from the CTI signaling JTAPI source. ■ **Solution**: If this problem persists, check the CTI data server logs to ensure the CTI data server is receiving SIP signaling messages from the CTI signaling source. "Details: No connected client"—This error occurs

Notification	Description and Solution
	when the Signaling server is not connected to any recording server associated with the device. ▪ **Solution**: Check the CTI data server logs to find out what recording servers are associated with this device. Ensure they are running, and the signaling server and recording servers are connected.
FTP Plugin Data Server Error (Support)	**Error:** Webex WFO was unable to transfer data from the data server. **Solution:** Check the Data Server error logs. Verify communication with the data server.
Major record server overload (Support)	**Solution:** Add another Record server or contact Webex WFO support.
Major recording upload backup (Support)	**Solution:** Add another Record server or contact Webex WFO support.
Minor record server overload (Support)	**Solution:** If you receive this notification frequently, add another Record server or contact Webex WFO support.
Minor recording upload backup (Support)	**Solution:** If you receive this notification frequently, add another record server or contact Webex WFO support.
My Scored Evaluation (Business)	**Informational:** An evaluation of a contact that you handled has been completed or edited. **NOTE** If the evaluation requires approval, you receive this notification when the evaluation has been approved. **Solution:** No action needed.

Notification	Description and Solution
No Phone Detected (Support)	**Error:** The Smart Desktop listened for a daisy-chained phone but did not find one after six minutes. This results in the service not recording. The most likely cause is the phone is not properly daisy-chained to the PC or the device is not configured to send its RTP traffic to the PC. This is a useful message for deployments or if the phones are continuously connected to the PCs that record them. If PCs are routinely disconnected from the phones, you might want to consider disabling this problem. **Solution:** Disable this problem if PCs are disconnected from phones. Otherwise, check the configuration of the device in Unified CM and verify 'SPAN to PC Port' is set to 'Enabled.' Check the physical connection between the PC and phone to verify they are daisy-chained correctly. See the Webex WFO*Installation Guide for Cloud Deployments* for information on configuring the hardware for Desktop Recording.
QM Voice Processing (Business)	**Informational:** An agent has logged on to Webex WFO. **Solution:** No action needed.
Reconciliation Completed (Business)	**Informational:** This notification alerts you every time a reconciliation job completes successfully. It includes the job number and the job's start and end time. **NOTE** To assign this notification, you must have the Administer QM and the Receive Business Notifications permissions. Only assign this

Notification	Description and Solution
	notification if your contact center has a recording architecture that requires reconciliation. **Solution:** No action needed.
Recording Export (Business)	**Informational:** Your contact export request completed successfully, and your contact is ready for download. **Solution:** No action needed.
Recording Maximum Length Error (Support)	**Error:** A recording has reached your organization's maximum call length as configured on the QM Global Settings page. **Solution:** Review the recording to determine whether the contact was actually longer than your max call length or whether the recording length is an error and the recording should have stopped sooner. If the recording length is an error, that usually means that Webex WFO did not receive a call end event from your signaling provider. If you get this notification multiple times, there may be a problem with your signaling provider.
Retrieve Data Server Logs Error (Support)	**Error:** Your request for Webex WFO Data Server logs could not be completed. **Solution:** Verify the Data Server connectivity. Check if the database is accessible. if the issue persists, contact Support.
Retrieve Data Server Logs Success (Support)	**Informational:** Your request for Webex WFO Data Server logs completed successfully.

Notification	Description and Solution
	Solution: No action needed.
Signaling Server Active (Support)	**Informational:** A signaling server has become active. **Solution:** No action needed.
Signaling Server Forced Standby (Support)	**Error:** The signaling server has entered forced standby and is inactive. **Solution:** Check the signaling server logs for further information.
Signaling Server Uncontrolled Failover (Support)	**Error:** The active signaling server failed, and the standby signaling server is now active. **Solution:** Check the signaling server logs for further information.
Signaling Server Maintenance Failover (Support)	**Error:** The active signaling server entered maintenance mode, and the standby signaling server is now active. **Solution:** Check the signaling server logs for further information.
Signaling Server Telephony Provider Failed (Support)	**Error:** The signaling server lost its connection to the telephony provider and is inactive. **Solution:** Check the signaling server logs for further information.
stagedUploadServerConnectionFailure (Support)	
Sync Plugin Data Server Error (Support)	**Error:** The Sync service has failed. **Solution:** Perform the following steps:

Notification	Description and Solution
	1. Verify that the Sync service is running. 2. Verify that you can communicate with the server on which the Sync service is installed. 3. Check the Sync service logs.
Two Stage Plugin Data Server Error (Support)	**Error:** An error has occurred in the two-stage data upload process. **Solution:** Check the Data Server logs. If the issue persists, contact Support.
Unexpected Error on Desktop (Support)	**Error:** An unexpected error occurred executing a task. **Solution:** Check the desktop debug file for the reason associated with this error. Restart the agent's desktop. If the issue persists, contact Support.
Voice Packets Not Received (Support)	**Error:** Webex WFO has not received packets on the SPAN port. When you are monitoring an agent's customer contact, you can hear nothing. After 15 seconds, an error message indicates no packets are being received. Your attempt to record the agent's customer contact results in an empty recording. **Solution:** Verify the following: ■ PC Port ■ PC Voice VLAN Access ■ Span to PC Port ■ Device Security Mode Also, verify the configuration of the agent's phone codecs.

Related topics

- Turn on schedule change notifications—Notify agents of changes to their schedules
- Notify agents—Notify WFM agents by SMS or email: for example, that more agents are needed in the afternoon or that extra hours are available

WFM functionality overview

Cisco WFM is designed for the modern contact center and the modern workforce. It provides tools to empower the agents to improve their work-life balance, tools to help team leaders support their teams, tools for forecasters to quickly generate accurate forecasts, and tools for resource planners to create schedules that takes both the forecasted resource need and the agents' work rules and wishes into consideration.

Click the links below to learn more about the functionality of each tool and module in Cisco WFM.

WFM Web tools

- Adherence tool
- Forecasts tool
- Gamification tool
- Intraday tool
- Meetings tool
- MyTime tool
- People tool
- Permissions tool
- WFM standard reports
- Requests tool
- Schedules tool
- Manage sessions
- Shift Bidding tool
- Staffing tool
- WFM settings

WFM client modules

- Budgets module
- Forecasts module
- Payroll Integration module
- People module
- Schedules module
- Shifts module
- Options

View your schedule

View your schedule in MyTime. Use the week view to see the schedule with all details or the month view for a high-level overview.

In the week view, each day has a header and today's date is highlighted in blue. If there is a defined bank holiday within the period, the date is marked in red. The header shows the shift category, the start and end times of the shift and the total contract time. If the day contains scheduled overtime, this is also stated here.

The shifts are shown with the start and end time for all activities. If the activities are too short to display any text, hover the activity for the type of activity and the start and end time. If an activity has diagonal stripes, it is an overtime activity.

Show staffing information to indicate the probability to have time off or to work extra time. Use the week view to request time off or to work extra hours, but also to report that you are ill or enter when you are available to work overtime.

The month view gives an overview of the schedule for a full month. For shifts, the shift category is shown and indicated by color. The start and end times of the shift and the shift contract time are also shown. Days off are indicated by diagonal stripes.

Prerequisites

- You have the Global functions > View schedules permission.
- You have the MyTime permission.
- To see the probability to have time off, you need to have the MyTime > View staffing permission and the **Enable absence probability** check box must be selected on your workflow control set.

- To see the probability to work extra time, you need to have the MyTime > View staffing permission and the **Enable overtime probability** check box must be selected on your workflow control set.

Page location

WFM > MyTime > Schedule tab

Procedures

Show notes

An exclamation mark icon below the day header indicates that there is a public note on that day. Hover the icon to show the note.

Move your lunch or short break

Adjust the position of your own lunch or short break.

- Read more in Move your lunch or short break.

Show probability to have time off or work extra hours

Staffing info is shown as green or yellow bars next to the shifts in the week view. They indicate the probability to work extra hours or to have time off.

- To show the probability to have time off, click to open the **Staffing info** menu and select **Show absence probability**.
- To show the probability to work extra time, click to open the **Staffing info** menu and select **Show overtime probability**.
- To remove all staffing info, click the menu and select **Hide staffing info**.

NOTE There is another type of absence probability for time periods where absence request approval is based on budget allowance. Read more in Absence probability overview.

Initiate an action for a certain day

There are several actions that can be initiated from the week view.

NOTE Click the respective links below for more details on that action.

- Click the shift or the pen button to initiate one of these actions for that day.
  - Select the **Self-scheduling** tab to Move your lunch or short break or to Schedule your own work hours.
  - Select the **Absence** tab to Request time off for the whole day or part of the day.
  - Click **Overtime** to create and Request to work extra hours.
- Click the + button to initiate one of these actions for that day.
  - Click **Overtime availability** to Enter availability to work overtime.
  - Click **Text request** to create and Send a text request.
  - Click **Absence request** to create and Request time off for one or several days.
  - Click **Post shift for trade** to Post your shift to the shift trade board.
  - Click **Absence reporting** to Report that you are ill.

Related topics

- View your team's schedule
- Monitor your schedule while working

View your team's schedule

See how your team is working on any day in the team schedule view in MyTime. If you have access to see the schedule for additional teams, you can select to seem them here.

Prerequisites

- You have the Global functions > View schedules permission.
- You have the MyTime permission and the underlying Team schedule permission.
- To filter agents based on group pages, you need to have the MyTime > Team schedule > View all group pages permission.

Page location

WFM > MyTime > Team schedule tab

Procedures

Select team to view

When you access the team schedule view, your own team's schedule is shown by default. Select to show another team or a group page.

1. Click to open the drop-down menu.
2. Select another team or a group page or select to show all teams.

Filter shifts based on start and end time

If a team or group has many scheduled agents, filter the shifts based on start and end time.

> **NOTE** When a filter is active, an orange circle shows on the **Filter** button. Hover the **Filter** button to read the details.

1. Click **Filter**.
2. Set the filter for the start time. Adjust the **Start time** sliders to set the earliest and latest start time.
3. Set the filter for the end time. Adjust the **End time** sliders to set the earliest and latest end time.
4. Click **Search** to show the shifts that are within the set start and end time intervals.

Show night shifts only

Use the night shift toggle to show only agents working night shifts.

1. Click **Filter**.
2. Click the **Show only night shifts** toggle.
3. Click **Search** to show the night shifts.

Show days off only

Use the day off toggle to show only agents who have a day off.

1. Click **Filter**.
2. Click the **Show only days off** toggle.
3. Click **Search** to show the days off.

Search for an agent

Use the search field to search for a specific agent.

1. Click the **Search name** field.
2. Enter the name to search for.
3. Select the **Enter** key.

Related Topics

- View your schedule
- Monitor your schedule while working
- Trade shifts with other agents
- Check the shift trade board for trades
- Post your shift to the shift trade board

Monitor your schedule while working

Use the Agent schedule messenger (ASM) to monitor your schedule when working in another system. ASM is shown in a small window that only takes up a small part of your screen while it still gives you the most important information.

Prerequisites

- You have the MyTime > Agent schedule messenger permission.

Page location

WFM > MyTime > Agent schedule messenger

> **NOTE** To open Agent schedule messenger, click to open the menu next to your name and select **Agent schedule messenger**.

Procedures

Monitor your schedule

Use ASM to monitor important information related to your schedule.

- View your shift for today. The vertical line indicates current time.
- Hover any activity to view the start and end time of that activity.

- Get notifications when it's time to switch to another activity or take a break, and when there is a change in your schedule for today or tomorrow.

  NOTE
  - The schedule change notifications for today and tomorrow are shown also in the main MyTime view.
  - If no notifications are shown, confirm that notifications are turned on in your browser and in your operating system.

- If you have received a message, an envelope is highlighted and blinking. The number of messages is shown next to the envelope. Click the envelope to go to the **Messages** view.

Related topics

- View your schedule
- View your team's schedule
- Handle messages

Share your schedule

Subscribe to your MyTime schedule from a private calendar, for example Outlook calendar or Google calendar, to help manage your work-life balance. Share the link with someone else to give them access to your schedule.

NOTE Subscribing to your calendar from a calendar app gives the calendar app the possibility to load your schedule from MyTime. How often the calendar app loads the schedule depends on the calendar app and cannot be changed in MyTime. This means that if your schedule is changed, it might take time before this change is shown in your calendar app, if it only loads changes for example once a day.

Prerequisites

- You have the MyTime > Share calendar permission.

Page location

WFM > MyTime

Procedures

Subscribe to your schedule from a calendar app

Subscribe to your work schedule from a private calendar app or set this up for your spouse or a friend that you want to share your schedule with.

1. Click your name to open the menu and select **Settings**.
2. Select the **Share my calendar** check box.
3. Copy the calendar URL.
4. Load the schedule to your calendar app. Choose an instruction below depending on which calendar app you use.

    - **Google Calendar**

      In Google Calendar, under Other Calendars choose Add by URL. Paste the calendar URL and click Add calendar.

      > **NOTE** If this does not work, shorten the URL (see instruction below) and try again with the shortened URL.

    - **Android devices**

      Use Google Calendar as described above.

    - **iPhone**

      Under Settings choose Email, Contacts and Calendars. Click Add Account, select Other, then under Calendars select Add Subscription Calendar. Paste the calendar URL, click Next and then Done.

    - **Outlook 365 Calendar**

      Go to Calendar. From Home tab, choose Add Calendar and then From Internet. Paste the calendar URL and click OK.

    - **Outlook 2019/2016/2013 Calendar**

      Go to Calendar. From Home tab, choose Open Calendar and then From Internet. Paste the calendar URL and click OK.

    - **Outlook 2010 Calendar**

Go to Calendar. In Folder tab, choose Open Calendar and then From Internet. Paste the calendar URL and click OK.

- **Outlook 2007 Calendar**

  In the Tools menu, click Account Settings. Choose the Internet Calendars tab and click New.... Paste the calendar URL and click Add. Give the calendar a name and description and click OK.

Shorten the calendar URL

To subscribe to your schedule from Google Calendar or Android devices, you sometimes need to shorten the URL.

1. Copy the URL from MyTime according to the instruction above.
2. Search online to find a URL minifier. It can also be called URL shortener.
3. Paste the URL in the field and click **Shorten** (or the equivalent).
4. Copy the shortened URL
5. Paste it in the settings of Google Calendar or your Android device according to the instructions above.

Stop sharing your schedule

If you want to stop sharing your calendar with one or more people, follow these steps.

1. Click your name to open the menu and select **Settings**.
2. Clear the **Share my calendar** check box. Your schedule is now not shared with any external calendars.
3. If you want to continue sharing your schedule with some calendars, you must create a new URL and add it to your private calendar app.
    1. Select the **Share my calendar** check box again.
    2. Add the new URL to your private calendar according to the instruction above.

Related topics

- View your schedule

Download and set up the MyTime app

Use the MyTime app to access MyTime when you are not in the office, for example to check your schedule or send an absence request. You receive a notification from the app when there are new messages in MyTime, for example when a request is approved or when an administrator has sent a message.

Prerequisites

- You have an Android phone or an iPhone. iPhones must be running iOS 16.7.7 or later. Android phones must be running Android Nougat (Android 7.1) or later. Earlier versions are not supported.
- You have the MyTime > View guide for mobile app permission.
- You can log in to MyTime without being physically in the office. If you can't do this, or if you need to log in to your employer's network first, you might not be able to use the app. Reach out to your supervisor or IT support if you have trouble downloading or logging in to the app.

Page location

WFM > MyTime

Procedures

Download the MyTime app

Start by downloading the app to your mobile phone.

1. Search to find the MyTime app on App Store or Google Play.
2. Click to download and install the app.
3. See the instruction below for configuration of the app.

Set up the MyTime app

Add the URL to your app to log in to the MyTime app.

1. On MyTime on desktop, click your name to open the menu and select **Install mobile app**.
2. If there is a message from your organization with details regarding the usage of the app, ensure to read it.
3. Click **Next**.
4. Open the MyTime app on your mobile phone.

5. Read the privacy policy and choose if you want to allow usage statistics and any crash reports to be sent to the developers of the app.
6. Select the QR code icon and select to enable camera.
7. Use the mobile phone camera to scan the QR code in MyTime on desktop to automatically add the correct URL to your app settings. If scanning the QR code scanning does not work, you can manually enter the URL shown in MyTime on desktop.
8. Select **Save** (iPhone) or **Set up URL** (Android).
9. Enter your username and password to log in to the MyTime app.
10. Select **Remember me** if you want to log in automatically when you start the app.

NOTE If your company uses a different URL for external access than for access from the local network, you must enter the external URL manually. Ask your manager for the correct URL.

Change the URL in the MyTime app

Change the URL if it is changed or if it was incorrectly set up.

1. Start the MyTime app
2. Tap the screen quickly three times.
3. Select the MyTime URL.
4. Remove the previously set URL and then follow the instruction above to configure a new URL.

Related topics

- Share your schedule

Move your lunch or short break

Move your lunch or short break yourself with the self-scheduling functionality.

The self-scheduling functionality is available in the MyTime week view and in the day view on the mobile app. You can just select the lunch or short break and move it to the position you want by drag and drop.

The possibility to move lunches and short breaks is available for today and the next six days.

Prerequisites

- You have the Global functions > View schedules permission.
- You have the MyTime > Self-scheduling permission and the underlying Move lunch and Move short break permissions.
- The **Report as** setting must be set to **Lunch** or **Short break** in Options > Scheduling > Activities for the lunch and short break activity types to move.

Page location

WFM > MyTime > Schedule tab

Procedures

Move lunch or short break

Move your own lunch or short break. Each move is validated based on staffing levels and work time settings. The staffing levels for both the original position and the new position for the lunch or short break affect the possibility to move it.

1. Click the pen button for the day where you want to move the lunch or a short break. A pop-up view opens.
2. Select the lunch or short break to move and move it to the position you want. You can move it by 5-minute increments.

   NOTE Time periods which are not available to move to are indicated with diagonal stripes. If you hover the lunch or break over a period that is not available, a message is shown to explain why you can't make the move.

3. Click **Yes** to confirm the move.

Related topics

- How moving lunches and short breaks works
- View your schedule

Schedule your own work hours

Schedule your own work hours with the self-scheduling functionality.

The self-scheduling functionality is available in the MyTime week view and in the day view on the mobile app. Select to add hours and then adjust the duration and move the work hours to the position you want by drag and drop.

Your organization controls for which period you can add hours. Hours cannot be added on days off.

The staffing levels affect for what times you can add hours. The staffing bar next to the shift is green where it is more likely for your hours to be approved. If several of the selected intervals are yellow, a message is shown to inform you that you might not be able to add hours for the selected part of the day. If you still can depends on the balance between green and yellow intervals, and where any lunch and short breaks are placed.

Time periods which are not available to add hours to at all are indicated with diagonal stripes. If you hover the hours to add over a period that is not available, a message is shown to explain why you can't add hours there. This could be for example because it would break the nightly rest.

Short breaks or lunch breaks might be added automatically if you exceed a defined number of work hours. This limit is set by your organization. If you have reached the number of hours where a lunch break is added, this is shown in a message within the block of time to add.

Prerequisites

- You have the Global functions > View schedules permission.
- You have the MyTime > Self-scheduling permission and the underlying Add hours permission.
- The schedule is published for the period where you want to add hours.
- Forecasts are generated for your skills.

Page location

WFM > MyTime > Schedule tab

Procedures

Add hours

Add your own work hours when it is suitable for you. Work hours can only be added if there is a staffing need for a large enough part of the time that you add. The staffing bar indicates where staffing is needed.

> **NOTE** A few yellow intervals on the bar might not block you from adding work hours, as long as you have enough green intervals to balance them, or if a lunch or short break can be placed at the times of the yellow intervals.

1. Click the pen button for the day where you want to add hours. A pop-up view opens.
2. Click the **Add hours** button.
3. A block of time is shown. Click in the middle of it to drag the whole block to a different time, or use the handles to move the start or end time.
4. Click **Add hours**.

   If the hours to add pass all validations, a message is shown that it is approved and the hours are added to your schedule.

Related topics

- How adding hours works
- View your schedule

Trade shifts with other agents

Trade shifts with another agent to get a shift that suits you better, for example to get a shift with a later start time.

There are different ways to trade your shift.

- Send a shift trade request to another agent, described on this page.
- Check the shift trade board for trades to see if someone wants to trade a shift that you want.
- Post your shift to the shift trade board, with conditions for what type of shift you want in return.

With shift trade requests, you can trade more than one day if needed. This is often necessary to trade days off and still fulfill the contract time for the period. It is also useful to set up a trade that is more likely to be accepted, for example "If you work my late shift on Wednesday, I will work your late shift on Thursday."

When you send a request to trade shifts with another agent, they get a message. If the other agent approves it, the request will go through several validations to ensure it does not break any work rules. If the request passes the validation, the trade either happens immediately or the request is sent for administrator approval.

Prerequisites

- You have the MyTime > Shift trade requests permission.
- To enter a subject or message, you have the MyTime > Free text in requests permission.
- A period is open for shift trade requests in your workflow control set.
- If there are restrictions on who you can trade with based on your skills, there must be agents with a matching skill setup for you to trade with.

Page location

WFM > MyTime > Requests tab

Procedures

Request to trade shifts with another agent

Send a shift trade request to another agent to get shifts that suit you better.

1. Select **Shift trade request**.
2. Select the date where you want to trade shifts.
3. Use the filters for site, team, start and end time to find an agent to trade with.

   The contract time is shown for each shift to make it easier for you to find a suitable shift. Only agents that you have matching skills with according to the shift trade request settings will be shown.
4. Click on the shift you want. A new view opens, where the shift you chose is selected.

   > **NOTE** If the selected shift cause the period work hours to change too much, a warning is shown at the top of the screen and the send button is disabled. Click on the warning to read the details and adjust the request until the warning goes away.
5. Add more days to trade if you want to. Scroll in the list and select the check box for the days you want to trade. The shifts for that day is added to your trade cart and shown in the panel to the right.
6. Enter a **Subject** and a **Message**. These are shown for the agent you send the request to.
7. Click **Send** to send the request.

> **NOTE**
> In these situations, the day is not selectable.

- When there is an absence on that day for you or the other agent.
- When the other agent's shift starts on a different date according to your time zone.
- When the skill setup changes for you or the other agent and your skills no longer match.
- When the trade would cause your shift or the other agent's shift to end up outside of the site open hours.
- When there is a meeting, personal activity or overtime on that day and trades are not allowed in those situations.
- When there is a non-overwritable activity in the shift for you or the other agent.

Follow up on a shift trade request

Use the request list to follow up on your shift trade requests, both the ones you sent and the ones from others. In the request list you can also delete a request.

- For more information on how to follow up on a request or delete your request, see View your requests.

Related topics

- View your team's schedule
- Check the shift trade board for trades
- Post your shift to the shift trade board
- View your requests
- Post or pick up hours

Check the shift trade board for trades

Use the shift trade bulletin board to see if someone else has posted a shift that you want.

There are different ways to trade your shift.

- Check the shift trade board to see if someone wants to trade a shift that you want, described on this page.
- Send a shift trade request to another agent.
- Post your shift to the shift trade board, with conditions for what type of shift you want in return.

NOTE You will only see other agents' posts on the shift trade bulletin board if what you have scheduled for that day matches what they have said they want.

Prerequisites

- You have the MyTime > Shift trade board permission.
- To enter a subject or message, you have the MyTime > Free text in requests permission.
- A period is open for shift trade requests in your workflow control set.

Page location

WFM > MyTime > Requests tab

Procedures

Trade shifts using the shift trade bulletin board

Check the shift trade bulletin board to find shifts and send a request to trade.

1. Select **Shift trade board**.
2. Select the date when you want to trade.

   Any available trades are shown. You will only see shifts, days off and empty days available for trade if what you have scheduled for that day matches what the other agent has said they want.
3. Click the shift, day off or empty day that you want.
4. Enter a **Subject** and a **Message**. These are shown for the agent you send the request to.

   NOTE If the shift trade bulletin board trading is set to be anonymous, you cannot enter any subject or message.
5. Click **Send** to send the shift trade request.

Follow up on your shift trade request

Use the request list to follow up on your shift trade requests, both the ones you sent and the ones from others. In the request list you can also delete a request.

- For more information on how to follow up on a request or delete your request, see View your requests.

Related topics

- View your team's schedule
- Trade shifts with other agents
- Post your shift to the shift trade board
- Post or pick up hours
- View your requests

Post your shift to the shift trade board

Use the shift trade bulletin board to post a shift, day off or empty day that you want to trade.

There are different ways to trade your shift.

- Post your shift to the shift trade board with conditions for what type of shift you want in return, described on this page.
- Check the shift trade board to see if someone wants to trade a shift that you want.
- Send a shift trade request to another agent.

NOTE The other agents will only see your post on the shift trade bulletin board if what they have scheduled for that day matches what you have said you want.

Prerequisites

- You have the MyTime > Shift trade board permission.
- A period is open for shift trade requests in your workflow control set.

Page location

WFM > MyTime > Requests tab

Procedures

Post a shift for trade on the bulletin board

Post a shift for trade on the shift trade bulletin board, where other agents can see it and request to trade.

1. Select **Post shift for trade**.
2. Select the date when you want to trade. You can trade shifts, days off and empty days. You cannot trade days with any scheduled absence.
3. Define what you want in return.
    - Select **Working day**, **Day off** or **Empty day** in the drop-down menu.
    - If you want a shift in the trade, set up a time interval for the earliest **Start time** and the latest **End time**. If the latest end time is past midnight, select the **Next day** check box.
4. Set what date your **Shift trade offer is valid to**. That is the last day for other agents to reply to your post.
5. Click **Save** to post your shift for trade on the bulletin board.

Follow up on your shift trade post

Use the request list to follow up on your shift trade post. In the request list you can also delete your post if you need to.

- For more information on how to follow up on your shift trade post or delete your post, see View your requests.

Related topics

- View your team's schedule
- Trade shifts with other agents
- Check the shift trade board for trades

Report that you are ill

Report that you are ill from the MyTime week view on desktop or from the day view on the app. A full-day absence is immediately added to your schedule. It's only possible to report illness for today or tomorrow.

Prerequisites

- You have the Global functions > View schedules permission.
- You have the MyTime permission and the underlying Absence reporting permission.
- At least one absence type is set as allowed for absence reporting in your workflow control set.

Page location

WFM > MyTime > Schedule tab

Procedures

Report that you are ill on a computer

Report that you are ill using the desktop version of MyTime on a computer.

1. In the **Schedule** week view, click the header for the day you want to report that you are ill. The header is where the shift category and work hours are shown.

   NOTE You can only report that you are ill for today or tomorrow.

2. Click **Absence reporting**.
3. Select the type of absence you want to report.
4. Click **Save**. The illness is immediately added to the schedule.

Report that you are ill using a mobile phone

Report that you are ill in the MyTime app or by opening MyTime in a browser on your mobile phone.

1. Go to the **Schedule** view.
2. Go to the day where you want to report illness.

   NOTE You can only report that you are ill for today or tomorrow.

3. Open the plus sign action menu and select **Absence reporting**.
4. Select the type of absence you want to report.
5. Click **Save**. The illness is immediately added to the schedule.

Related topics

- Set up basic workflow control set rules
- View your schedule

Request time off

Send an absence request to request time off. The absence requests you send are either manually handled by a supervisor or automatically approved or denied based on a set of validations.

In the MyTime schedule week view there are indications of how likely it is for you to get an absence request for a specific day approved. This is either shown on day level or on interval level.

- On interval level, it's shown as a bar next to the shift. Click **Staffing info** and select **Show absence probability** to show the bars. Green means it's very likely that you can have that interval off, and yellow means the chances are low.
- On day level, it's shown as a small container at the top of each day. Green means it's very likely that you can have that day off, yellow means the chances are lower, and red means the chances are very low.

You can also use Grant, the chatbot, to request time off for today or tomorrow. Click the speech bubbles icon in the top bar to open the chat window. Grant guides you through the process. See Request time off or extra hours through chat for more information about Grant.

Prerequisites

- You have the MyTime > Absence requests permission.
- To enter a subject or message, you have the MyTime > Free text in requests permission.
- To see your personal account for absences, you have the MyTime > View personal account permission.
- A period is open for absence requests in your workflow control set.
- Absence probability must be turned on in your workflow control set for you to see the interval level probability to get your absence request approved,
- To see the absence probability in the week view, you have the MyTime > View staffing info permission.

Page location

WFM > MyTime > Schedule tab

Procedures

Request time off for a full day or part of a day

Send an absence request to request time off from work, either a part-day absence or a full-day absence.

1. Find the day for which you want to request time off.
2. Click the pen button for that day and select **Absence**.
3. Select the **Absence type** to use.

   For some of the absence types, you might have a personal account that specifies how many days or hours you can use. For those absence types, the balance of the account is shown.
4. If you want to request a full day off, select the **Full-day absence** toggle.

   If your request is for just part of the day, use drag and drop to adjust the time and the duration of the absence. Your Administrator configures the time intervals that you can select.

   NOTE
   - If the request approval for the absence type you selected is based on staffing levels, a green and yellow bar on the right side tells you where it's more likely for your request to be approved. Green means it's very likely that you can have that time off, and yellow means the chances are low.
   - During some activities, like training sessions or certain meetings, absences might not be allowed. If that is the case, information about this is shown when you move the absence on top of one of those activities.
5. Click **Submit** to send your request.

Request time off for one or several days

Send an absence request to request time off from work, either for a full day or several days.

1. Find the day for which you want to request time off.
2. Click the + button for that day.
3. Select **Absence request**.
4. Select an **Absence type** from the drop-down menu. If there is a personal account for the selected absence type, the remaining days or hours for that absence type are shown.
5. Click the calendar buttons and use the calendar view to select a date interval.

   NOTE The maximum length for an absence request is 60 days.
6. If your request is for just a part of the day, clear the **Full day** check box and click the clock buttons to set a time interval. Your Administrator configures the time intervals that you can select.

7. Enter a **Subject** for the absence request and then write your **Message**.
8. Click **Save** to send your request.

Follow up on an absence request

Use the request list to follow up on your absence request. In the request list you can also delete or cancel a request.

- For more information on how to follow up on a request and reply to a message from the administrators, cancel or delete your request, see View your requests.

Related topics

- Absence probability overview
- How absence request validation works
- How waitlisting absence requests works
- Request to work extra hours
- Request time off or extra hours through chat
- View your requests
- Create rules to handle absence requests
- Create rules to handle overtime requests
- How using budget allowance works
- Manage personal accounts for absences

Request to work extra hours

Send an overtime request to request to work extra hours, on top of what you are already scheduled to work. The overtime requests you send are either manually handled by a supervisor or automatically approved or denied based on a set of validations.

NOTE You can also request overtime before or after a scheduled absence.

In the MyTime schedule week view there are indications of how likely it is for you to get an overtime request for a specific day approved. It's shown as a bar next to the shift. Click **Staffing info** and select **Show overtime probability** to show the bars. Green means it's very likely that you can work extra for that interval, and yellow means the chances are low.

You can also use Grant, the chatbot, to request to work extra hours today. Click the speech bubbles icon in the top bar to open the chat window. Grant guides you through the process. See Request time off or extra hours through chat for more information.

Prerequisites

- You have the MyTime > Overtime request permission.
- To enter a subject or message, you have the MyTime > Free text in requests permission.
- A multiplicator definition set is connected to your contract.
- A period is open for overtime requests in your workflow control set.
- Overtime probability must be turned on in your workflow control set for you to see the interval level probability to get your overtime request approved,
- You have the MyTime > View staffing info permission to see the overtime probability also in the week view.

Page location

WFM > MyTime > Schedule tab

Procedures

Request to work extra hours

Send an overtime request to request to work extra hours.

1. Find the day for which you want to request extra hours.
2. Click the pen button for that day and select **Overtime**.
3. Select the **Overtime type** to use. The overtime type defines the type of compensation you get for working overtime.
4. Use drag and drop to adjust the time and the duration of the overtime.

NOTE

- The green and yellow bar on the right side tells you where it's more likely for your request to be approved. Green means it's very likely that you can work extra, and yellow means the chances are low.
- You can not request overtime on top of other activities.
- When agents request overtime after an overnight shift, the system determines to which date the overtime belongs. If the gap between the shift and the start of their overtime is up to two hours after their shift, the overtime belongs to that shift. If the start of their overtime is more than two hours after their shift, it belongs to the next shift.

5. Click **Submit** to send your request.

Follow up on an overtime request

Use the request list to follow up on your overtime request. In the request list you can also delete a request.

- For more information on how to follow up on a request and reply to a message from the administrators, or delete your request, see View your requests.

Related topics

- Overtime probability overview
- Request time off
- Request time off or extra hours through chat
- View your requests
- Create rules to handle absence requests
- Create rules to handle overtime requests
- How using budget allowance works
- Manage personal accounts for absences

Request time off or extra hours through chat

Request to have time off from work or to work extra hours with the help of Grant, the chatbot. Grant works both on desktop and on mobile.

This is what Grant can help you arrange.

- To leave early from the currently ongoing shift if those hours are overstaffed.
- To leave early from the next shift if you are not currently working and those hours are overstaffed.
- To arrive later for the next shift, starting later today or tomorrow, if those hours are overstaffed.
- To arrange a full day absence, today or tomorrow, if the day is overstaffed.
- To work extra hours later today or tomorrow, if your skills are critically understaffed for those hours and the extra hours do not break the nightly rest.
- To work extra hours on a day off today or tomorrow, if your skills are critically understaffed for those hours and the extra hours do not break the nightly rest.

Grant will notify you when there is a possibility for you to work extra hours after your shift today or tomorrow, or to leave early from your current or next shift.

NOTE

- Grant only uses English, regardless of your language settings.
- Any feedback that you provide when Grant asks for feedback is stored by Cisco and used as input for further development of the chatbot functionality.

Prerequisites

- You have whitelisted connections to enable Grant access (see Whitelist connections for Grant the chatbot).
- You have the Global functions > View schedules permission.
- You have the MyTime > Grant permission.
- You must have a workflow control set assigned in People > General.
- You must have a published schedule.
- To have Grant offer time off, these things must be in place.
  - You have the MyTime > Absence requests permission.
  - Your workflow control set must have auto grant enabled and the staffing check for today and tomorrow must be based on the intraday staffing levels.

- To have Grant offer to work extra hours, these things must be in place.
    - You have the MyTime > Overtime requests permission.
    - Your workflow control set must have auto grant enabled and an active period for today for your skills.
- You do not have any multisite skills.
- Your installation is in Microsoft Azure, hosted by Cisco.

Page location

WFM > MyTime

Procedures

Request time off or to work extra hours with the help of Grant

- Click the speech bubbles icon. A chat window is opened.
- Grant checks the possibility for you to have time off or to work extra hours and guides you through the flow of arranging that.

Related topics

- Request time off
- Request to work extra hours
- View your requests
- Create rules to handle absence requests
- Create rules to handle overtime requests
- How using budget allowance works
- Manage personal accounts for absences

Whitelist connections for Grant the chatbot

Grant the chatbot allows you to request time off, extra work hours, and more. To enable Grant, you need to whitelist two domains.

Procedures

Whitelist connections for Grant the chat bot

Whitelist the following two domains on port 443 to allow Grant access.

- directline.botframework.com
- ivr-sr-bot.botapps.amat.com

See Check firewall traces on failed connections to test the firewall connections to botframework.

Related topics

- Request time off or extra hours through chat
- Request time off
- Request to work extra hours
- View your requests

Send a text request

Send a message or question to the administrators by creating a text request in MyTime.

The text requests can be used for any type of issue. They are not connected to any functionality or automatic validations as absence requests or overtime requests. The text requests are always handled manually by administrators.

Prerequisites

- You have the MyTime > Text requests permission.
- To enter a subject or message, you have the MyTime > Free text in requests permission.

Page location

WFM > MyTime > Requests tab

Procedures

Send a text request

Send a message to an administrator using a text request.

1. Select **Text request**.
2. Click the calendar buttons and use the calendar view to select a date interval. If your request is not related to any date, leave the dates as they are.
3. Click the clock buttons to set a time interval.
    - If your request is for one or more full days, select the **Full day** check box.
    - If your request is not related to any specific time, leave the times as they are.
4. Enter a **Subject** for the text request and then write your **Message**.
5. Click **Save** to send your request.

Follow up on or delete your text request

Use the request list to follow up on your text request.

- For more information on how to follow up on a request and reply to a message from the administrators or delete your request, see View your requests.

Related topics

- Request time off
- Request to work extra hours
- View your requests

View your requests

View the requests you have sent in the Request list view in MyTime. The request list will show the status for the requests.

Click on a request to expand it and show more detailed information. If a request has been denied, expanding it shows the reason why it was denied. This can help you get your new request approved. For shift trade requests from other agents, expand it to show the shifts to trade and to approve or deny.

If you send a request and then change your mind, you can delete the request if it is still in state Pending or Waitlisted.

If needed, you can cancel an already approved absence request. It can be canceled until a set number of days before the start of the absence.

Prerequisites

- You have the MyTime permission and at least one of the following underlying permissions:
  - Absence reporting
  - Absence requests
  - Overtime requests
  - Shift trade board
  - Shift trade requests
  - Text requests
- To cancel absence requests, you need the MyTime > Absence requests > Cancel request permission.
- To cancel overtime requests, you need the MyTime > Overtime requests > Cancel overtime request permission.

Page location

WFM > MyTime > Requests tab

Procedures

Show all requests

By default, the current requests are shown. Current requests are defined as all future requests and the requests where the start date is up to 10 days back. Use the filter to show all requests.

- Select **Request list**.
- Open the **Show** menu and select **All requests**.

Sort requests

The requests are by default sorted by the date when they were last updated. Sort them by start date.

- Select **Request list**.
- Open the **Sort by** menu and select **Start date**.

Reply to a shift trade request from another agent

If you get a message that you have received a shift trade request from another agent, answer if you want to trade shifts or not.

1. Select **Request list**.
2. Click the request to expand it and show the details.
3. Review the details and enter any message you want to send to the requesting agent, for example a reason for denying the request.
4. Click **Approve** or **Deny**. If you approve the request and it passes all validations, the trade either happens immediately or is sent for administrator approval.

Reply to a request

The administrators can reply to a request without approving or denying it, for example to ask a question. Update the information on the request to provide more information if needed.

1. Select **Request list**.
2. Click the request to expand it.
3. Update the message to clarify or provide more information.
4. Click **Save**.

Delete a request

You can delete a sent request if it is still in Pending or Waitlisted state.

1. Select **Request list**.
2. Click the **X** in the upper right corner of the request to delete.
3. Click **Delete** to confirm.

Cancel an absence request or overtime request

Cancel an already approved request if your situation changes. Limits might be set for your organization for how late you can cancel an request.

- Select **Request list**.
- Click **Cancel request** in the upper right corner of the request.
- Click **Yes** to confirm.

Understand the request states

These are the possible states for requests.

- **New**—Not yet handled by the system. If the request stays in the state new for a long time, contact your system administrator.
- **Pending**—Waiting to be handled by an administrator.
- **Approved**—Either approved by an administrator or automatically approved by the system.
- **Denied**—Denied by an administrator or automatically denied by the system because it did not pass all validations. Click to expand the request to show the detailed information which often states why the request was denied.

The following states are only used for absence requests.

- **Canceled**—Canceled by either an administrator or by you.
- **Waitlisted**—Could not be approved based on the current situation for that day. It can still be approved if the situation changes.

The following states are only used for shift trade requests.

- **Pending, waiting for other party**—The person you asked to trade with has not yet answered your request.
- **Pending, waiting for your approval**—You have been asked to trade shifts and need to approve or deny.
- **Pending, waiting for approval**—The administrator has not yet handled the request.

Related topics

- Request time off
- Request to work extra hours
- Trade shifts with other agents
- Send a text request
- Create rules to handle absence requests
- Create rules to handle overtime requests
- How using budget allowance works
- Manage personal accounts for absences

Enter how you prefer to work

Enter how you prefer to work in the Preference view in MyTime. The validation feedback helps you ensure that your preferences do not break any contract work rules. The resource planner will then schedule you with the shifts you prefer, if it's possible considering the staffing situation.

Set a preference day as a must have to give input on which of your preferences that are the most important to you.

If there is a defined bank holiday within the period, the date is marked in red. If the period includes today's date it will be marked in blue.

NOTE That you select a day as a must have day is no guarantee that you will be scheduled according to this preference. When scheduling, the resource planner can still choose to disregard it if needed due to the staffing situation.

Create a preference template to reuse a detailed preference more than once.

EXAMPLE There are a couple of days a week when you need to work a day shift and leave 16:30 at the latest to pick up your kids from daycare. Create a template that includes the Day shift category and set the latest end time to 16:30.

Preferences are always entered one schedule period at the time. Above the calendar view you can see validation feedback that helps you ensure that your preference fulfills the contract for the schedule period.

Prerequisites

- You have the MyTime permission and the underlying Standard preferences permission.
- Your workflow control set includes:
  - An open period for preferences.
  - Which days off, shift categories and absences that are available for preferences.
- To enter preferences regarding start and end time, shift length and lunch:
  - You have the MyTime > Extended preferences permission.
  - It is set on the workflow control set which activity you can enter extended preferences for.
- To enter which preferences that are the most important, you need to have at least one must have for the schedule period in People.

Page location

WFM > MyTime > Preferences tab

Procedures

Enter when and how you prefer to work

Select whether you want to work or not and what shift category you prefer.

1. Select the period to enter preferences for.
2. Click the **Preference** button.
3. Select a day to enter a preference for. To enter the same preference for more than one day, select multiple days. Use drag and drop or hold **Ctrl** while you click to select days.
4. Open the drop-down **Preference** menu and select a shift category, a day off or an absence.
5. Click **Apply**.
6. Repeat steps 3 to 5 for all dates you want to add a preference to.
7. Check the validation feedback.

Enter detailed preferences

Enter preferences regarding start and end time and length for the shift and start and end time and length for an activity.

1. Select the period to enter preferences for.
2. Click the **Preference** button.
3. Select a day to enter a preference for. To enter the same preference for more than one day, select multiple days. Use drag and drop or hold **Ctrl** while you click to select days.
4. Set up intervals for your preferred start time, end time and duration of the shift.

   NOTE You don't have to set all values, only the ones that are important to you.

   EXAMPLE To enter a preference to not start before 08:00, state 08:00 in the **Earliest start time** field.
5. To give preferences for start time, end time and duration of an activity, open the drop-down **Activity** menu and select the activity.
6. Set up intervals for your preferred start time, end time and duration of the activity in the fields under the **Activity** menu.
7. Click **Apply**.

Define the most important preferences

Use the must have heart to define which preferences that are the most important to you.

> **NOTE** How many days you can set as Must have for a period is shown in brackets on the Must have button.

1. Select a day to set as a Must have. To enter must haves for more than one day, select multiple days. Use drag and drop or hold **Ctrl** while you click to select days.
2. Open the **Must have** menu and select **Add must have**. The days selected as Must have are indicated with a heart symbol.

Remove set preferences

Remove preferences that are no longer valid.

1. Select the days to remove preferences from.
2. Click the **Remove** button.

Remove set must haves

Remove previously set must haves if you need to set other days as the most important.

1. Select the days to remove the must have from.
2. Open the **Must have** menu and select **Remove must have**.

Check the validation feedback

The colored field above the calendar view helps you understand if the preferences you have entered match with your contract.

The color of the validation feedback field indicates if the possible work schedule based on the entered preferences fulfills your contract.

- Red means the preferences you have entered result in too many or too few work hours or days off, or that a work rule is broken.
- Purple means the preferences you entered fulfills the contract.

> **NOTE** If you only enter preferences on a few days and you don't add the number of days off that is stated in the contract, the validation will be red. If there are still days without shift preferences, where days off can be scheduled, the preferences are still valid.

The validation field information states the details.

- The number of hours to work according to your contract, and the possible number of work hours according to the entered preferences and the shifts available to you.
- The number of days off according to your contract, and the number of days off entered as a preference.
- If any work rules, for example the nightly rest or the weekly work time limit are broken by the currently entered preferences. If the nightly rest is broken, it is indicated by a red line on the days where this rule is not fulfilled.
- The period you can add preferences for and for how long this preference period is open.

Understand the intervals shown for each day

On each day where you have entered preferences, three intervals are shown. The intervals are all based on the entered preference and the shifts available to you. If the day has no entered preference, the presented intervals are based on the agent's shift bag.

- The first interval states the possible start times.
- The second interval states the possible end times. If it ends with +1, it means the interval crosses midnight to the next day.
- The third interval indicates possible shift lengths.

> **NOTE** If the text **No available shifts** is displayed, there are no shifts available to you that match the entered preference. This can happen for example if details in your entered preference are in conflict, or if there is an already scheduled meeting on that day which does not match with your entered preference. If this happens, hover the mouse pointer over that day to show if there are any scheduled meetings or other activities. Then remove the preference or enter a new preference for this day.

Create a preference template

Create preference templates for preferences that you use often.

1. Set up the preference settings you want to save in a template. For example, a shift category in combination with an earliest start time or lunch length.
2. Click the **Save as template** button with the plus sign.
3. Enter a name for the template.
4. Click **Save**.

Apply a preference template

Apply a previously created preference template.

1. Select the days to apply the preference template to.
2. Open the **Extended preferences template** menu next to the plus sign and select the template to use.
3. Click **Apply**.

Delete a preference template

Delete preference templates that you no longer need.

1. Select the preference template in the **Extended preferences template** menu.
2. Click the **Delete** button.

Related topics

- Set up basic workflow control set rules

Enter when you are available to work

Give input on when you are available to work in the Availability view in MyTime. The resource planner can consider the availability when scheduling and schedule you on dates and times when you are available.

The availability function is mostly used for agents employed on hourly contracts and for fixed staff with very flexible contracts.

If the period includes today's date, it will be marked in blue. If there is a defined bank holiday within the period, the date is marked in red.

Prerequisites

- You have the MyTime permission and the underlying Hourly availability permission.

Page location

WFM > MyTime > Availability tab

Procedures

Enter when you are available to work

Give input on which days and times you are available for work.

1. Click to select the day to enter availability on. To enter the same availability for more than one day, select multiple days. Use drag and drop or hold **Ctrl** while you click days to select.
2. Click the **Availability** button.
3. Enter the start and end time for the availability. To enter an end time that is past midnight, for example to enter availability from 7PM to 6AM, select the **Next day** check box.
4. Click **Apply**. The possible start times, end times and shift lengths are now displayed on that day.
5. Check the validation feedback.

NOTE You can only enter one availability for each day.

Remove previously entered availability

Remove availability you have previously entered if the situation changes.

1. Click to select the day to remove availability from. To remove the availability from more than one day, select multiple days. Use drag and drop or select and hold **Ctrl** while clicking days.
2. Click **Remove**.

Check the validation feedback

The colored field above the calendar view helps you understand if the availabilities you have entered match with your contract.

The color of the validation feedback field indicates if the possible work schedule based on the entered availabilities fulfills your contract.

- Red means your entered availabilities can't give enough work hours to fulfill the contract. This can happen for example if you enter too few availabilities or if the entered availabilities do not match any shifts.
- Purple means the entered availabilities fulfills the contract.

The validation field information states the details.

- The minimum number of hours to work according to your contract and the potential number of work hours based on the availabilities you have entered and the shifts available to you.
- The period you can add availability for and for how long this availability period is open.

Understand the intervals shown for each day

On each day where you have entered availability, four intervals are shown.

- The first interval shown is your entered availability on that day.
- The second interval states the possible start times based on the entered availability and the shifts available to you.
- The third interval states the possible end times based on the entered availability and the shifts available to you. If it ends with +1, it means the interval crosses midnight to the next day.
- The fourth interval indicates possible shift lengths based on the entered availability and the shifts available to you.

NOTE If the text **No available shifts** is displayed, there are no shifts available to you that match the entered availability. If this happens, remove the availability or enter a new availability for this day.

Related topics

- Set up basic workflow control set rules

Enter availability to work overtime

Enter when you are available to work overtime. When the resource planner schedules overtime, they can choose to only schedule overtime for you when you have said that you are available to work overtime. They can schedule overtime for the whole period you have said that you are available or for a part of it. It is only possible to add one availability for overtime per day.

Prerequisites

- You have the MyTime permission and the underlying Overtime availability permission.

Page location

WFM > MyTime > Schedule tab

Procedures

Enter your overtime availability

Enter when you are available to work overtime.

1. Click the header for the day where you want to enter overtime availability. The header is where the shift category and total work hours are stated.
2. Select **Overtime availability**.
3. Enter a **Start time** and **End time** for the availability. If the end time is the next day, for example if you enter availability from 19:00 to 06.00, select the **Next day** check box.
4. Click **Save**. The entered overtime availability is indicated by a gray section on the day of the availability in the schedule week view.

Edit your overtime availability

Edit your previously entered overtime availability.

1. Click the gray section that indicates the overtime availability you want to edit.
2. Adjust the **Start time** or **End time**.
3. Click **Save**.

Delete your overtime availability

Delete previously added overtime availability.

1. Click the gray section that indicates the overtime availability you want to delete.
2. Click **Delete**.

Related topics

- Request to work extra hours
- Overtime probability overview

Bid on shift patterns

Bid on the shift patterns you prefer on the Shift bidding tab. Select the preferred shift patterns and rank them. The shift patterns are then assigned according to the agents' rank. What the rank is based on can be different in different organizations.

Select and rank enough shift patterns to ensure that you are assigned a shift pattern that is among the ones that you have selected. The number of shift patterns you must rank is stated for the active bid process.

For some shift patterns there can be several available spots.

EXAMPLE If you need to rank 10 shift patterns, you might for example select one shift pattern with 7 available spots and 3 additional shift patterns with one available spot each.

Prerequisites

- You have the MyTime permission and the underlying Shift bidding permission.
- There is an active bid process for your team.

Page location

WFM > MyTime > Shift bidding tab

Procedures

Preview

When the bid process is in the preview phase, you can see all the available patterns and your bid position.

- Review the patterns and discuss with family and friends to prepare for the bidding.

Bid on shift patterns

When the bid process is active, rank the available patterns and place your bid.

1. Click **Place bids** for the active bid process.
2. Look at the unranked patterns and decide which shift patterns you prefer.

   If there are many patterns, filter the list of unranked patterns to easily find your preferred shifts. Click **Show filters** and select your preferred days off or your preferred start time.
3. Click the star for the patterns you prefer. The progress bar above the shift patterns show how many **Ranked patterns** you have, and how many shift patterns you need to rank for you to be sure that you will get one of the shift patterns you have ranked. The number of patterns you need to rank is based on your personal rank.
4. Drag and drop the ranked patterns to your preferred order. The pattern at the top is the pattern you want the most.

   NOTE You can change your placed bid up until the last day of the bid period.

Follow up on your bid

When the bid process is over and the administrator has finalized the bid process, the **Shift bidding** tab in MyTime shows the shift pattern that was assigned to you. The number under **Choice** is the position in which you ranked this pattern. If it says *Forced*, it means that you were assigned a shift pattern that was not on your list of ranked patterns.

The **Schedule start date** is the date from when you will be scheduled according this shift pattern.

Related topics

- How shift bidding works

Post or pick up hours

Use the Trade Hours view to post or pick up hours. The hours are shown in your local time.

> **NOTE** The hours for the shift day can start after midnight. For example, if an agent is on an overnight shift and they use the Trade Hours function to drop the first part of their shift, the remainder of the shift still belongs to the same scheduled date. The shift hours can start at 6 AM the next day.

Prerequisites

- You have the MyTime > Shift trade requests - part day permission.
- A period is open for shift trade requests in your workflow control set.

Page location

WFM > MyTime > Schedule > Trade hours tab

Procedures

Post hours on the board for other agents to pick up

1. Select a week from the date picker.
2. Select the hours that you want to post.
3. Click **Post hours** and then click **Post hours** again. If the request does not pass all of the business rules, adjust your selection and try again. If someone picks up your hours, you are notified on the

Trade hours tab and by the standard notifications. For more information about standard notifications, see Turn on schedule change notifications.

4. To remove your post, select the posted hours, click **Remove**, and then click **Remove** again.

Pick up hours from the board

1. Select a week from the date picker.
2. Select the hours that you want to pick up.
3. Click **Pick up hours** and then click **Pick up hours** again. If you successfully pick up hours, the schedule is automatically updated.

Related topics

- View your team's schedule
- Trade shifts with other agents
- Check the shift trade board for trades

Handle messages

Handle the messages you receive in the Messages view. There are two types of messages.

- Messages written and sent to you by a supervisor or planner. Confirm that you have read it and give a reply if needed.
- Automatic messages. These messages inform you that you for example have received a badge, received a shift trade request from another agent or that your absence request has been approved.

Prerequisites

- You have the MyTime > Agent schedule messenger permission.

Page location

WFM > MyTime > Messages

Procedures

Read a message

Read the message you receive and confirm that you have read it.

1. Click on the message to read the full message. If the message is about a request, go to the Requests view for more detailed information.
2. Click **OK** to confirm that you have read the message.

> **NOTE** The message is deleted when you confirm that you have read it. To minimize the message without deleting it, click it again.

Reply to a message

Messages from supervisors or planners sometimes require a reply from you.

1. Click on the message to read the full message.
2. Enter your reply. Depending on the type of message, reply by typing a message, by clicking **Yes** or **No** or by clicking the option you prefer in a list.
3. Click **OK** to send your reply.

Related topics

- View your requests

Change your password

Change your MyTime password directly in MyTime.

> **NOTE** If you log in to MyTime using another system for authentication, for example Windows or Okta, you cannot change your password in MyTime.

Prerequisites

- You have the MyTime permission.
- You log in to MyTime using the application authentication.

Page location

WFM > MyTime

Procedures

Change your password

Enter a new password for your MyTime application login.

1. Click your name to open the menu and select **Change your password**.
2. Enter your new password in the **New password** field.
3. Enter the same new password again in the **Confirm new password** field.
4. Enter your old password in the **Old password** field.
5. Click **Update**.

Related topics

- Change language and format settings

Change language and format settings

Change to the language and date format settings that you prefer. Use the **Agent description** setting to choose to show names with the first name first or last.

Prerequisites

- You have the MyTime permission.

Page location

WFM > MyTime

Procedures

Change language and format settings

Change to the language and date format settings that you prefer.

1. Click your name to open the menu and select **Settings**.
2. Click to open the **Language** menu and select your preferred language.
3. Click to open the **Date format** menu and select your preferred date format.

Change how to view agent names

Choose if you want to view names with the first name first (Sarah Smith), or with the last name first (Smith Sara).

- Click to open the **Agent description** menu and select the order you prefer.

Related topics

- Change your password

Record on demand

Quality Management workflows can handle most recording situations, but you might encounter a situation that isn't covered by a workflow. The Recording Controls page allows you to override these workflows and work with calls directly.

Prerequisites

- You have the Recording Controls set of permissions.
- Your organization has configured metadata for contacts (needed to Attach metadata to a contact).
- Your organization has configured tagging (needed to Tag a call for a different retention time).

Page location

Recording Controls

Procedures

Log in to Recording Controls

This is always the first step in using Recording Controls.

1. Click **Log In**.
2. Enter your extension in the **Telephone Extension** field.
3. Click **Submit**.

Record your screen

These steps record only your screen, not audio. You can record your screen even if you're not on a call, so this feature lets you record chat or email contacts.

1. Click **Start Screen**.
2. Click **Stop Screen** when you are finished recording.

Pause the recording

You might want to pause a recording if you are handling sensitive information, such as credit card numbers. This procedure pauses both screen and audio recording. When you play back the contact, the audio is silent during the pause, and the screen shows a *pause* symbol.

1. Click **Pause**.
2. Click **Resume** to continue recording.

Immediately delete part of a recording

This process is similar to Pause the recording, but it automatically deletes the part of the call that you don't want to record instead of keeping part of the recording silent.

1. While the call is being recorded, click **Segment and Save** before the confidential part of the contact begins.

   EXAMPLE You are helping a customer place an order. You click **Segment and Save** right before the customer gives you their credit card number.

2. Click **Segment and Delete** when the confidential part of the call is over.

   IMPORTANT When you click **Segment and Delete**, Webex WFO immediately deletes the confidential part of the call. This segment does not go to the recycle bin.

3. Click **Stop Screen** when you are finished recording.

Mark a segment of a call

Marking a call segment is like putting a bookmark inside the call. There are two situations when you might want to mark a call segment:

- If you are on a call that would not normally be recorded, you can start both audio and screen recording.
- If you are on a transfer or conference call, you can mark when the call was transferred or when another person was added to the call.

1. Click **Segment and Save**.
2. Click **Stop Screen** when you are finished recording.

Attach metadata to a contact

If your organization uses metadata for contacts, you can attach metadata to contacts that you record with Recording Controls. You can attach metadata to an active call and to the most recent call. You cannot attach metadata to calls older than that.

1. Click **Add Metadata**.
2. Select the metadata type from the **Metadata Key** drop-down list.
3. Enter the metadata value in the **Metadata Value** field.

   > **EXAMPLE** You need to add a comment to the contact recording. You select **Comment** from the **Metadata Key** drop-down list and enter your comment in the **Metadata Value** field.

4. Click **Submit**.

Tag a call for a different retention time

Your Webex WFO administrator controls how long recordings are available. However, you can give a contact a different retention time by tagging it. Tagging a contact applies whatever retention period your organization has set up for tagged contacts.

- Click **Tag**.

Related topics

- How Recording Controls work—In-depth information about how Recording Controls work.
- Automate QM workflows—Settings for which recordings to keep and delete.
- Manage what contacts are recorded—Settings for automatically recording contacts.
- Manage custom metadata fields—Background work for attaching metadata to a contact.
- Tag a contact—Background work for tagging contacts.
- Manage roles and permissions for QM, Analytics, and Insights—Information about the Recording Controls set of permissions.

How Recording Controls work

This section provides you with more information about how the Recording Controls buttons work.

Login

Clicking **Login** associates you with the specific extension for hoteling and logs you into Recording Controls.

Start Screen

If QM is not currently recording an active call, clicking **Start Screen** starts a screen-only recording. If you receive a phone call or make a call during this time, a separate voice and screen contact might be created according to workflow criteria (or you can use **Segment and Save** and **Segment and Delete** to create the contact). When the active call ends, another screen-only contact is created and continues until you click **Stop Screen**.

If QM is currently recording an active call, clicking **Start Screen** does nothing to the current recording, but the screen-only recording begins after the active call ends (if you do not click **Stop Screen**). The call recording and the screen-only recording are saved as separate contact recordings.

Stop Screen

Stop Screen only works if you previously clicked **Start Screen**. If you do not click **Stop Screen** after **Start Screen**, the maximum contact recording length is four hours.

Segment and Save

Clicking **Segment and Save** starts the audio and screen recording of an active call. If QM does not automatically record the call (for example, the caller's phone number is on the exclusion list, or the call does not meet workflow criteria for being recorded), this button lets you record it and treat it as a normal contact. Segment and Save overrides the exclusion list (configured in Application Management > QM Contact Flows > Inclusion/Exclusion) because the root call does not know the agent's identity when recording (see How root calls and reconciliation work).

If QM is currently recording an active call, Segment and Save does nothing.

Segment and Delete

Clicking **Segment and Delete** stops the audio and screen recording of an active call. The recording made up to that point is discarded immediately. The recording resumes after you click **Segment and Delete** and is saved according to workflow criteria as a new contact.

Pause

Pause helps you adhere to the Payment Card Industry Data Security Standard (PCI DSS) for protecting consumer data.

Pause affects both voice and screen recording and works for active calls only. Clicking **Pause** for a call that is already paused does nothing. You must click **Resume** to continue recording. Pause does not affect live monitoring.

Calls are available for playback prior to reconciliation, with silence where you used Pause.

Resume

Resume affects both voice and screen recording and works for active calls only. If the call is not currently paused, Resume does nothing. If you do not click **Resume**, the point at which you paused the recording is the end of the audio recording.

During post-call processing, clicking **Resume** does not appear as a mutual silence event or talk over event.

> **NOTE** Using multiple methods of triggering pause and resume (such as Recording Controls, web events, APIs, and third-party signaling) at the same time can result in unpredictable behavior. To avoid these issues, use only one method on a call at a time.

Metadata

Clicking **Metadata** attaches metadata to an active call. If QM does not upload the current call for archiving because of workflow criteria, then the metadata is uploaded to the database but does not appear in the interface. You can attach metadata to a call only if the metadata is defined on the Metadata Manager page (Application Management > QM Configuration > Metadata Manager).

You can associate a maximum of 100 metadata items with a call. You can click **Metadata** 100 times, each time using one key/value pair, or click **Metadata** once and use 100 key/value pairs. Specifying an empty value for a key removes that metadata field association for the call.

Valid formats for metadata are as follows.

Metadata Type	Data Format
Date	YYYY-MM-DD
Numbers	■ Can start with and contain a decimal point ■ Cannot end with a decimal point or contain a comma
Text	Can include all alphanumeric characters except for the ampersand (&), less than (<), or greater than (>) characters

View your performance reports

Use the MyReport dashboard and the other reports to view your performance and how it has changed over time.

With access to data for your team or site, you can use the reports to view the performance for your team or site. You can also access the leaderboard to see who the top performers that receive the highest number of badges are and how you compare.

Prerequisites

- You have the MyTime permission.
- You have the MyTime > MyReport permission for access to a dashboard with six measures on your performance.
- You have the MyTime > View badge leaderboard permission to see who the top performers are.
- You have the Reports permission and permission to one or more underlying reports to view on your and your team's performance.

Page location

WFM > MyTime > Reports

Procedures

Use the MyReport performance dashboard

Use MyReport to view your performance for today.

- Click **Reports** and select **MyReport**. A dashboard with six measures is shown.
    - Ready-time adherence (%)—Measures how well you adhere to your schedule on an interval level.
    - Ready time / Scheduled ready time (%)—Compares how long you have been logged in and in a ready state with how long you were scheduled to be in a ready state. Ready states are when you are for example waiting for a call, in a call or doing wrap up of a call. This measure does not consider when during the day the ready time was.
    - Average handling time (s)—The average time it takes for you to handle a call, from answering to finishing the after call work.

- Average talk time (s)—How long you talk to customers on average.
- Average after call work (s)—The average time you spent on the wrap up of a call.
- Answered calls—The number of calls you have answered today.

- Click any measure for more detailed information. In the detailed view, use the date picker or the arrows to follow up on your performance historically.

NOTE There is no detailed view for the **Ready time / Scheduled ready time** measure.

View the leaderboard

View the leaderboard to see the top performers and how you compare.

- Click **Reports** and select **Gamification leaderboard**. The leaderboard is shown with your team as the default selection.

  If a weekly or monthly period is used, the leaderboard is shown per week or month. The date period is then displayed above the leaderboard. Use the arrows to navigate between periods.

- Click the team selection menu and select another team to show the leaderboard for another team of agents or select **Everyone** to see the leaderboard for all agents you have permission to see. The leaderboard is immediately re-sorted based on your selection.

NOTE The agents on the leaderboard are primarily sorted by the number of gold badges, secondly by the number of silver badges and after that by the number of bronze badges. Only agents who have received at least one badge are shown on the leaderboard.

Use reports to follow up on your and your team's performance

Use the reports made available to you to view your and your team's performance.

- Click **Reports** and select a report in the list.
- For more information on the specific report you select, see WFM standard reports.

Related topics

- WFM standard reports
- View your badges

View your badges

You receive badges for performing well and achieving the goals defined within your organization. When you receive a badge, you will get a message to inform you about which badge it was and in what area. View the badges you receive to understand where you are performing well, where you can improve and how you perform compared to others.

New badges are distributed every night for measures that are based on data within WFM; number of answered calls, average handling time and ready-time adherence. Distribution of these badges are based on the performance the day before yesterday.

For measures that are based on data from external systems, badges are distributed when this data is imported.

Badges are gathered for weekly or monthly periods, or until they are cleared manually by the administrators.

Prerequisites

- You have the MyTime > View badge permission.
- At least one measure is chosen for your team and what to achieve to receive a badge is set.

Page location

WFM > MyTime > Badges

Procedures

Show badge details

A summary of your badges for the current period is shown in the bar at the top, next to your name.

- Click the badge summary to show detailed information on for which areas you have received badges.
- If a weekly or monthly period is used, the results are shown by week or month. The date period is displayed above the detailed badge information. Use the arrows to navigate between periods.

View the leaderboard

View the leaderboard to see the top performers and how you compare.

- Click **Reports** and select **Gamification leaderboard**. See View your performance reports for more information.

Related topics

- WFM standard reports
- View your performance reports

Manage dynamic scheduling

Dynamic Scheduling is an add-on app. This is a new feature that is not yet generally available. If you would like early access to this feature, contact your Cisco Account Manager.

Agents can use dynamic scheduling to select their availability. Dynamic scheduling uses a point system to encourage agents to choose shift times that are not popular, for example, early or late hours. An administrator creates an availability template. A scheduler uses the availability template to create an availability form. An agent uses the form to enter their availability.

In the **Schedules** tool in the WFM client, you must select the **Dynamic schedule availability** check box in the **Scheduling session options** window when scheduling and when optimizing schedules for agents. If you select several check boxes in the **Scheduling session options** window, this might cause conflicts in how the schedules are set up. For further information, view the Run automatic scheduling and Optimize schedule articles.

IMPORTANT If an error message appears after you click **Save** in the Dynamic Scheduling app, your settings failed to save. Therefore, ensure you fix all errors and click **Save** again before you navigate to another part of the app.

Prerequisites

- Your organization's Webex WFO administrator has coordinated with Cisco Professional Services, or a supported Cisco partner has implemented Dynamic Scheduling for your organization.
- You have a Webex WFO user account with a DynamicSchedulingAdmin, DynamicSchedulingScheduler, or DynamicSchedulingAgent role assigned in WFM.

IMPORTANT You must create these roles with these exact names in WFM.

- You have Schedules permissions.
- If you are an administrator, you have API access > Write schedule and API access > Read schedule permissions.

Page location

Add-Ons > Dynamic Scheduling > Open

Procedures

Log in to the Dynamic Scheduling app

1. Click **Dynamic Scheduling**.
2. Click **Open**.
3. If you belong to more than one business unit, select a business unit.
4. Click **Save**.

Administrators

General configuration

Enter a WFM API token for uploading data to WFM

You must generate a WFM API token, which is used to make the API calls to WFM to upload an agent's availability. For further information, see Generate access tokens for API access to WFM.

1. On the **WFM API** tab, in the **WFM API token** field, enter a token.
2. Click **Save**.

Configure colors for point ranges

You can configure the color of cell backgrounds that appear in the availability forms.

1. On the **Points** tab, in the **Start Number** and **End Number** fields, enter the points ranges.
2. Select a color for each points range.
3. Click the plus or minus icons to add or remove ranges.
4. Click **Save**.

Availability templates

You can create templates, which schedulers then use to create an availability form for agents. Click **Create new availability template** or click an existing template. You can also use the search box to find a template. Then, complete the below procedures for each tab in the availability template. To delete a template, click the trash can icon.

Configure settings

1. On the **Settings** tab, in the **Name** field, enter a name for the availability template.
2. In the **Description** field, enter a description for the template.
3. From the **Type** drop-down list, select **AdHoc** or **Recurring**. For example, you can use a **Recurring** template for the whole year and you can use an **AdHoc** template for a holiday week. If you select **Recurring**, select the frequency of the recurrence from the **Recurrence** drop-down list.
4. Select a day from the **Week start day** drop-down list.
5. Select a **Time zone**. This time zone is used to determine when data is sent to WFM.
6. Select a number of weeks from the **Submit at least this number of weeks in advance** drop-down list and the **Submit a maximum of this number of weeks in advance** drop-down list.
    - **Submit at least this number of weeks in advance** determines when an agent is required to submit their availability.
    - **Submit a maximum of this number of weeks in advance** determines how far in advance an agent can submit their availability. If it is an **AdHoc** availability, the agent can only submit their availability for the weeks between the start and end weeks.
7. Enter **Tag(s)** to attach keywords to the template. You can use these tags to search for the template after it is saved to the template list.
8. In the **Hours of operation** section, select check boxes for any days that you want to include in the template. Then, select a time range for each day. The **Hours of operation** settings must fall within the open hours of the skills that you have in WFM.
9. Enter a **WFM publish day**, a **WFM publish time**, and then select a number of weeks for **WFM publish in advance** to configure when the data is sent to WFM.

10. Toggle the **Enabled** slider on to activate a process, where the system will automatically submit availability forms for agents who meet the required points. The scheduler must manually publish the availability form for agents who do not submit the required points. If you toggle the **Enabled** slider off, you must manually submit all availability through Agent Monitoring.

11. Click **Save**.

Configure validation

You can configure the amount of hours that an agent must make themselves available for.

1. On the **Validation** tab, select if you want to **Allow day(s) without availability**. This setting allows agents to enter no availability on some days. If the minimum hours is set to zero, this grants the agents a day off.

2. Select if you want **Min hours** or **Max hours** from the **Validate on** drop-down list. These options determine if the **Required points** calculation on the **Points** tab is based on the minimum or maximum hours. If you select **Min hours**, you can enter a number in the **Additional hours** field.

   > **EXAMPLE** If you want to allow agents to take a day off on any given day, ensure that the minimum hours is zero for all days and enter the maximum working hours. Then, you can define the minimum hours required for agents to work per week in the **Additional hours** field.

3. (Optional) Expand **Day/hour requirements** and select a **Type** to configure granular validation requirements per day, hour, and so on.

4. Select check boxes for any days that you want to include in the template and then select a time range for each day.

5. Click **Save**.

Configure points

You can use a point system to encourage agents to choose shift times that are not popular, for example, early or late hours. There are 96 intervals per day, each worth 5 points. Intervals must always be in 15 minute increments, and points must always be whole numbers.

1. On the **Points** tab, enter the number of points that you want to assign to each interval. The **Required points** field shows how many points you must configure and is calculated from the minimum or maximum hours that you entered on the **Validation** tab.

> **NOTE** You can only enable intervals that fall within the hours of operation.

2. (Optional) If you want to import points from a CSV file, click **Import**. If you want to export points to a CSV file, click **Export**. See this example file for details: Dynamic scheduling example file.
3. Click **Save**.

Configure messages

You can write a message for the agents and add it to the availability form.

1. On the **Messages** tab, toggle the **Enabled** slider on to activate the message option in the template.
2. In the **Subject** field, enter a subject.
3. In the **Message** field, enter a message that you want to appear for agents.
4. Click **Save**.

Viewing the audit log

View the audit log

You can view an audit log of all the changes that occur in the system.

1. Select a **Time period**.
2. Click an audit entry to view further details about a change. You can also use the search box to find an audit entry.

Schedulers

Availabilities

Schedulers can use a template to create an availability form for agents. Click **Create new availability**, select a template, and click **Apply**. Alternatively, click an existing availability form. You can also use the search box to find an availability form. Then, complete the below procedures for each tab in the availability form. To delete an availability form, click the trash can icon.

Configure settings

1. On the **Settings** tab, in the **Name** field, enter a name for the availability form.
2. In the **Description** field, enter a description for the form.

3. Toggle the **Active** slider on if you want to automatically publish only the active availabilities. Agents can view inactive availabilities but they cannot submit them.
4. From the **Type** drop-down list, select **AdHoc** or **Recurring**. For example, you can use a **Recurring** template for the whole year, and you can use an **AdHoc** template for a holiday week. If you select **Recurring**, select the frequency of the recurrence from the **Recurrence** drop-down list.
5. Select a day from the **Week start day** drop-down list.

   NOTE This day must match the work week start in the WFM client.
6. Select a **Time zone**. This time zone is used to determine when data is sent to WFM.
7. Select a number of weeks from the **Submit at least this number of weeks in advance** drop-down list and the **Submit a maximum of this number of weeks in advance** drop-down list.
   - **Submit at least this number of weeks in advance** determines when an agent is required to submit their availability.
   - **Submit a maximum of this number of weeks in advance** determines how far in advance an agent can submit their availability. If it is an **AdHoc** availability, the agent can only submit their availability for the weeks between the start and end weeks.
8. Enter **Tag(s)** to attach keywords to the form. You can use these tags to search for the form after it is saved to the form list.
9. In the **Hours of operation** section, select check boxes for any days that you want to include in the form. Then, select a time range for each day. The **Hours of operation** settings must fall within the open hours of the skills that you have in WFM.
10. Enter a **WFM publish day**, a **WFM publish time**, and then select a number of weeks for **WFM publish in advance** to configure when the data is sent to WFM.
11. Toggle the **Enabled** slider on to activate a process, where the system will automatically submit availability forms for agents who meet the required points. The scheduler must manually publish the availability form for agents who do not submit the required points. If you toggle the **Enabled** slider off, you must manually submit all availability through Agent Monitoring.
12. Click **Save**.

Configure validation

You can configure the amount of hours that an agent must make themselves available for.

1. On the **Validation** tab, select if you want to **Allow day(s) without availability**. This setting allows agents to enter no availability on some days. If the minimum hours is set to zero, this grants the agents a day off.
2. Select if you want **Min hours** or **Max hours** from the **Validate on** drop-down list. These options determine if the **Required points** calculation on the **Points** tab is based on the minimum or maximum hours. If you select **Min hours**, you can enter a number in the **Additional hours** field.

   > **EXAMPLE** If you want to allow agents to take a day off on any given day, ensure that the minimum hours is zero for all days and enter the maximum working hours. Then, you can define the minimum hours required for agents to work per week in the **Additional hours** field.

3. (Optional) Expand **Day/hour requirements** and select a **Type** to configure granular validation requirements per day, hour, and so on.
4. Select check boxes for any days that you want to include in the form and then select a time range for each day.
5. Click **Save**.

Configure points

You can use a point system to encourage agents to choose shift times that are not popular, for example, early or late hours. There are 96 intervals per day, each worth 5 points. Intervals must always be in 15 minute increments, and points must always be whole numbers.

1. On the **Points** tab, enter the number of points that you want to assign to each interval. The **Required points** field shows how many points you must configure and is calculated from the minimum or maximum hours that you entered on the **Validation** tab.

   > **NOTE** You can only enable intervals that fall within the hours of operation.

2. (Optional) If you want to import points from a CSV file, click **Import**. If you want to export points to a CSV file, click **Export**. See this example file for details: Dynamic scheduling example file.
3. Click **Save**.

Configure messages

You can write a message for the agents and add it to the availability form.

1. On the **Messages** tab, toggle the **Enabled** slider on to activate the message option in the template.
2. In the **Subject** field, enter a subject.
3. In the **Message** field, enter a message that you want to appear for agents.
4. Click **Save**.

Add or remove agents

1. On the **Agents** tab, To add an agent to the availability form, click **Add agents**, select a team, and then click **Fetch agents**.
2. Select one or more agents, select a **Start week** and an **End week**, click **Add selected**, and then click **Save**.
3. To remove an agent from the availability form, select an agent, click **Remove selected agents**, and then click **Save**.

Agent monitoring

Schedulers can view how many agents have submitted availability, what the points distribution is, and if the agent's availability selection breaks any rules. Schedulers have the option to submit availability for agents who have not yet submitted their availability. Schedulers can also publish an agent's availability to WFM.

Publish an availability form

1. Click an availability form and then click an agent. You can also use the search box to find an availability form.
2. To submit an agent's availability to WFM, ensure that no rules are broken, select a date for publishing, and then click **Publish** to schedule the publishing process for that date.
3. To view any broken rules in the availability form, click the agent's name. Then, adjust the points until no rules are broken.
4. Select a **Start date** and **Recurring** or **AdHoc** for **Recurrence**.
5. Click **Save**.

Reporting

Click **Create new report** or click an existing report. You can also use the search box to find a report. To delete a report, click the trash can icon.

Configure general settings

1. On the **General** tab, enter a **Report name** and a **Report description**.
2. Select a **Start week** and an **End week**.
3. Select or clear the filter check boxes.
4. Click **Save**.

Apply filters

1. On the **Details** tab, select or clear the filter check boxes.
2. Click **Save**.

Add or remove agents

1. To add an agent to a report, click **Add agents**.
2. Select a team and then click **Fetch agents**.
3. Select one or more agents and then click **Add selected**.
4. Click **Save**.
5. To remove an agent from a report, select an agent, click **Remove selected agents**, and then click **Save**.

Add or remove availabilities

1. To add availability forms to the report, click **Add availabilities**, select an availability form, and click **Add selected**.
2. To remove an availability form from the report, select an availability form and click **Remove selected availabilities**.
3. Click **Save**.

Preview the report

1. On the **Preview** tab, select a date, and then click **Preview**.
2. In the search box, search for a report.

3. To export a report as a CSV file, click **Export**.

Agents
Availabilities

Submit your availability

1. On the **Availabilities** tab, click an availability form. In the search box, search for a report.

   > **NOTE** On the **Availabilities** tab, the **Next publish** date is the deadline for submission.

2. Select a **Start date**.
3. From the **Recurrence** drop-down list, select **AdHoc** or **Recurring**. For example, there might be a **Recurring** template that you use for the whole year and an **AdHoc** template that you use for a holiday week.
4. Ensure that you fix any broken rules that are highlighted in the **Requirements** section.
5. Click **Save**.

Team Leaders

Team leaders supervise agents' day-to-day work.

View detailed schedules (Schedules tool)

View the detailed schedules for your team in the Schedules tool. Your team is shown by default if you belong to a team. Use the filter or search to show the schedules for any team or site that you have permissions to view. You can also select other filters, such as skill or skill groups to show agents based on which skills they have.

The Schedules view contains a visual presentation of the shifts, sorted by shift start time. Hover any activity or absence with the mouse pointer to show what activity or absence it is and its start and end time.

Add activities and absences to the agents' schedules or use drag and drop to move activities or change the duration of an activity. See Make schedule changes (Schedules tool) for more information.

> **NOTE** If other users make schedule changes for the selected date and the selected teams, the **Refresh** button is available. Click the **Refresh** button to load the latest schedule changes.

Prerequisites

- You have the Web > Schedules permission.
- You have the Web > Schedules > Export schedules permission to export schedules.
- You have the Web > Schedules > Edit location permission.
- You have the Global functions > View unpublished schedules permission.
- You have the Global functions > View schedules permission.

Page location

WFM > Schedules

Procedures

Select agents

Select the teams, sites, skills, or group pages for the agents. Combine several items to show agents with a specific combination of settings.

EXAMPLE The *London* and *Paris* sites and the *Full-time* contract are selected. The agents who have the *Full-time* contract and who work in either the *London* or the *Paris* site are shown.

NOTE You cannot select both skills and skill groups at the same time. If you select a skill, any previously selected skill group is removed from the selection, and the other way around.

1. Click **Select sites / teams / skills**. When a selection is already made, the field shows the selected items.
2. Click an arrow to expand the **Sites**, **Skill**, **Skill groups**, or any group page and then select the check boxes for the categories that you want to open. If there are many items in the list, type in the field to find an item more easily.

Find an agent

1. Select the **Search** field.
2. Enter the agent's name or an employee ID and select the **Enter** key. You can enter a full or partial employee ID.

NOTE You cannot display more than 500 agents at a time. If there is a limit error, you can limit the search criteria to view less agents.

Select date

- Click in the date field to select a specific date.
- Use the arrows next to the date field to go to the previous or next day.

NOTE The date you select affects which agents you see. For example, if you are viewing schedules for Team A, the list shows the schedule for the agents who belong to Team A on the selected date.

Switch time zones

If you are in a different time zone than the selected agents, you can select an option to use your time zone or any of the agents' time zones.

NOTE Agents who are in a different time zone than the currently selected time zone are indicated by a small globe icon next to their name.

- Click the globe icon for an agent to switch to their time zone, or click the time zone stated above the schedules and select what time zone to switch to.

Sort shifts

The shifts are by default sorted by start time. You can choose to sort them based on, for example, the agent name or team name.

1. Click **Sort** at the top of the **Name** column.
2. Select what to sort by.

Make schedule changes

- There are many different schedule changes that you can make in Schedules. See Make schedule changes (Schedules tool) for more information.

View agent info

1. Select a site, team, or skill or search a name to show an agent.
2. Hover the agent name and click the **Agent info** icon.

   Basic information for the agent is shown. It includes the site and team the agent belongs to, the contract, contract schedule and part-time percentage that they are assigned, and the skills they have.

View shift category

The shift category, with the short name and color, is shown to the left of the shift.

- Hover the shift category to see the full name.

View staffing

View staffing to see how your schedule changes affects the staffing levels.

> **NOTE** The staffing view always shows a full business day based on the skill time zone. For example, if a skill is configured for time zone UTC -6 and is open from 8:00 AM to 6:00 PM, the staffing displays 8:00 AM to 6:00 PM when time zone UTC -6 is selected in the web schedule view. However, if the time zone view is changed to UTC +0, the staffing displays 2:00 PM to midnight.

- Toggle **Show staffing** on.
- Staffing is shown for a summary of all skills related to the agents.
- Click any skill to show staffing levels for that particular skill.

- Hover the mouse pointer anywhere in the staffing view to show a line that indicates the same time in the view of the shifts. This also works the other way around.
- Select **Use shrinkage** to show the forecasted volume with shrinkage applied.

> **NOTE** The staffing information is immediately updated by any changes to the forecast and by schedule changes made in the web scheduling tools or through requests. Changes made in the Schedules module in the WFM client are visible in the staffing view within an hour.

Show warnings

Turn on the warnings feature and select for which rules to show warnings. The warnings are displayed next to the shift category. You can hover the warning to show what rules are broken.

1. Click **Settings**.
2. Toggle **Show warnings** on.
3. Select the check boxes for the work rules to show warnings for.

Show agents' locations

Show which location the agents are in.

1. Click **Settings**.
2. Toggle **Show locations** on.
3. Click **Locations** to view the total number of agents at home or in the office. If you exceed the seat capacity, the number of agents appears in red. You can also view an agent's location beside their name.

Show and edit agents' sites and teams

Show which sites and teams the agents are in.

1. Click **Settings**.
2. Toggle **Show team names** on.

Filter to only show shifts with a selected activity

Apply a filter to only show shifts that contain a selected activity. This is useful to see who is scheduled on the activity that day, or to find who you could move from that activity to something that is more urgent.

1. Click **Filter**.
2. Toggle **Show only shifts with a certain activity** on.

3. Select the activity in the **Select an activity** drop-down menu.

   Only shifts which contain the selected activity are shown.

4. Toggle **Show only shifts with a certain activity** off when you want to remove the filter.

Filter to only show agents with selected absences

Apply a filter to only show agents with selected absences.

1. Click **Filter**.
2. Toggle **Show only shifts with certain absences** on.
3. All absences are selected by default. If there are some absences that you don't want to see, click **X** to remove them.

   Only agents that have the selected absences are shown.

4. Toggle **Show only shifts with certain absences** off when you want to remove the filter.

Filter to only show agents with selected attributes

Apply a filter to only show agents with selected attributes.

1. Click **Filter**.
2. Toggle **Show only shifts with certain attributes** on.
3. All attributes are selected by default. If there are some attributes that you don't want to see, click **X** to remove them.

   Only agents that have the selected attributes are shown.

4. Toggle **Show only shifts with certain attributes** off when you want to remove the filter.

Save a site, skill, or name search

Save a frequently used search, so that you can reuse it later. The saved searches are personal and only shown to you.

1. Perform the search that you want to save as a favorite. This can include selecting sites, teams, skills, and skill groups in the **Select sites/teams/skills** menu and typing a name in the **Search name** field.
2. Click the **Favorite search** star.

3. Enter a **Name** for the search.
4. Click **Save**.

Open a saved search

Show the results for a previously saved search.

1. Click the **Favorite search** star.
2. Select the search to open.
3. The result from the search you selected is loaded.

Select a saved search to use as default

Use one of your saved searches as the default search. The result for this search is loaded the first time you visit the Schedules tool after you log in.

1. Click the **Favorite search** star.
2. Hover the pointer over the search to set it as a default and click the star on that row. The star turns black to indicate that it is the default search.
3. If you no longer want the search to load by default, click the black star.

Export schedules

Export schedule information to Excel for a selected team and date period. The schedule export shows the name, employment number, site, and team for each agent. You can choose to include the information of three optional columns.

The schedule information is presented in one column per day in the selected date period. For each agent and day, scheduled shifts are shown with the shift category short name and the start and end time. Days off and full-day absences are shown with the name of the day off or absence.

1. Click **Export schedules**.
2. Select the **Groupings** of agents that you want to export schedules for. You can select the agents based on business hierarchy, skills, skill groups, or group pages.
3. Select the period to export schedules for. The maximum period to export for is 31 days.
4. Select which **Scenario** to export schedules for.
5. Choose a **Time zone** in which to show the start and end times.

6. Click the **Optional columns** field and select the check boxes for the optional columns that you want to include. You can select a maximum of three optional columns.
7. Click **Save** to run the export.

Related topics

- Make schedule changes (Schedules tool)
- View a schedule overview for a week (Schedules tool)
- Create skill groups

Make schedule changes (Schedules tool)

Make changes to the agents' schedules in the Schedules tool. For example, add absences for agents who are ill, move lunches or change the duration of an activity or absence. You can add activities or absences for several agents at a time.

Keyboard shortcuts are available for most actions. See Keyboard shortcuts in WFM for details.

Show staffing to directly see the impact of your schedule changes.

The schedule history for each agent is available. You can restore the agent's schedule to any previous shift.

> **NOTE** If other users have made schedule changes for the selected date and the selected teams, the **Refresh** button is available. Click the **Refresh** button to load the latest schedule changes.

Should I use the Schedules tool or the Plans tool?

- Use the Schedules tool to view detailed schedules and make manual changes to a schedule. This tool is typically used for to make updates to schedules on a day-to-day basis.
- Use the Plans tool if you want to automatically optimize schedules based on forecasts and agents' contract rules. This tool is typically used for automatic scheduling that you do ahead of time. For more information, go to How to use Plans.

Prerequisites

- You have the Web > Schedules permission and a selection of the underlying permissions, depending on what actions to perform.
- You have the Web > Schedules > Edit location permission.

- You have the Global functions > Schedules permission and a selection of the underlying permissions, depending on what actions to perform.

Page location

WFM > Schedules

Procedures

View staffing

View staffing to see how your schedule changes affects the staffing levels.

- Select the **Show staffing** switch.
- Staffing is shown for a summary of all skills related to the agents.
- Click any skill to show staffing levels for that particular skill.
- Hover the mouse pointer anywhere in the staffing view to show a line that indicates that same time in the view of the shifts. This works the other way around also.
- Select the **Use shrinkage** check box to show the forecasted volume with shrinkage included.

NOTE The staffing information is immediately updated by any changes to the forecast and by schedule changes made in the web scheduling tools or through requests. Changes made in the Schedules module in the WFM client are visible in the staffing view within an hour.

Filter to only show shifts with a selected activity

Apply a filter to only show shifts that contain a selected activity. This is useful to see who is scheduled on the activity that day, or to find who you could move from that activity to something that is more urgent.

1. Click the **Filter** button.
2. Select the **Show only shifts with a certain activity** switch.
3. Select the activity in the drop-down menu.

   Only shifts which contain the selected activity are shown.

4. Clear the **Show only shifts with a certain activity** switch when you want to remove the filter.

Filter to only show agents with selected absences

Apply a filter to only show agents with selected absences.

1. Click the **Filter** button.
2. Select the **Show only shifts with certain absences** switch.
3. All absences are selected by default. If there are some absences that you don't want to see, click the **X** to remove those.

   Only agents that have the selected absences are shown.
4. Clear the **Show only shifts with certain absences** switch when you want to remove the filter.

Filter to only show agents with selected attributes

Apply a filter to only show agents with selected attributes.

1. Click **Filter**.
2. Toggle **Show only shifts with certain attributes** on.
3. All attributes are selected by default. If there are some attributes that you don't want to see, click **X** to remove them.

   Only agents that have the selected attributes are shown.
4. Toggle **Show only shifts with certain attributes** off when you want to remove the filter.

Add activities and personal activities

Add a regular activity or a personal activity to one or several agents.

1. Select agents.
2. Select **Add activity** or **Add personal activity**.
3. Select the type of activity.
4. Define the start and end time. If the activity start or end time is past midnight, select the time with +1 next to it.
5. Click **Save**.

> **NOTE** If the new activity or personal activity overwrites a non-overwritable activity for one or more agents, choose how to handle that conflict. See the section below on how to handle conflicts with activities that are not overwritable.

Add overtime

This is used to add work hours that are in addition to the contractual agreement. You must select how the agents are compensated for the overtime hours.

> **NOTE** You can also add overtime before or after an agent's scheduled absence and during or adjacent to paid time off.

1. Select agents.
2. Select **Add overtime**.
3. Select the type of activity.
4. Select the multiplicator definition set to apply. This defines how the agent is compensated for the overtime.
5. Define the start and end time. If the activity start or end time is past midnight, select the time with +1 next to it.
6. Click **Save**.

Add days off

Add days off to agents' schedules.

> **NOTE** If you select an agent that has a scheduled shift and add a day off, the shift is removed.

1. Select agents.
2. Select **Add day off**.
3. Select the type of **Day off**.
4. Adjust the start and end date if needed. Use the arrows or the calendar buttons.
5. Click **Save**.

> **NOTE** To add days off in the **Week** view, see the Add days off procedure at View a schedule overview for a week (Schedules tool).

Add full-day absences

1. Select agents.
2. Select **Add full-day absence**.
3. Select the type of absence.

4. (Optional) Select an **attribute**. For more information about attributes, go to Manage absences and attributes. If you delete an absence attribute, existing absences are not updated, but the change is applied to all future absences.
5. (Optional) If the absence starts in the middle of a day, for example if an agent gets sick and goes home early, select the **From** check box and select the time when the absence starts.
6. Select the end date. Use the arrows or click the date field to select a specific date.
7. Click **Save**.

NOTE To add a full-day absence in the **Week** view, see the Add a full-day absence procedure at View a schedule overview for a week (Schedules tool).

Add part-day absences

1. Select agents.
2. Select **Add part-day absence**.
3. Select the type of absence.
4. (Optional) Select an **attribute**. For more information about attributes, go to Manage absences and attributes. If you delete an absence attribute, existing absences are not updated, but the change is applied to all future absences.
5. Define the start and end time. If the absence start or end time is past midnight, select the time with +1 next to it.
6. Click **Save**.

NOTE If the agent has a previously scheduled shift which is covered completely by the added absence, the part-day day absence is converted to a full-day absence.

Add a meeting

1. Select the agents to add a meeting for.
2. Click **Actions** and select **Add meeting**.
3. Enter a **Title**. This field is required to save the meeting.
4. Adjust the start and end time and the date if needed.
5. Select an **Activity** for the meeting.

The list of available activities contains the activities that are contract time but not connected to a skill. The selected activity is shown when looking at shift details.

6. Enter a **Location** for the meeting.
7. Add additional **Participants** by choosing sites, teams, or persons.
    - Expand the sites and teams to find persons.
    - The persons you select are shown in the **Participants** field.
    - Click the **X** to exclude a person from the meeting.
8. Enter a meeting agenda in the **Agenda** field. The agenda is visible to the participants.
9. Enter an **Internal note** if needed. Internal notes are only visible for users with permission to use Meetings.
10. Click **Save**.

Move an activity, personal activity, or absence

Move activities, personal activities, and absences by drag and drop.

1. Click to select the activity or absence to move.
2. Hover the selected activity or absence so that the mouse pointer forms a cross with arrows. Drag and drop it to the new position.

    A message is shown if an activity you move overlaps a non-overwritable activity. Click the drop-down menu, select how to handle the situation, and click **OK**.

NOTE You can move an overtime activity before or after a shift. Full-day absences cannot be moved on days off or on days with no shift.

Change the duration of an activity, personal activity, or absence

Change the duration of activities, personal activities, and absences by drag and drop.

1. Click to select the activity or absence to change.
2. Hover the start or end of the selected activity or absence so that the mouse pointer forms a double-headed arrow. Drag and drop the start or end of the activity or absence to the new time.

NOTE The duration of full-day absences cannot be changed on days off or on days with no shift.

Move an entire shift

Move an entire shift with drag and drop.

1. Click to select the shift you want to move.
2. Hover the selected activity or absence so that the mouse pointer forms a cross with arrows. Drag and drop it to the new position.

> **NOTE** If the view doesn't show the entire shift, you cannot move it. If more than one time zone is available, change the time zone to try to see the entire shift.

Adjust drag and drop increment

The snap to interval is the increment by which you can drag and drop activities. It helps you place the activity or the start or end time of the activity at the correct time.

1. Click **Settings**.
2. Select the **Snap to interval**.

Move the shifts for several agents

1. Select agents.
2. Select **Move shift**.
3. Enter the new start time for the shift.
4. Click **Save**.

Swap shifts between two agents

1. Select the two agents to swap shifts for.
2. Click **Actions** and select **Swap shifts**.

Show schedule history and restore schedule to a previous shift

1. Hover the agent name and click the **Schedule history** icon.

   All the agent's previous shifts for this day are shown. The top shift is the current shift.

2. To restore the agent's schedule to a previous shift, select which shift to restore to and click **Restore**.

> **NOTE** If a schedule change is modified by "WFM System", this means that the schedule is changed by an automatic process. For example, this is shown when an agent's request has been automatically approved or when schedules are copied to or imported from another scenario.

Replace an absence

1. Select agents.
2. Select **Replace absence**.
3. Select the absence type to replace.
4. Select the absence type to **Replace with**.
5. Click **Save**.
6. Click **OK** to confirm.

Edit an activity

You can use this smart schedule editing feature to edit an activity. This works for both regular activities and personal activities.

1. Click to select the agent(s).
2. Select **Edit activity** in the actions menu.
3. Select the activity that you want to edit.
4. Adjust the time range, if necessary. If an agent doesn't have the specified activity in that range, their schedule will not change.
5. Select one of the following options:
   - **Replace activity**
   - **Move to new start time**
   - **Move to a later time**
   - **Move to an earlier time**
   - **Extend**
   - **Shorten**
6. Depending on your selection, fill in the activity or time.
7. Click **Save** to confirm the edit.

NOTE You cannot edit meetings, overtime, or base activity.

Edit a location

1. In the **Day** view, click to select the agent(s).
2. Select **Edit Location**.
3. Select **Home**, **Office**, or **None**. If you exceed the seat capacity, a warning message will appear. Click **OK** or **Cancel**.
4. Adjust the time range, if necessary.
5. Click **Save**.

NOTE To change an existing location, in the **Day** view, in the **Name** column, click the **Home** or **Office** symbol, select **Home**, **Office**, or **None**, and click **Save**. To edit a location in the **Week** view, see the Edit a location procedure at View a schedule overview for a week (Schedules tool).

Edit a meeting

1. Select the meeting to edit.
2. Click **Actions** and select **Edit meeting**.
3. If this is a recurring meeting, select which meetings you want to edit.
   - **This instance**—Update meeting details only for this instance. This instance will then no longer belong to the series.
   - **Entire series**—Update meeting details for all meetings in the series, including previous instances.
   - **This and following**—Update the selected meeting and all the following meetings in the series, but keep earlier meetings in the series as they are.
4. Update the meeting with the new details.
5. Click **Save**.

Remove an activity

This works for both regular activities and personal activities.

1. Click to select the agent(s).
2. Select **Remove activity** in the actions menu.
3. Select the activity that you want to remove.

4. Adjust the time range, if necessary. If an agent doesn't have the specified activity in that range, their schedule will not change.
5. Click **Save** to confirm the removal.

NOTE You cannot remove meetings, overtime, or base activity.

Remove shifts

1. Select agents.
2. Select **Remove shift**.
3. Click **OK** to confirm the removal.

NOTE Any meetings scheduled using the Meetings tool, personal activities, and absences are not removed by this command, but they are not visible as long as there is no shift in connection to them.

Remove days off

1. Select agents.
2. Select **Remove day off**.
3. Click **OK** to confirm the removal.

NOTE To remove days off in the **Week** view, see the Remove days off procedure at View a schedule overview for a week (Schedules tool).

Remove an absence

1. Select agents.
2. Select **Remove absence**.
3. Click **OK** to confirm the removal.

NOTE To remove an absence in the **Week** view, see the Remove a full-day absence procedure at View a schedule overview for a week (Schedules tool).

Change shift category

The shift category, with the short name and color, is shown to the left of the shift. Hover the shift category to see the full name.

1. Click the current shift category. A new window opens.
2. Select the accurate shift category in the list.
3. Click **Save**.

View and add notes

View and add notes related to an agent's schedule. Use internal notes as reminders for yourself and other schedulers. Use public notes to inform or remind an agent of something.

When a note is entered for an agent on a day, the **Notes** icon is always visible . If there is no note, you must hover the agent to show the **Notes** icon.

1. Hover the agent name and click the **Notes** icon.
2. Enter text in the **Internal** note or **Public** note field.

   All notes can be read by other team leaders or schedulers with access to that agent within the Schedules tool or in the Schedules module in the WFM client. Public notes are additionally shown to the agent in the schedule view in MyTime.
3. Click **Save**.

Undo a change

Undo your most recent change. If another user has made a change that affects the same activity or absence after your change, you cannot undo your change.

1. Click **Undo**.
2. Click **OK** to confirm.

Handle conflicts with activities that are not overwritable

When you add or move activities or personal activities in Schedules, you get a warning if the activity is placed on top of an activity that is not overwritable. This warning shows when you click **Save**. If this happens, choose how to handle this situation.

1. Select what option to use. In specific situations, only some of these options are available.

   - **Place meeting on top of non-overwritable activities**—Select this option to add the new activity under the non-overwritable activity. This is useful when you for example add a longer activity and want to keep the short break.

- **Move non-overwritable activities for these agents**—Select this option to move the non-overwritable activity so that the new activity can be added without overwriting it.
- **Do not make changes for these agents**—Select this option to add the activity for all agents where it does not overwrite a non-overwritable activity, but not for the affected agents.
- **Override for these agents**—Select this option to add the activity for all selected agents, regardless of if it is placed on top of any non-overwritable activities.

2. Click **OK**.

Move an invalidly overlapped activity

Use this function to move non-overwritable activities which are overlapped by other activities. Only regular activities can be moved. Any personal activities which are invalidly overlapped must be handled manually.

This functionality can be used for example when you add a meeting to several agents and the lunch activity is invalidly overlapped for some of those agents.

1. Click **Settings** and turn on warnings by selecting **Show warnings**. Make sure that the **Overwriting of activity** check box is selected. The agents with invalidly overlapped activities are highlighted in yellow and warning icons are displayed.
2. Select the agents for which you want to move an invalidly overlapped activity. If several agents have invalidly overlapped activities, you can select all agents.

   NOTE When selecting all agents, the schedules are only changed for agents that have invalidly overlapped activities.

3. Select **Move invalid overlapped activity** in the actions menu. The activity is moved according to these rules.
   - The first option is to move the activity to the closest time where it's not overlapped by any other activity. The activity must remain inside the shift and the move is blocked if it would overlap another non-overwritable activity.
   - The second option is to move in the other direction.
   - If neither the first nor the second option works out, a warning is shown to inform you that there are still non-overwritable activities which are invalidly overlapped.

Related Topics

- View detailed schedules (Schedules tool)
- View a schedule overview for a week (Schedules tool)
- Keyboard shortcuts in WFM

View a schedule overview for a week (Schedules tool)

Get an overview of the schedules for the full week in the Schedules week view. The schedules in the week view are always shown in your time zone, that is the defined time zone of the logged in user.

For days with shifts, the name and color of the shift category and the start and end time of the shift are displayed. Days off have gray diagonal stripes.

If overtime is scheduled on a day, this is highlighted with an **Overtime** label.

For days with full-day absences, the name and color of the absence type are displayed. If a full-day absence is on a day off, the name and color of the absence type are shown with diagonal stripes. Part-day absences are not shown in the week view.

If a day is blank, no shift is scheduled. A meeting or personal activity can still be scheduled for the agent on that day, but if they are not connected to a shift they are neither shown in the Schedules tool, nor to the agent in MyTime.

> **NOTE** If other users have made schedule changes for the selected week and the selected teams, the **Refresh** button is available. Click the **Refresh** button to load the latest schedule changes.

Prerequisites

- You have the Web > Schedules permission.
- You have the Web > Schedules > Edit location permission.
- You have the Global functions > View schedules permission.

Page location

WFM > Schedules > Week view

Procedures

Select agents

Select the agents to view schedules for by their teams, sites, skills, or by group pages. Combine several items to show agents with a specific combination of settings.

EXAMPLE The *London* and *Paris* sites and the *Full-time* contract are selected. The agents who have the *Full-time* contract and who work in either the *London* or the *Paris* site are shown.

NOTE You cannot select both skills and skill groups at the same time. If you select a skill, any previously selected skill group is removed from the selection, and the other way around.

1. Click **Select sites / teams / skills**. When a selection is already made, the field states the selected items.
2. Click an arrow to expand the **Sites**, **Skills**, **Skill groups** or any group page and then select the check boxes for the ones to open. If there are many items in the list, type in the field to find the ones you are looking for more easily.

Select date

- Click in the date field to select a specific date. The week which contains that date is shown.
- Use the arrows next to the date selection to go to previous or next week.

NOTE The date you select affects which agents you see. For example, if you are viewing schedules for Team A, the list shows the schedule for the agents who belong to Team A on the selected date.

Edit a location

1. In the **Week** view, click one or more days for one or more agents.
2. Select **Edit Location**.
3. Select **Home**, **Office**, or **None**. If you exceed the seat capacity, a warning message will appear. Click **OK** or **Cancel**.
4. Click **Save**.

Add days off

1. In the **Week** view, click one or more days for one or more agents.
2. Select **Add day off**.

3. Select the type of day off.
4. Click **Save**

Remove days off

1. In the **Week** view, click one or more days for one or more agents.
2. Select **Remove day off** and click **OK**.

Add a full-day absence

1. In the **Week** view, click one or more days for one or more agents.
2. Select **Add full-day absence**.
3. Select the type of absence.
4. Click **Save**.

Remove a full-day absence

1. In the **Week** view, click one or more days for one or more agents.
2. Select **Remove full-day absence** and click **OK**.

Related topics

- View detailed schedules (Schedules tool)
- Make schedule changes (Schedules tool)
- Create skill groups

Monitor agents' focus and activity

The Agent Explorer page allows a supervisor or manager to view an agent's focus and activity for a specific date in a single view.

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise
  - Desktop Analytics
- You have the View Desktop Analytics permission.
- Your organization does not use RTE recording (also known as chunk recording). Because of the way RTE recording processes desktop data, Agent Explorer is not available for integrations with Cisco Webex Contact Center.

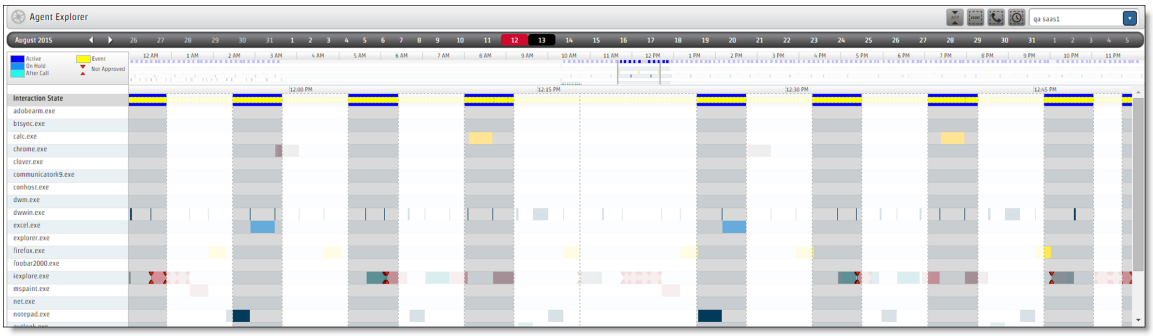
Page location

Agent Explorer

Procedures

View an agent's focus and activity:

1. Select the agent from the **Choose an agent** drop-down list (top right of the page). A list of programs the agent used and the agent's state while using those programs displays.



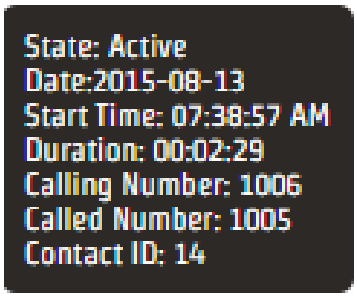
> **NOTE** For more information about what you can see on this page, see Agent Explorer overview.

2. (Optional) Click a date or the month arrows at the top of the screen to view a different date. Agent Explorer does not display information for today or dates in the future.
3. Drill down for more information using one or more of the procedures below.

See more information about an interaction state, event, document, or URL in the main panel:

Hover over the element. A tooltip appears.

EXAMPLE This is a tooltip for an interaction state.

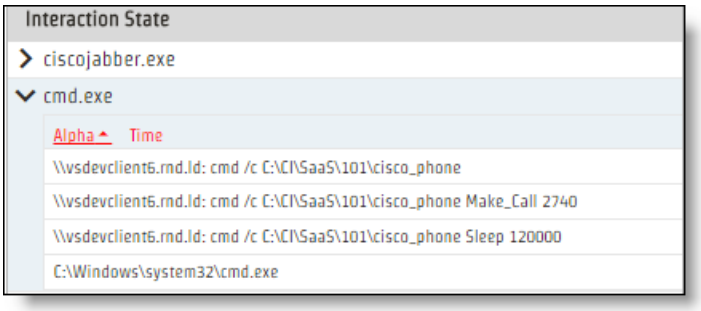


See an agent's focus during calls only:

1. Toggle the **Call Boundaries** button on.
2. Toggle the **Idle Boundaries** button off.

See the documents or URLs an agent accessed from an application or website:

1. In the column under Interaction State, click the arrow to the left of the application or website name.
2. To sort the documents or URLs alphabetically, click **Alpha**. To sort them by the time the agent accessed them, click **Time**.



Turn off the non approved content markers:

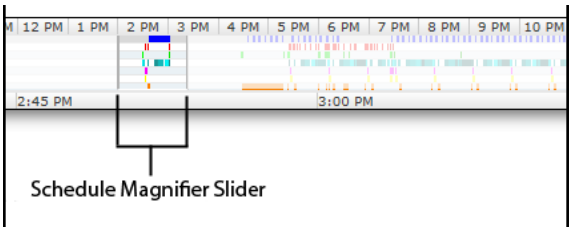
Toggle the **Non Approved Content Markers** button off.

Highlight a specific kind of event:

1. Toggle the **Events** button on. The Events dialog box opens.
2. Select the kind of event to highlight.

Zoom in on a part of the agent's schedule:

1. Click the Schedule Magnifier slider in the time scale bar at the top of the page.
2. To view the schedule in 15-minute increments, drag the slider horizontally, or click a time in the time scale bar.



NOTE Your web browser's zoom in and zoom out features do not work in Agent Explorer. If you use the zoom in or zoom out feature, the selected time does not display correctly when you use the Schedule Magnifier slider.

Play a recording associated with an interaction state:

1. Click an interaction state associated with a call. The column below the interaction state is highlighted purple.
2. Double-click the interaction state. The Media Player opens.
3. Click **Play** in the Media Player.
4. If you have Speech Analytics, click the **Speech** tab to see phrases associated with the recording.

Related topics

- Agent Explorer overview
- View agent actions for a contact—View the apps and websites an agent used on a specific call
- Review detailed historical adherence—View an agent's adherence in WFM

Agent Explorer overview

The Agent Explorer page contains the main grid and a toolbar. The left pane of the grid displays the applications and websites used by the agent. The right pane shows when the document or URL was used. They are displayed in different colors so you can readily see changes to an agent's focus.

The four buttons on the toolbar are toggles that control what is displayed in the grid. The legend at the left under the calendar bar identifies what the colors and symbols in the grid mean.

Button	Name	Description
	Non Approved Content Markers	Toggles Non Approved Content markers that designate applications the agent used that are not approved.
	Events	Toggles Event markers that indicate the agent's focus on an application that triggered the event. The event is highlighted in yellow in the Interaction State row. When toggled on, the Events dialog box opens that prompts you to select the type of event to highlight. By default, all events are selected.
	Call Boundaries	Highlights the duration of a call in gray. If you want to see only an agent's focus during a call, toggle the Call Boundaries button on and toggle the Idle Boundaries button off.
	Idle Boundaries	Highlights the idle time information between contacts in white, including the applications used during that time. Toggling this button off allows you to clearly see approved and unapproved applications during a contact.

An Interaction State row appears immediately below the legend. The Interaction State shows the status of the agent's call status at a specific point in time.



NOTE You might see System Lock in one of the rows below Interaction State. This means that an agent's desktop was locked or asleep and shows what applications or websites were in focus during that state.

Monitor agents in real time

The Agent Monitoring page lets you listen in on a call and view an agent's screen in real time. Use live monitoring to ensure customer service quality and the agents' proficiency in handling customer contacts and associated tools.

With live audio monitoring, you can hear (but not interact with) any party on a call. With live screen monitoring, you can view an agent's screen activity, whether or not that agent is on a call. You can monitor only one agent at a time.

NOTE The Smart Desktop Client - Screen Recording Priority field on the QM Global Settings page lets you set where the screen recording takes place (at the thin client or endpoint/PC) when an agent is logged in to both. (See Configure QM global settings.)

Prerequisites

- Your organization has one of these license combinations:
  - Quality Management (QM)—Provides screen and audio monitoring
  - Compliance Recording (CR) with the additional Monitoring license—Provides screen monitoring
  - Workforce Management (WFM) with the additional Monitoring license—Provides screen monitoring
- You have the Agent Monitoring permission.
- (To use the Agent Monitoring Report button) You have the Agent Monitoring Report permission.
- You have scope over the agents you want to monitor.
- You are using Chrome, Firefox, or Edge Chromium as your browser.
- (for live screen monitoring) Both you and the agent have the Live Screen Monitoring permission.
- (for live screen monitoring) Smart Desktop is installed on agent PCs.
- (for live audio monitoring) Both you and the agent have the Live Audio Monitoring permission.
- (for live audio monitoring) The agent is currently on a call.
- (for live audio monitoring) Webex WFO records agents' calls through desktop recording (endpoint) or server recording (Cisco BiB). Live audio monitoring is not available if your system uses gateway recording or CCaaS recording solutions where the CCaaS vendor records the audio (for example, Cisco Webex Contact Center or Cisco Webex Calling).

- (for NAT environments only) The Webex WFO environment includes a configured STUN/TURN server.
- Ports TCP/UDP 49152–65535 are open in your firewall.

Page location

Application Management > Global > Monitoring > Agent Monitoring

Procedures

Filter the list of agents

- By default, the page displays all connected agents within your scope along with their current status. To more easily locate the agent you want to monitor, use the **Group**, **Team**, and **Agent** drop-down filters to narrow the list of agents.
- Further narrow the list of agents by selecting the **Show only connected users** or **Desktop Client** check boxes.

Check box	What it shows you
Show only connected users	Agents who can be monitored right now. They are either ▪ Logged in to a computer that has Smart Desktop Capture installed and are connected to the Webex WFO app server *or* ▪ Recorded via network recording and associated with a device via the Device Associations page (see Associate phones with agents, recording groups, and recording types)
Desktop Client	Agents who are logged in to a computer that has Smart Desktop Capture installed.
Live Monitor	Agents who have the Live Screen Monitoring and/or Live Audio Monitoring permission.

- You can also limit results by choosing the number of past days' data to display.
- Click **Reset** at any time to revert to the default filter settings.

Monitor an agent's audio

You can hear audio only if the agent is on a call. Webex WFO does not track or provide call control for the session, but you can transfer the call to another device as you would a normal call.

PREREQUISITE Audio monitoring requires a QM license. It is not available with the Monitoring license.

NOTE Before starting a live audio monitor, always verify that the agent is logged in.

NOTE If you use a Cisco phone without a headset, you might need to lift the handset before beginning live audio monitoring.

1. Click the agent's audio monitoring icon . The icon's color indicates the agent's monitoring status.

Color	What it means
Black	The agent can be monitored. ■ The agent is configured for desktop recording and has Smart Desktop Client running on their PC with the correct permissions for live audio monitoring. ■ The agent is configured for server recording and is assigned to a monitored device on the Device Associations page (Application Management > QM > QM Configuration > Device Associations).
Gray	The agent cannot be monitored. ■ The agent is configured for desktop recording but is not logged in, does not have Smart Desktop Client running on their PC, or does not have the correct permissions for live monitoring. ■ The agent is configured for server recording and is offline or not assigned to a monitored device on the Device Associations page (Application Management > QM > QM Configuration > Device Associations).
Green	The agent is being monitored.
Blinking yellow	The agent is available but for some reason cannot be monitored.
Red	There is a connection error, and the agent cannot be monitored.

2. To end the monitoring session, click the audio monitoring icon again.

Monitor an agent's screen

1. Click the agent's screen monitoring icon . The **Live Screen Monitoring** window opens. The icon's color indicates the agent's monitoring status.

Color	What it means
Black	The agent can be monitored. They have Smart Desktop Client running on their PC with the correct permissions.
Gray	The agent cannot be monitored. They are offline or do not have correct permissions.

2. Click **Screen** to start the monitoring session. Click **Audio** to monitor the agent's call.
    - If the agent locks their screen, the progress bar at the bottom of the window displays the pause icon.
    - If the agent's PC goes into sleep mode, the window stops displaying activity.
    - Monitoring does not automatically resume when the agent logs back into their PC. To resume monitoring when the agent is logged back in, close the current window and reconnect.
3. To end monitoring, click **Disconnect**.

> **BEST PRACTICE** To end monitoring, always click **Disconnect** before closing the **Live Screen Monitoring** window.

Export agent data

- Click **Export Agent List** to export information about the agents who are displayed on the page in CSV format. The export file is named **agents.csv**.

Report on past monitoring sessions

The monitoring report contains information about which agents within your scope were monitored, who monitored them, and how.

1. (Optional) Filter the information on the page as needed. See Filter the list of agents for instructions.
2. Click **Agent Monitoring Report** (upper-right corner of the page). The file named **AgentMonitoringReport.csv** downloads to your device. The table below defines the fields in the file.

Field	Definition
Event	The monitoring event that occurred: either Start Monitor or End Monitor. Each monitoring session has two rows in the file, one for

Field	Definition
	when it started and one for when it ended. If a session has a Start Monitoring event but no End Monitoring event, it is probably because the monitor closed the monitoring window without clicking the Disconnect button. A session might also have no End Monitoring event if there was a system outage during the monitoring session.
Type	The method of monitoring: either Audio or Video.
Timestamp	The date and time when the start or end event happened.
Agent Id	The unique Webex WFO user ID for the agent.
Agent Name	The first and last name of the person who was monitored.
Agent Email	The email address of the person who was monitored.
Supervisor ID	The unique Webex WFO user ID for the monitor.
Supervisor Name	The first and last name of the person who monitored the agent.
Supervisor Email	The email address of the person who monitored the agent.
Monitoring Session ID	A string of letters and numbers that is unique to the monitoring session. The start and end events for a session have the same session ID. To determine how long a monitoring session lasted, compare the **Timestamp** fields for the start and end events. This field is blank if the monitoring session happened before the reporting feature was built.

Why is an End event for a monitoring session missing from my monitoring report?

There are a few reasons why a monitoring session's End event might not appear in the report export:

Reason	Solution
The monitor closed the monitoring session without clicking the **Disconnect** button.	Unfortunately, there is no way to recover the End event for this session.
A connection issue happened while the agent was logged in to Webex WFO.	Have the agent log out of Webex WFO and log back in.

Related topics

- Associate phones with agents, recording groups, and recording types
- Configure QM global settings
- Monitor agent adherence—View agents' adherence in WFM
- Monitor adherence on team level—View team-level adherence in WFM

Review absence and text requests

WFM can handle most agent absence requests automatically. However, if you want to review absence requests that were processed automatically or if you want to manually approve or deny absence requests, you must use the web Requests tool. For example, you can use this tool if you want to handle a holiday or peak period manually. Text requests always require manual approval. You can use the time zone filters at the bottom of the page to view the data in your time zone or the request time zone. You can use the Columns drop-down list to choose which columns are visible in the table. Each column also has a drop-down list to move a column or sort the column data alphabetically.

NOTE It is not possible to approve a request that you have already denied. Instead, you can either manually add the absence to the agent's schedule or ask the agent to submit their request again.

Prerequisites

- You have the Web > Requests permission to access the Requests tool.
- For some functionality in Requests, you need additional underlying permissions.
  - Approve/deny request to approve or deny requests.
  - Cancel request to cancel previously approved absence requests.
  - Reply to request to send a text message to the requesting agent, e.g. asking for a clarification, without changing the status of the request.
- You have the Global functions > View schedules permission to see the shifts for the days of the requests.

Page location

WFM > Requests > Absence and Text tab

Procedures

Select team or site and a date period

Select the teams or sites you want to work with, as well as choose a date period, before reviewing and approving or denying requests.

1. Click **Site/team**. When teams are already selected, the field states selected teams.
2. Select by **Group pages**.
3. Select the check boxes for the sites and teams or group pages to open.
4. If there are many sites, teams and groups, use the search function to find the ones you are looking for. The current week's requests, made by agents who belong to the selected teams and sites, will be displayed.
5. To change the date period, select a new start and end date by clicking in the calendar view.

> **NOTE** The date you select affects which agents' requests you see. For example, if you are reviewing requests for Team A, the list shows the requests made by agents who belong to Team A on the selected date.

Filter list of requests

Use the filters to find certain requests.

1. Open the menu below the **Type** header and select the check boxes for the absence types to see.
2. Click the filter icon below the **Subject** or **Message** header and enter the text to filter on in the respective columns.
3. Open the menu below the **Status** header and select the check boxes for the statuses to see.

> **NOTE** By default, the list of requests only includes requests which are **Pending** or **Waitlisted**.

Approve or deny an absence request

When you approve an absence request, the absence is automatically added to the agent's schedule. The agent receives a message that informs them about the decision, regardless of if you approve or deny. To include a written response to the agent, see Reply to a request. It is not possible to make changes to an agent's request.

1. Start by selecting teams or sites and a date period.
2. Use the information available in the table to decide to approve or deny the request.

- View the information given by the agent in the **Subject** and **Message** columns.
- Read any information stated in the **Deny reason** column, to see if the request has failed any of the validations.
- Check the personal account balance in the **Account details** column.
- Click **View allowance** and select the agent's budget group and the relevant week to check if there is enough budget allowance. See Review allowance when approving absence requests for more information.
- If the agent is in another time zone, select another time zone from the **Viewpoint (time zone)** drop-down list to show requests in the time zone of the agent.
- Click the menu button at the far right of the header bar to select to show additional columns with information.

3. Use the Staffing tool to evaluate if the current situation allows agents to take time off.
4. Select the requests you want to approve or deny by selecting the check boxes.
5. Click **Approve** or **Deny** to change the status of the selected requests.

Approve or deny a text request

When you approve a text request, an automatic message is sent to the agent to inform them about the decision. To include a written response to the agent, see Reply to a request.

1. Start by selecting agents and a date period.
2. Decide to approve or deny based on the information given by the agent in the **Subject** and **Message** columns.
3. Select the request you want to approve or deny by selecting the corresponding check box.
4. Click **Approve** or **Deny** to change the status of the selected requests.

NOTE If you approve a text request, this will not result in any automatic changes of the schedule.

Cancel an absence request

If the situation changes, you may have to cancel a previously approved request. Canceling a request will remove the absence from the schedule, and the agent will be informed that the absence is canceled.

1. Start by selecting agents and a date period.
2. Filter to show approved requests.

3. Select the request you want to cancel by selecting the corresponding check box.
4. Click **Cancel**.
5. Click **Yes** to confirm.

NOTE The setting in the workflow control set that defines how late absence requests can be canceled only applies to when agents cancel their own requests.

Reply to a request

Use the **Reply** option if you want to reply to a request with a text message. This can be used for example to ask why the agent needs time off or to give a reason why the request is denied or canceled. Choose to just send a text message or to send a text message and approve, deny, or cancel the request.

1. Start by selecting agents and a date period.
2. Select the request you want to reply to by selecting the corresponding check box.
3. Click **Reply**.
4. Write your reply and click on one of the reply options; **Reply and approve**, **Reply and deny**, **Reply and cancel**, or just **Reply**. The **Reply** options do not change the status of the request.

Manually process the waiting list

The absence request waiting list is processed regularly, but it will not be triggered by for example changes in the forecast or when the budget allowance is increased. For these situations you can manually start the processing of the waiting list, to ensure any absence requests that can be approved will be approved directly.

1. Click **Process waiting list**.
2. Select the period for which you want to process the waiting list. All requests which include a date within the selected period will be validated according to the settings in the workflow control set and approved if possible.
3. Click **Run**.

   The process is done in the background and can take some time before it is finished. The agents will get a message in MyTime if the request is approved or denied. If the request is approved, the absence will be added to the schedule.

NOTE You can bypass the waiting list order, for example if someone has requested time off for something important, like to attend a funeral. Just select the request and click **Approve**.

Related topics

- Create rules to handle absence requests
- How absence request validation works
- Review allowance when approving absence requests
- How using budget allowance works
- How waitlisting absence requests works

Review allowance when approving absence requests

The detailed allowance information in the View allowance view is based on the allowances set up in the Budgets tool. It is useful when you manually approve absence requests to know how much of the allowance that has been used and how much that remains.

> **NOTE** The used allowance is always based on the absence types that are included in the request allowance.

Prerequisites

- You have the Web > Requests permission.
- Allowance is set up in the Budgets tool.

Page location

WFM > Requests > Absence and text tab > View allowance

Procedures

Select a budget group and time period

The allowance is presented per budget group and week, with details per date.

1. Select the budget group of the agents whose requests you are reviewing.
2. Click on the date selector and select the date you want to view. The selected date is highlighted in green.
3. Click the refresh button to load the latest information.

Use the allowance overview when approving absence requests

Choose to approve absence requests manually based on counting FTEs (full-time equivalents) or head count. When using FTEs, 1h of absence counts as 1h and 8h of absence counts as 8h. When using head count, an agent being absent 1h counts as 1 head and an agent being absent 8h also counts as 1 head.

To review and approve requests based on the remaining allowance in FTEs, use the row **Absolute difference**. It shows the remaining FTEs in the allowance.

To review and approve requests based on the number of agents who are already absent this day, compare the **Head count** with the **Allowance after threshold**.

Interpret the allowance information

Review the allowance information to see if there is enough allowance to approve any absence requests.

- **Full allowance**—How much allowance there is in FTEs, (full-time equivalents), in total for the selected day and budget group.
- **Allowance after threshold**—The part of the allowance that can be used for automatic approval of requests, in FTEs. If approval of a request would cause this value to be exceeded, it will not be automatically approved.
- **Used total**—The total number of absent FTEs on this day for all absence types which are included in the request allowance.
- **Used <absence type>**—The row for each absence type shows the number of FTEs who are absent with this absence type on this day.
- **Absolute difference**—The difference between the **Allowance after threshold** and the **Used total**. Indicates how much allowance in there is left on this day in FTEs.
- **Relative difference**—A percentage value indicating how much of the **Allowance after threshold** that has been used so far.
- **Head count**—The number of agents that have been granted absence on this day for this budget group. This is for all absence types included in the request allowance and regardless of the duration of the absence and regardless of if the day is a workday, a day off or not scheduled.

NOTE

- If you are using the **Budget group** option for automatic approval of requests, look at the **Absolute difference** value to see if more requests can be automatically approved for this day. With this option, only the FTE time is deducted when an agent requests time off. For

example, if an FTE is 8h and an approved request is for 2h, 0,25 is deducted.

- If you are using the **Budget group head count** option for automatic approval of requests, look at the difference between the **Allowance after threshold** and the **Head count** values to see if more requests can be automatically approved for this day. With this option 1 FTE is always deducted for each absence, regardless of if the agent has requested 2 hours off or 8 hours off.

Related topics

- Create allowances for absence requests
- How using budget allowance works
- How absence request validation works
- Create rules to handle absence requests
- Review absence and text requests

Review overtime requests

Most agent overtime requests can be handled automatically, but for the overtime requests that you want to approve or deny manually this can be done in the web Requests tool.

Prerequisites

- You have the Web > Requests permission to access the Requests tool.
- For some functionality in Requests you need additional underlying permissions.
  - Overtime requests to see the overtime requests.
  - Approve/deny request to approve or deny requests.
  - Edit site open hours to set up site open hours to be used in overtime request validations.
- You have the Global functions > View schedule permission to see the shifts for the days of the requests.

Page location

WFM > Requests > Overtime tab

Procedures

Select team or site and a date period

Select the teams or sites you want to work with, as well as choose a date period, before reviewing and approving or denying requests.

1. Click **Select organization**.
2. Select the check boxes for the sites and teams you want to open.

   Click the small arrow next to the name of a site to show the teams on that site. If there are many sites and teams, use the search function to find the sites or teams you are looking for.

3. Click **Select**. The current week's requests, made by agents who belong to the selected teams and sites, will be displayed.
4. To change the date period, click the input field and select a new start and end date by clicking in the calendar view.

> **NOTE** The date you select at the top of the page will affect which agents' requests you will see. For example, if you are reviewing requests for Team A the list will show the requests made by agents who belong to Team A on the selected date.

Filter list of requests

Use the filters to find certain requests.

1. Ensure the **Show filter** toggle is turned on.
2. Open the menu below the **Type** header and select the check boxes for the absence types you want to see.
3. Click the input field below the **Subject** or **Message** header and enter the text you want to filter on in the respective columns.
4. Open the menu below the **Status** header and select the check boxes for the statuses you want to see.
5. To remove the filter again, click the **Clear** button at the far left on the filter row.

> **NOTE** By default, the list of overtime requests will only include requests which are Pending.

Approve or deny an overtime request

When you approve an overtime request, the overtime activity is automatically added to the agent's schedule. The agent receives a message that informs them about the decision, regardless of if you approve or deny.

1. Start by selecting teams or sites and a date period.
2. Use the information available in the table to decide to approve or deny the request.
    - Click **View schedules** next to the agent's name to view the agent's current shift.
    - View the information given by the agent in the **Subject** and **Message** columns.
    - Read any information stated in the **Deny reason** column to see if the request has failed any of the staffing validations.
    - Read any information stated in the **Broken rules** column to see if the request has failed any of the work rule validations.
    - If the agent is in another time zone, use the toggles at the bottom of the page to show requests in the time zone of the agent.
    - Click the menu button at the far right of the header bar to select to show additional columns with information.
    - Use the **Staffing** tool to evaluate if extra agents are needed according to the current situation.
3. Select the requests you want to approve or deny by selecting the check boxes.
4. Click on **Approve** or **Deny** to change the status of the selected requests.

Set site open hours

Set site open hours to ensure that agents who are requesting to work extra hours won't end up with scheduled time outside of the open hours of their site.

1. Click **Site open hours**.
2. Click to select the site you want to set open hours for.
3. Enter the open hours most commonly used for this site. If the open hours end after midnight, click the sun icon and then enter the end time.
4. Click **Add open hours**
5. Select the check boxes for the days when these open hours are used.
6. If there are other open hours on certain days of the week, repeat steps 3 to 5 as many times as needed.
7. Click **Save**.

NOTE If you select the **UseTimeZone** check box, the site open hours are based on the site time zone. If you clear the **UseTimeZone** check box, the site open hours are based on the agent's time zone. For more information, go to Configure the organization hierarchy for WFM.

Related topics

- Create rules to handle overtime requests

Manually handle shift trade requests

Most agent shift trade requests can be handled automatically, but for the shift trade requests that you want to handle manually, for example if the shift trade fails a validation, this can be done in the web Requests tool.

> **NOTE** In the Requests tool, you can only review shift trade requests that were approved by both agents. For example, if agent 1 sends a shift trade request to agent 2 but agent 2 does not approve, the request will not appear in the Requests tool. Similarly, if agent 1 sends a shift trade request to agent 2 and the request is automatically denied, it will not appear. However, these requests are available in the Requests per Agent report

Prerequisites

- You have the Web > Requests permission to access the Requests tool.
  - You have the underlying permission Approve/Deny request to approve or deny requests.
  - You have the underlying permission Reply to request to reply to requests with a text
  - You have the underlying permission Edit site open hours to set up site open hours to be used in shift trade request and overtime request validations.
- You have the Global functions > View schedule permission to see which days agents want to trade.

Page location

WFM > Requests > Shift trade tab

Procedures

Select team or site and a date period

Select the teams or sites you want to work with, as well as choose a date period, before reviewing and approving or denying requests.

1. Click **Select organization**. When teams are already selected, the field states the number of selected teams.
2. Click a tab to select by **Business hierarchy** or **Filter groups**.

3. Select the check boxes for the sites and teams or group pages to open. If there are many sites, teams and groups, use the search function to find the ones you are looking for.
4. Click **Select**. The current week's requests, made by agents who belong to the selected teams and sites, will be displayed.
5. To change the date period, click the input field and select a new start and end date by clicking in the calendar view.

> **NOTE** The date you select affects which agents' requests you see. For example, if you are reviewing requests for Team A the list shows the requests made by agents who belong to Team A on the selected date.

Filter list of requests

Use the filters to find certain requests. First ensure the **Show filter** toggle is turned on.

1. Open the menu below the **Type** header and select the check boxes for the absence types to see.
2. Click the input field below the **Subject** or **Message** header and enter the text to filter on in the respective columns.
3. Open the menu below the **Status** header and select the check boxes for the statuses to see.
4. To remove the filter again, click the **Clear** button at the far left on the filter row.

Approve or deny a shift trade request

Approving a shift trade request automatically swaps the included shifts in the agents' schedules. The agents receive a message that informs them about the decision, regardless of if you approve or deny.

1. Start by selecting teams/sites and a date period.
2. Use the information available in the table to decide to approve or deny the request.
   - Click on either of the agents' shift categories to view the agents' current shifts.
   - View the information given by the agent in the **Subject** and **Message** columns.
   - Read any information stated in the **Broken rules** column, to see if the request has failed any of the work rule validations.
3. Select the requests you want to approve or deny by selecting the check boxes.
4. Click on **Approve** or **Deny** to change the status of the selected requests.

Set site open hours

Set site open hours to ensure that agents who are trading shifts with each other won't end up with scheduled time outside of the open hours of their site.

1. Click **Site open hours**.
2. Click to select the site you want to set open hours for.
3. Enter the open hours most commonly used for this site. If the open hours end after midnight, click the sun icon and then enter the end time.
4. Click **Add open hours**
5. Select the check boxes for the days when these open hours are used.
6. If there are other open hours on certain days of the week, repeat steps 3 to 5 as many times as needed.
7. Click **Save**.

NOTE The site open hours validation of shift trade requests is done according to the agents' time zone. Therefore, set the site open hours in the time zone of the agents at that site.

Related topics

- Create rules to handle shift trade requests
- Set up validations for shift trade requests

How Text Search syntax works

Search for words in contacts with the Text Search filter on the Interactions page. You can enter a basic search as if you were searching Google, but you can also write a query that uses standard syntax operators to make your search more precise.

Examples

The following examples demonstrate the type of queries you can use with the Text Search filter.

NOTE Text searches do not look for the following words. These words are also not highlighted in the search results:
a, an, and, are, as, at, be, but, by, for, if, in, into, is, it, no, not, of, on, or, such, that, the, their, then, there, these, they, this, to, was, will, with

Search for a single word

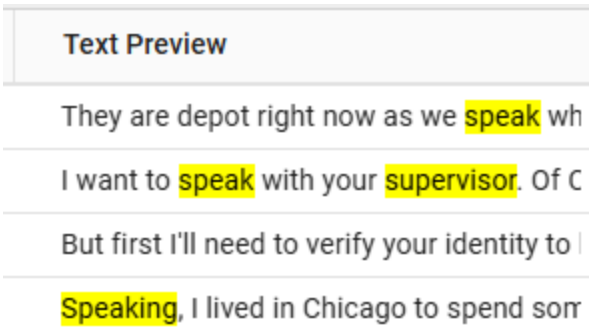
EXAMPLE `supervisor`

The result is a list of all contacts that contain the word “supervisor” or “supervisors.”

Search for multiple words

EXAMPLE `supervisor speak`

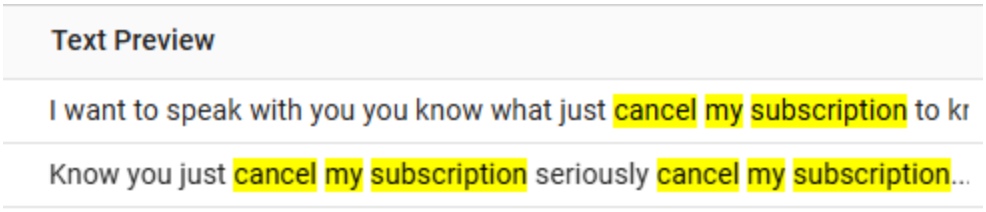
This search consists of two or more words with no operator between them and no quotation marks. The search performs as though an OR operator is present. The result is a list of contacts that contain the word “supervisor,” the word “speak,” or both of the words in no particular order.



Search for an exact phrase

EXAMPLE `“cancel my subscription”`

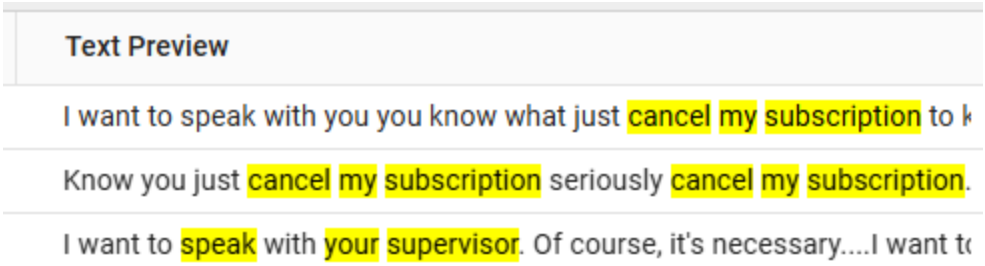
This search consists of two or more words in quotation marks with no operator between them. This search performs as though an AND operator is present. The result is a list of contacts that contain the words “cancel my subscription” in that exact order.



Search for multiple exact phrases

EXAMPLE `“speak to your supervisor” “cancel my subscription”`

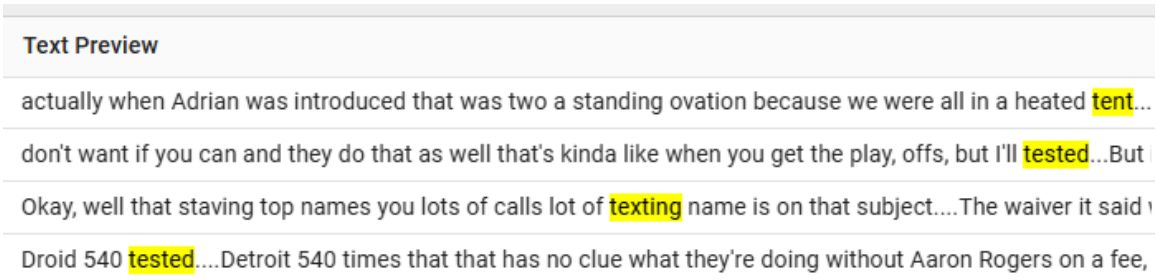
This search places quotation marks around two separate phrases. The result is a list of contacts that include either of these exact phrases.



Search with a single-character wildcard

EXAMPLE `te?t`

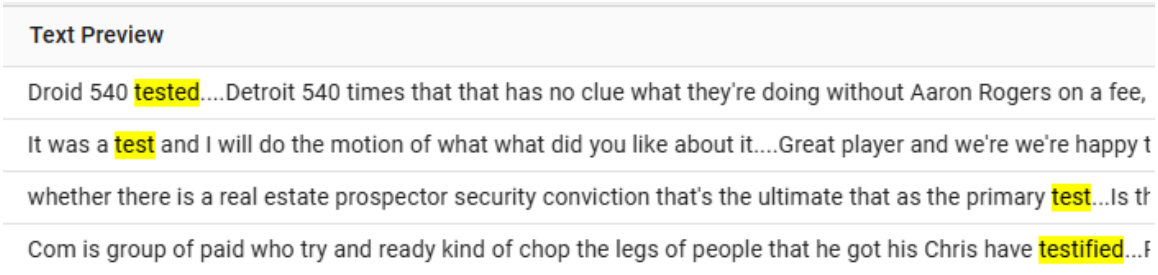
The question mark (?) wildcard character searches for a single character replacement. This search finds hits with “tent,” “test,” and “text.”



Search with a multiple-character wildcard

EXAMPLE `test*`

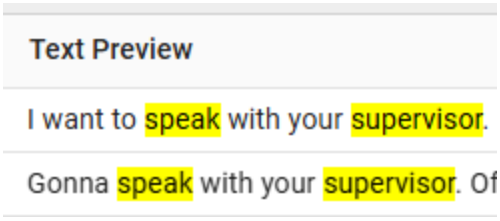
The asterisk (*) wildcard character searches for multiple characters. This search finds hits with “test,” “tests,” “tested,” “tester,” “testing,” and even “testified.”



Proximity search

EXAMPLE `“speak supervisor”~2`

This proximity search looks for the words “speak” and “supervisor” within a maximum of two words. This example shows results that identify the two searched words, two words apart.



BEST PRACTICE When writing a proximity search query, enter the search terms in the order you expect to find them in the transcript. If you’re looking for phrases like “speak with your supervisor” and “speak to a supervisor,” write the query as `“speak supervisor”~2`, not `“supervisor speak”~2`. Proximity searches with randomly ordered search terms might give you unpredictable results.

BEST PRACTICE Limit your proximity searches to a distance of two words. Proximity searches of `~3` or greater might give you unpredictable results.

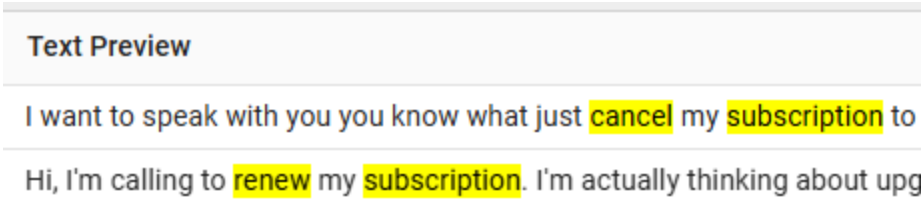
Exclude words

EXAMPLE `(cancel || renew)!subscription`

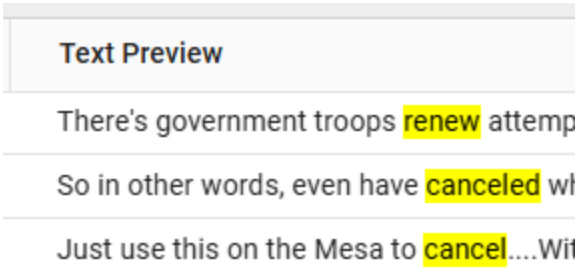
This search looks for contacts with the word “cancel” or the word “renew” but without the word “subscription.”

NOTE You cannot start a query with the ! (NOT) operator. The ! operator must follow a term in the query.

To demonstrate how NOT logic works, the image below shows the results of a query that includes the word “subscription” using AND logic (&&) instead of NOT logic,
`(cancel || renew) && subscription`.



If we change the AND logic back to NOT logic, `(cancel || renew)!subscription`, the search results show only contacts that have the word “cancel,” “renew,” or both, and the word “subscription” is not in the results.



The following table defines each of the supported operators and provides short examples of how to use the operators to form a search query.

Operator	Definition	Sample Query	Query Explanation
~	Use this proximity operator to find words or phrases within a specific number of words. No space before or after this operator. AND logic is applied to all words within the quotation marks of a proximity search.	“speak supervisor”~2	The words “speak” and “supervisor” are searched within two words of each other, with “speak” before “supervisor.” The number 2 indicates the maximum number of words that can appear between “speak” and “supervisor.”
&&	Operates like a Boolean AND logic operator. Add a space before and after.	“cancel subscription”~2 && “renew subscription”~2	This query searches for occurrences of the words “cancel” and “subscription” within two words of each other, that are found along with occurrences of the words “renew” and “subscription” within two words of each other.

Operator	Definition	Sample Query	Query Explanation
||	Operates like a Boolean OR logic operator. Use a space before and after. The OR logic is the default logic used when searching for two independent words.	speak supervisor “cancel subscription”~2 || “renew subscription”~2	The first example searches for either or both of the words “speak” or “supervisor.” The second example searches for occurrences of the words “cancel” and “subscription” within two words, or occurrences of the words “renew” and “subscription” within two words, or both word pairings.
!	Operates like a Boolean NOT operator (performs a negative search). Do not add space before or after this operator. You cannot use this operator and accompanying term or phrase by itself. You must combine this operator with a positive search, where specific terms or phrases are located. The accompanying word that you enter becomes a stem word, and other variations of the word are detected.	(upgrade OR renew)!free hello!“thank call”~2	The search finds contacts that have the words “upgrade” or “renew” without the word “free” anywhere in the contact. The second example shows a search for the word “hello” with no occurrence of “thank” and “call” within two words of each other.
()	The parenthesis are used for grouping or nesting words.	(premium || gold) && (upgrade ||	The search is looking for any of the following combinations of

Operator	Definition	Sample Query	Query Explanation
		renew)	two words: ■ premium upgrade ■ premium renew ■ gold upgrade ■ gold renew

Wildcards

You can modify query terms with single and multiple character wildcards within single terms (but not within phrases).

? (single character)	TE?T finds TEST and TEXT
* (multiple character)	TEST* finds TESTS, TESTER, TESTING, and TEST

IMPORTANT Wildcards might give you unexpected results if you put them into words that have suffixes. For example, “tests,” “tester,” and “testing” all add different suffixes to the same root: “test.” A search for “te*ting” might not find all occurrences of the words “texting” and “testing.” If you get unexpected results with wildcards, try removing the suffix and using just the root word instead.

NOTE You cannot use either wildcard symbol as the first character of a search.

Customize the columns on the Interactions page

The contacts table has columns with information about each contact. You can customize which columns you see and the order they appear on the page.

Prerequisites

- You have the View Contacts permission.
- You have recordings within your scope.
- Some columns require specific permissions. See Column descriptions for more information.
- Some columns require Webex WFO Analytics. See Column descriptions for more information.

Page location

Interactions

Procedures

Show or hide columns

1. Click the **List options** icon (top right of the page) and select **Show/Hide columns** from the drop-down list. The **Show/Hide columns** window opens.
2. To show a column, click the column's name in the **Hidden columns** pane. To hide a column, click the column's name in the **Shown columns** pane.
3. Click **Apply**. The **Show/Hide columns** window closes.

Rearrange columns

- Click and drag columns to rearrange them.

Column descriptions

The following tables describe all the columns that you can display in the contacts table. If the contact is recycled but not yet permanently deleted, all fields except for Contact ID display "######."

Organization

Column Name	Description
Agent ACD ID	The agent's ID in the ACD.
First Name	The agent's first name. **NOTE** If the First Name, Last Name, Group, and Team fields are blank, the recording is a root call. A root call is an unreconciled contact that appears as an archive contact. The call is assigned an agent when it is reconciled (see How root calls and reconciliation work).
Group Name	The name of the group.
Last Name	The agent's last name.
Team Name	The name of the team the agent belonged to at the time the contact was recorded.

Evaluation

Column Name	Description
Approved By	The person who approved the evaluation. This value appears if you are the evaluator or if you have the View Evaluator Details permission.
Calibrated	Whether the contact has been marked for calibration.
Date Evaluated	The date when the contact was evaluated. This information appears if you are the evaluator or if you have the View Evaluator Details permission. If you do not have this permission, this column displays #####. **NOTE** If you are looking for recordings evaluated on a specific day, you might also need to search the recordings for the previous day or the next day, depending on your time zone. To calculate the Date Evaluated, Webex WFO uses the Universal Time Coordinated (UTC) time plus or minus an offset value associated with your time zone. For example, March 24, 2022 2:00 AM UTC converts to March 23, 2022 9:00 PM Central Daylight Time (CDT). A call evaluated late in the evening in the CDT time zone on March 23, 2022 might be filtered as a call that was evaluated on March 24, 2022.
Date Responded	Date the agent responded to the evaluation. **NOTE** If you are looking for responses made on a specific day, you might also need to search the recordings for the previous day or the next day, depending on your time zone. To calculate the Date Responded, Webex WFO uses the Universal Time Coordinated (UTC) time plus or minus an offset value associated with your time zone. For example, March 24, 2022 2:00 AM UTC converts to March 23, 2022 9:00 PM Central Daylight Time (CDT). A response made late in the evening in the CDT time zone on March 23, 2022 might be filtered as a response made on March 24, 2022.
Evaluation Form	The evaluation or calibration form used to score the conversation.
Evaluation Response	The agent's response to the evaluation:

Evaluation (cont'd)

Column Name	Description
	■ Pending—Agent has not yet responded. ■ Acknowledged—Agent has acknowledged the evaluation. ■ Appealed—Agent has appealed the evaluation.
Evaluator Name	The evaluator or calibrator. This information appears if you are the evaluator or if you have the View Evaluator Details permission.
Score	The evaluation score given to the contact. **NOTE** Calibration scores do not appear in this field. For calibration scores, use the Evaluation Calibration.

Date

Column Name	Description
Date	The date on which the contact was captured. The format varies based on the language you select on either the login screen or the settings drop-down list.
Time	The start time of the contact in HH:MM. By default, Webex WFO displays this time in the time zone of the capture source (for example, the Record Server or the PC with Smart Desktop). If the Display Contacts in User Time Zone check box is selected on the QM Global Settings page, Webex WFO displays this time in the user's display time zone. See Configure QM global settings.
Time Zone	The time zone for the date and time fields. By default, Webex WFO uses the time zone of the capture source (for example, the Record Server or the PC with Smart Desktop). If the Display Contacts in User Time Zone check box is selected on the QM Global Settings page, Webex WFO uses the user's display time zone. See Configure QM global settings.

Contact

Column Name	Description
Associated Contact ID	The ID of a contact related to this contact.
Audio File Upload State	The status of the contact's audio file. Possible values for this column are as follows: ■ Null/blank—There is no recording for this contact. ■ File pending upload—Audio has been recorded but has not yet been uploaded. ■ File is uploaded—Audio has been uploaded and can be played back. ■ File is removed—Audio has been recorded, but the recording has been removed. ■ File is invalid—The recording file is invalid and cannot be played back. ■ File is recycled—The audio file is marked to be removed but is still recoverable. **NOTE** This column is not sortable.
Called Number	The direct inward dialing (DID) or Dialed Number Identification Service (DNIS) number of the phone that received the call. Displays "unknown" if the called number is unlisted or blocked. This field applies only to calls.
Calling Number	The caller ID or Automatic Number Identification (ANI) of the calling party. Displays "unknown" if the calling number is unlisted or blocked. This field applies only to calls.
Channel	The channel where the interaction occurred. This column appears if your organization uses a supported integration for social media contacts. The possible values for this field vary based on the types of social media your organization uses.
Contact Duration	The length of time between the call being answered and the call ending, including ring time and extended screen time (if any) in HH:MM:SS.

Contact (cont'd)

Column Name	Description
	This information comes from the signaling service. This field applies only to calls. The call duration shown in the contacts table might not be the same as the duration shown in the Media Player because “event duration” (the time between events) and “recording duration” (the duration within the actual recorded file) can be different. These scenarios cause the call duration to be different: ■ If you use the Recording Controls API to pause, resume, or restart recording, the recording duration is shorter than the actual call duration. For example, if recording is paused for one minute, the recording duration is one minute shorter than the call duration. ■ If you archive or clean a call with a long ring time, the contacts table shows the event duration, and the Media Player shows the recording duration.
Contact ID	The conversation’s unique ID.
Contact Type	Possible values for this column are: ■ Call—A contact with a call recording. ■ Chat—A written contact that happened within your organization’s chat program. This can be with a human agent or with a chat bot. ■ E-mail—An email contact without call recording. This contact type appears only when your organization uses both Quality Management and Analytics. ■ Non-Call—A contact without a call recording that someone created by clicking Create Contact on the Interactions page. ■ Screen Only—A screen recording contact without call recording. ■ SMS—A written contact that happened within your organization’s text-messaging program.

Contact (cont'd)

Column Name	Description
	▪ Text—Depending on how your organization imports written contacts into Webex WFO, this could include emails, chat messages, or other text contacts.
Daily Workflow	The name of the Daily Workflow associated with this contact (see Automate QM workflows).
Direction	The direction of the contact: inbound or outbound.
End of Interaction Workflow	The name of the End of Interaction workflow associated with this contact (see Automate QM workflows).
External Parties	(Chat and SMS contacts only) The email, phone number, or other identifier of the person who interacted with the agent.
From Address	(Email contacts only) The email addresses in the From field. This column is available only with Analytics.
HR	Whether the contact has been marked as an HR contact.
Interaction Preview	A link that opens a window with information about the contact, the agent, and (if you have used the Text Search filter) a preview of the contact's text. If your organization removes sensitive information from transcripts with the Transcription Redaction feature, redacted text appears as **#####.** If your organization has Cisco Interaction Summary, the window contains a summary of the contact.
Reason	The reason the conversation was recorded. This reason is set in the recording rule (see Automate QM workflows).
Recording Type	The recording type associated with this device.
Retention Policy	The policy that governs how long Webex WFO will retain this contact (see Manage data retention policies for QM and Analytics).
State	The state of the contact's evaluation form. Possible values for this column are:

Contact (cont'd)

Column Name	Description
	■ Scored—Contacts that are claimed by an evaluator, fully scored, and approved (if approval is required). ■ Unscored—Contacts that are currently unclaimed by an evaluator and unscored. ■ In Progress—Contacts that are claimed by an evaluator but are not yet completely scored. ■ Cannot Score—Contacts that are claimed by an evaluator but cannot be scored. Evaluations with this state are not included in reporting or performance metrics. ■ Needs Approval—Contacts that are claimed by an evaluator, fully scored, and awaiting approval. ■ Needs Cannot Score Approval—Contacts that are claimed by an evaluator, cannot be scored, and are awaiting approval for the evaluator's inability to score.
Subject	(Non-call contacts only) The email addresses in the To field. This column is available only with Analytics.
Survey Name	The contact's post-call survey form.
Survey Score	The contact's completed survey score.
Text Preview	A preview of search results for your search with the Text Search filter.
To Address	(Non-call contacts only) The email addresses in the To field. This column is available only with Analytics.
Training	Whether the contact has been marked as a training contact.
Video File Upload State	The status of the contact's video file. Possible values for these columns are as follows: ■ Null/blank—There is no recording for this contact. ■ File pending upload—Video has been recorded but has not yet been

Contact (cont'd)

Column Name	Description
	uploaded. ■ File is uploaded—Video has been uploaded and can be played back. ■ File is removed—Video has been recorded, but the recording has been removed. ■ File is invalid—The recording file is invalid and cannot be played back. ■ File is recycled—The video file is marked to be removed but is still recoverable. **NOTE** These columns are not sortable.

Speech fields

Column Name	Description
% Hold	The percentage of the call spent in a hold state.
% Pause	The percentage of the call spent in a pause state.
% Silence	The percentage of the call spent in a silence state (during which neither the caller nor the agent is speaking).
% Talk Over	The percentage of the call spent in a talk over state (during which both the caller and the agent are speaking).
AVG Hold Duration	The average hold time in HH:MM:SS.
AVG Pause Duration	The average pause time in HH:MM:SS.
AVG Silence	The average duration of silence events in HH:MM:SS.
AVG Talk Over	The average talk over time in HH:MM:SS.
Hold Events	Number of detected hold events.
MAX Hold Duration	The duration of the longest hold event in HH:MM:SS.

Speech fields (cont'd)

Column Name	Description
MAX Pause Duration	The duration of the longest pause event in HH:MM:SS.
MAX Silence	The duration of the longest silence event in HH:MM:SS.
MAX Talk Over	The duration of the longest talk over event in HH:MM:SS.
MIN Hold Duration	The duration of the shortest hold event in HH:MM:SS.
MIN Pause Duration	The duration of the shortest pause event in HH:MM:SS.
MIN Silence	The duration of the shortest silence event in HH:MM:SS.
MIN Talk Over	The duration of the shortest talk over event in HH:MM:SS.
Pause Events	The number of detected pause events.
Silence Events	The number of detected silence events.
Talk Over Events	The number of detected talk over events.
Total Hold Duration	The total duration of hold time in HH:MM:SS.
Total Pause Duration	The total duration of pause time in HH:MM:SS.
Total Silence Duration	The total duration of silence time in HH:MM:SS.
Total Talk Over Duration	The total duration of talk over time in HH:MM:SS.

Analytics

Column Name	Description
Predictive Evaluation Score	The predicted evaluation score of an unscored contact. Webex WFO bases this predicted score on Analytics data (including call and agent attributes, speech hits, and desktop activity) and previous evaluation scores.

Analytics (cont'd)

Column Name	Description
Predictive Net Promoter Score	The predicted net promoter score for the contact.
Sentiment	The overall emotional tone of the contact. Possible values are Positive, Neutral, and Negative. This column is available if you have the View Sentiment permission.

Custom metadata

Column Name	Description
Variable text	The custom metadata available in Webex WFO varies by the configuration of your ACD and the Metadata Manager page. This column is available if you have the View Custom Metadata permission. You can edit the values in custom metadata fields if you have the Edit Custom Metadata permission. See Edit custom metadata associated with a contact.

Related topics

- How root calls and reconciliation work
- Automate QM workflows
- Configure QM global settings
- Edit custom metadata associated with a contact
- Delete or update multiple contacts at once

Create a contact

If your agents interact with customers in other ways besides over the phone, you can still evaluate their non-call activities by manually creating a contact.

Examples of non-call activities include:

- Monitoring an agent's screen
- Performing customer service counter work
- Chatting
- Emailing
- Interacting on social media

An evaluator can assign an evaluation form, evaluate the contact, and insert contact metadata.

If you plan to evaluate a manually created contact, you should also use an evaluation form that is specifically created for non-call activities. This allows Dashboard and Reports to accurately report non-call activities. For more information about configuring evaluations, see Advice for evaluation forms.

Create a contact

1. Click the **List options** icon.
2. Click **Create Contact**.
3. Enter or select the date and time that the contact occurred. The default is today's date.

   NOTE The same user cannot be associated with multiple manually created contacts that occur simultaneously.

4. Select a team, agent, and evaluation form.
5. Click **Create**.

Assign review, evaluations, and calibrations manually

You can create a task in which one or more users can calibrate, evaluate, or review one or more contacts. Webex WFO adds the contacts assigned by this task to the contact queue for those users (see Access contacts assigned to you (classic page) or Access contacts assigned to you).

NOTE The contacts you use to create tasks must be less than a year old. Contacts more than a year old do not appear in the contact queue. To share a contact that is more than a year old, see Create hyperlinks to recordings.

Create an ad hoc task

1. Select one or more contacts.
2. Click **Create Task**. The Ad Hoc Task Configuration page appears.
3. Enter a name for your ad hoc task.

4. Select the task type. The task you select determines which users are available in the **Assign To** field. Webex WFO displays only users who have the permissions to perform the specified task.

    - **Calibrate**—Multiple users can be assigned the task of calibrating the selected contacts. The **Evaluation Form** field appears when you select **Calibrate**. Select the form that you want to use to calibrate the contact.

      NOTE If you select this option, any contacts not already marked for calibration will be marked for calibration after you create the task.

    - **Evaluate**—Only one user can be assigned to evaluate the selected contacts. The **Evaluation Form** field appears when you select **Evaluate**. Select the form that you want to use to evaluate the contact.

    - **Review**—Multiple users can be assigned to review (listen to) the call. The **Playback Duration Configuration** slider appears when you select **Review**. The slider determines the percentage of the call (from the beginning) the assignee must review to complete the task. The default is 100%. You can select the percentage in increments of 10%.

5. Select the users to whom you are assigning the task. If you are assigning a Calibration or Review, click **Select All** to add all users in the group to the task.
6. Enter a completion date for the task, or click the calendar icon and select a completion date.
7. (Optional) Select the **Notify on Complete** check box if you want to receive a notification when each assignee completes the task.

    NOTE To be notified, you must also be assigned to the Contact Goal Completed notification.

8. (Optional) Enter any specific instructions for the assignees.
9. Click **Create Task**.

Tag a contact

The Webex WFO administrator controls how long contacts are available on the Interactions page. However, if you want to keep a contact for longer than your organization's standard retention period, you can tag it. Tagging a contact applies a new retention time to that recording. Depending on how your organization uses tagging, Webex WFO retains tagged contacts for a longer or shorter time than non-tagged contacts (see Manage data retention policies for QM and Analytics).

NOTE Tagging a contact overrides some QM workflow rules. If you apply a tag before a QM workflow runs, then Webex WFO keeps that contact and all of its associated media such as audio and screen recordings, regardless of the workflow's retention policies. If you apply a tag after a QM workflow runs, then that tag only affects the audio of that contact, not the screen recording. This means the QM workflow policy applies to the screen recording for that contact, but tagging overrides the workflow policy for the audio. If Webex WFO has recycled the audio recording because a QM workflow has run, that audio is restored. See Automate QM workflowsfor more information about QM workflows.

Prerequisites

- You have the Tag Contact permission and/or the Untag Contact permission.
- Your role and scope allow you to view recordings.

Page location

Interactions

Procedures

Tag a contact

1. Select the contact (don't open it).
2. Click **Tag Contact** (upper right of the page). The icon changes to the Untag Contact icon.

Untag a contact

Untagging a contact applies your organization's standard retention period to the contact.

1. Select the contact (don't open it).
2. Click **Untag Contact** (upper right of the page). The icon changes to the Tag Contact icon.

Related topics

- Manage data retention policies for QM and Analytics—Establish your organization's retention periods for tagged and untagged contacts.
- Automate QM workflows—Create rules for Webex WFO to automatically manage recordings.

Create hyperlinks to recordings

You can create a uniform resource locator (URL) for a recording and send it as a hyperlink to others through a chat message or email. The link points the recipient's browser to Interactions once the recipient is authenticated through the Webex WFO Login page. Once the recipient is authenticated, the recording is opened in the Media Player.

The basic URL format is as follows:

`http://<web server>/index.html#/recordings/<contactID>`

or

`https://<web server>/index.html#/recordings/<contactID>`

where:

`<web server>` is the host name or IP address of the server that hosts Webex WFO

`<contactID>` is the Contact ID for the recording.

> **NOTE** URLs have `/ccr` after the ID for all recordings except root recordings. A root recording is an administrator view for tenants that use gateway recording only. A URL without `/ccr` at the end redirects to one with `/ccr` at the end.

Run a standard QM report

Reporting allows you to run, view, and export informational reports on Webex WFO data. Your administrator determines which reports are available to you by product, report type, and role. The Reporting toolbar gives you access to standard QM reports and reports you have saved for reuse.

> **BEST PRACTICE** Before you run a standard report, know what data you need to access and how best to filter it. Use the smallest possible date range, and use many targeted searches as opposed to a single large search. You can also use group, team, and agent filters to get specific data without running a report for all groups or teams in your system. Let the report finish running before requesting a new report.

Prerequisites

The proper permissions for the report you want to run. The permissions you need can vary depending on the report. See Manage roles and permissions for QM, Analytics, and Insights for the full list of Reporting permissions.

Page location

Reporting

Procedures

Run a report

1. Click **QM** or **Saved** from the Reporting toolbar.
2. Click the report name to display the report's setup page.
3. Complete the report setup information. Choose the date, criteria, format, and fields to be included in the report.

   NOTE For all standard QM reports, the date filter searches based on the date the contact was recorded, not the date the contact was evaluated.

   NOTE If the report allows you to choose the fields that appear in the report and their order, when you click **Run Report** or **Save As**, the selected fields become the default fields for the report for you. Other users do not see your choices when they run the report.

4. (Optional) Choose whether to enable recurrence for the report.

   (Optional) Choose whether to email recurring reports to email addresses you enter in the **Destination** section. At least one email address is required. Email addresses are separated by semicolons. If Webex WFO is configured to email reports, you can set a report to run automatically at specified intervals for a specified length of time or indefinitely.

   EXAMPLE john.smith@example.com;mary.jones@example.com

   NOTE There is a 10 MB attachment size limit for reports that are emailed. The size of the generated report depends on the amount of data included (the number of agents or service queues, for example). To check the size of the report, generate it manually as a PDF or CSV first. If the report is large, break it into smaller reports to ensure it meets the size limitation.

   The email includes your email address in the From field (as the user who scheduled the report). If your email address is not available, the email address will be <your first name>.<your last name>@automated.report.

   NOTE To use Recurrence, you must save the report for future use.

5. Click **Run Report** to run the report immediately.

Save a report

1. Click **QM** from the Reporting toolbar.
2. Click the report name to display the report's setup page.
3. Complete the report setup information. Choose the date, criteria, format, and configure the fields to be included in the report.
4. (Optional) Choose whether to enable recurrence for the report.
5. Click **Save As** to save the report for future use.
6. Enter a name for the report in the Save As text field then click **Save**.
7. When you save a report's configuration, you can access it by clicking **Saved** in the Reporting toolbar and then clicking the report name.

Related topics

- Manage roles and permissions for QM, Analytics, and Insights—Learn about the permissions required for running and accessing reports

Forecasters

Forecasters estimate contact volumes and staffing needs using historical data.

Create a skill

Create a skill to forecast for. Start by choosing the skill type, for example Inbound telephony, Email or Chat.

There is a wizard to help you create a skill and define all the skill settings. The settings define for example which activity the forecast is connected to and the service level target. The procedures below guide you through the steps of creating a skill.

When the skill is created, continue by creating workloads. All settings related to the actual work, for example defining open hours and connecting queues, are defined for the workload. A skill can have more than one workload if the workloads share the same service level targets and the agents can handle the calls on all the workloads within the skill.

The agents are assigned to one or more skills.

> **NOTE** For back-office skills in the web, you can set an extended service level target. See the Create a skill with an Extended service level target procedure for Create a skill (web Forecasts tool).

Prerequisites

🏛 This feature is available to Calabrio GovSuite users.

- You have the Forecasts permission.
- The activity to use for this skill is created, and the **Requires skill** check box is selected for that activity. See Create activities.

Page location

Client > Forecasts

Procedures

Configure the general settings for the skill

1. Right-click the skill type that you want to create a skill for and select **New skill**.

   The **Inbound telephony**, **Chat** and **Retail** skill types are used for highly time-sensitive contacts where the service level is within the length of the defined interval. The other skill types are used for tasks that can wait but should be handled within for example 24h.

   The skill type cannot be changed once the skill is created.

2. Enter a **Name** for the skill.
3. Enter a **Description** for the skill if needed.
4. Select the **Interval length** for the skill. The interval length is defined based on the interval length available in the queue data for this skill.

   If this field appears dimmed and cannot be changed, another skill uses the same activity with that interval length. If the new skill has a different interval length, you must select another activity.

   > **NOTE** If your time zone has an offset from UTC that is not full hours, you must select an interval length that makes it possible to align to full hours. For example, for UTC+5:30, select 15 or 30 minutes. For UTC+5:45, select 15 minutes.

5. The **Skill type** is already set to the one you clicked to create the new skill. It cannot be changed.
6. Select an **Activity** for the skill. The available activities are the activities for which the **Requires skill** check box is selected.
7. Select a **Color**for the skill. The color is shown in the list of skills in the web Forecasts tool.
8. Select a **Time zone**.

   It's often most convenient to select the time zone where the workload is. If the workload covers several time zones, you can select the time zone where the resource planners are.

9. Enter a time for the **Midnight break**.

   The midnight break is the break point for the workday. Normally this is set to midnight. If the workloads close after midnight, set the midnight break to the actual time the workday ends. The midnight break is set according to the skill time zone.

10. For telephony and chat skills, enter the **Abandon rate**. The abandon rate is used to forecast the number of agents needed and calculate the predicted service level. Analyze your abandon rates when

the service level is reached or acceptable and enter that abandon rate for the skill. Avoid using the average abandon rate.

11. For chat skills, enter the **Max parallel tasks**. This is the number of chats that an agent can have ongoing at the same time. The resource need is calculated as the total resource need if each chat was handled one at a time divided by the **Max parallel tasks** value.

12. Click **Next** to define staffing thresholds for the skill.

Configure staffing thresholds

The staffing thresholds defines what should be considered overstaffing, understaffing and critical understaffing for the skill when comparing the schedule to the forecast. This means that there are more agents scheduled than what is required to cover the forecasted need, or that there are too few agents scheduled.

These thresholds have no effect on the forecast. They are used to display staffing level indications in the schedule and for validations of requests and self-scheduling. If you need to adjust the thresholds later, this is done in the skill properties.

1. Define the **Critical understaffing threshold**.

   For intervals where the critical understaffing threshold is exceeded, the relative difference is highlighted in red in the Schedules module. When validating absence requests based on intraday staffing, the request is denied if any interval during the requested absence exceed the critical understaffing threshold.

2. Define the **Understaffing** threshold.

   For intervals where the understaffing threshold is exceeded, the relative difference is highlighted in yellow in the Schedules module. When validating absence requests based on intraday staffing, the request is denied if more intervals than what is defined by the understaffing tolerance exceed the understaffing threshold. This threshold is also used to validate moves of lunches and breaks in self-scheduling.

3. Define the understaffing tolerance in the **For max** field.

   This setting is only used when validating absence requests based on intraday staffing. Define the percentage of the intervals within the absence request period that must be above the understaffing threshold for the request to be approved.

> **EXAMPLE** The understaffing tolerance is set to 75% and the intraday staffing validation is used. An agent submits an absence request for a full 8-hour shift. The validation checks what the staffing levels would be if this agent was absent. If at least 75% of the requested intervals are above the understaffing threshold, the request is approved.

4. Define the **Overstaffing** threshold.

   This indicates that more agents are scheduled than what is required to cover the forecasted need. For intervals where the overstaffing threshold is exceeded, the relative difference is highlighted in blue in the Schedules module. This threshold is also used to validate moves of lunches and breaks in self-scheduling.

5. Click **Next** to define skill priorities.

Configure skill priorities

Use the skill **Priority** and **Avoid** settings to define how to handle this skill when scheduling and optimizing the schedule.

> **IMPORTANT** Leave these settings in the default position in the middle when you create the skill. Adjust them later if needed to meet your needs. This is done in the skill properties.

1. Define the relative **Priority** for this skill compared to other skills.

   High priority skills have a higher impact on the selection of shifts than low priority skills.

2. Define if you rather **Avoid** understaffing or overstaffing for this skill.

   Neutral means that one hour of understaffing is equally bad as one hour of overstaffing. If set to avoid understaffing, shifts will be selected to cover the understaffing even if that at the same time causes more overstaffing.

3. Click **Next** to define skill templates with service level targets.

Configure skill templates for Inbound telephony, Chat, and Retail skills

Define the parameters in the skill templates to be used in the resource calculation for the skill.

> **NOTE** The values you set when creating the skill are used as default values for the skill. Use **Prepare skill** to change the default values in the skill template or set different values for different days of the week or for different intervals within a day. In **Prepare skill**, you can also set limits on the minimum or maximum number of agents to schedule. See Adjust skill targets for more information.

1. Enter **Service level** target. The service level is expressed as a combination of a **Percentage** and a number of **Seconds**.

   > **EXAMPLE** The service level 80% and 20s means that the target is to answer 80% of the calls within 20s.

2. Enter a target for **Minimum occupancy**.

   The occupancy is the percentage of the scheduled time on the skill activity that the agent is actively handling contacts. The resource calculation might result in a too high resource need for skills with low volume. Use the **Minimum occupancy** setting to define an acceptable occupancy level and keep the forecasted need lower.

3. Enter a target for **Maximum occupancy**.

   In some cases, the resource calculation results in an extremely high occupancy level for skills with a high volume. Use the **Maximum occupancy** setting to define a manageable occupancy level for the agents and increase the forecasted need.

4. Enter the expected **Shrinkage**.

   Shrinkage is the loss of resources because of unplanned absences, such as sick leave. This is used to calculate the total number of agents to schedule, including the number of agents required to cover for unplanned absences.

5. Enter a target for **Efficiency**.

   The efficiency is the percentage of the scheduled skill time that the agents are available to handle contacts. This is used to adjust for the fact that the agents might need to leave their desk for example to ask a question or to visit the restroom. Define a realistic efficiency level.

6. Click **Finish** to create the skill.

Configure skill templates for other types of skills

Define the parameters in the skill templates to be used in the resource calculation for the skill.

The values you set when creating the skill are used as default values for the skill. Use **Prepare skill** to change the default values or set different values for different days of the week or different intervals of the day. See Adjust skill targets for more information.

1. Enter a target value for **Handled within**.

   Handled within is a target for the maximum time a contact have to wait for their case to be handled. The maximum **Handled within** time is 24 times the interval length of the skill.

   > **NOTE** The handled within time is only counted during the skill open hours. If an email arrives during closed hours, the handled within time is calculated from the first interval of the open hours. This means, if you promise your customers a reply within 24h and the skill is open 8h per day, set the handled within time to 8h or less.

2. Enter the expected **Shrinkage**.

   Shrinkage is the loss of resources because of unplanned absences, such as sick leave. This is used to calculate the total number of agents to schedule, including the number of agents required to cover for unplanned absences.

3. Enter a target for **Efficiency**.

   The efficiency is the percentage of the scheduled skill time that the agents are available to handle contacts. This is used to adjust for the fact that the agents might need to leave their desk for example to ask a question or to visit the restroom. Define a realistic efficiency level.

4. Click **Finish**.

Related topics

- Adjust skill targets
- Create a workload

Create a workload

The workload is a volume of tasks, for example calls, chats or emails, to be handled by agents. It is often connected to one or more queues in a ACD platform. The procedures below guide you through the steps of creating a workload.

Each skill has one or more workloads. The forecast can be handled separately for each workload. They can for example have different open hours and different patterns to describe how the volume is distributed within the day. In most views in the system where forecasted values are shown, the summarized forecast for the skill is presented.

Prerequisites

- You have the Forecasts permission.
- A skill is created.
- There is queue data. Either access to queues through an integration or a file with queue data to import.
- If you are using Azure Virtual Desktop to access the WFM client and need to import queue data, see Manage export of files on AVD for details on how to do that. Note that it is also possible to import queue data in the web Forecasts tool. See Import queue data for more information.

Page location

Client > Forecasts

Procedures

Define the general settings for the workload

In most cases, the workload is created in connection to creating a skill. To add an additional workload, right-click the skill and select **New workload**.

1. Enter a **Name** for the workload.
2. Enter a **Description** for the workload if needed.
3. The **Skill** is automatically defined.
4. Click **Next** to connect queue data to the workload.

Connect queue data to the workload

All available queues are displayed in a list. Select the ones to connect to this workload. If you need to import the queue data, see **Import historical queue data** below.

1. Select the check boxes for the **Queues** to connect to this workload.

   Use the filter to more easily find the appropriate queues. Click on any header to sort the queues according to the values in that column.

2. Click **Next** to define the open hours of the workload.

Import historical queue data

Import historical queue data to base a forecast on if the installation is new.

1. Click **Import queue from file**.
2. Browse to the folder containing your queue data import file and select the file to import.

   The import file must follow the requirements. See Queue data file format for more information.
3. Click **Open**.
4. Select the **Encoding** used in the file.
5. Select the **Time zone** which the queue data is registered in.
6. Select the **Delimiter** used in the file.
7. Click **Next**. If there are any lines where the format requirements are not fulfilled, a message is shown to highlight that. If there is, you must first edit the import file to fix this and then reselect the file.
8. Review the data and confirm it's correct.
9. Click **Next**. The data in the file is now imported to a queue with the name defined in the file.
10. Select the check boxes for the imported **Queues** to connect to this workload.
11. Click **Next** to define the open hours of the workload.

Define open hours for the workload

Define the workload open hours for each day of the week. The workloads' open hours are set according to the skill time zone.

NOTE The open hours cannot extend past the midnight break defined for the skill.

1. Click the button with the three dots for a day of the week.
2. Enter the **Open hours**. Select the time with +1 if the open hours close at or after midnight.
3. Repeat steps 1 and 2 for the other days of the week or copy from one day and paste to another if the same open hours are used for several days.
4. Click **Next** to define how to calculate the volume.

Define how to calculate the volume to base the forecast on

Define how to calculate the volume to use as a basis for forecasting. Adjust the volume by defining how to handle abandoned calls and the overflow to and from other queues. For a more detailed description of how to make these adjustments and best practice, see Calculate workload volume.

NOTE The concept of abandoning a contact or having overflow in to and out from the queue is only relevant for telephony and chat skills, that are highly time sensitive. For all other types of skills, use the default settings as the adjustments don't have any impact.

1. Define the percentage of the **Offered** volume to include.

   This is the total volume on the selected queues for this workload. Overflow in and callback can be included in the offered volume depending on the ACD platform.

2. Define the percentage of the **Overflow in** volume to include.

   This is the volume that is transferred from other queues to the selected queues for this workload.

3. Define the percentage of the **Overflow out** volume to deduct, entered as for example -100%.

   This is the volume that is transferred from the selected queues for this workload to other queues.

4. Define the percentage of the total **Abandoned** volume to deduct. This is entered as for example -100%.

   This is the total abandoned volume. If you only want to include for example the volume that was abandoned after service level, enter -100% for the total Abandoned volume and 100% for the Abandoned after service level. If you want to include all abandoned calls, regardless of when they were abandoned, set Abandoned to 0% and the other three abandoned parameters to -100%.

5. Define the percentage of the **Abandoned short** volume to include.

   This is the volume of calls or chats that were abandoned when they had been in queue for a very short time. These are often irrelevant calls that you don't want to staff for. To exclude this volume, enter 0%.

6. Define the percentage of the **Abandoned within service level** volume to include.

   This is the volume of calls or chats that were abandoned while they were still within the defined service level.

7. Define the percentage of the **Abandoned after service level** volume to include.

   This is the volume of calls or chats that were abandoned when the time in the queue had exceeded the defined service level.

8. Click **Finish** to create the workload.

Related topics

- Create a skill
- Queue data file format
- Calculate workload volume

Adjust skill targets

The skill templates define for example the service level target, minimum and maximum occupancy and the shrinkage for the skill. The default values in the standard skill templates are defined when creating the skill.

You need to adjust the skill template if you for example want to use different targets for different days of the week or for different times of the day. In the skill templates there is also a possibility to define limits on the minimum or maximum number of agents to schedule.

Ensure to go through each day of the week and adjust the values where needed. Split the cells to set different values for different parts of the day. If you want to make similar adjustments for several days of the week, copy values from one day of the week and paste to another day.

There might be differences that are not related to the day of week. For example, you want to use a lower shrinkage percentage for the next two days or accept a longer wait time on this queue on a bank holiday. In these situations, create and apply special skill templates. This is done when you Finalize the staffing forecast.

Prerequisites

- You have the Forecasts permission.
- A skill is created.

Page location

Client > Forecasts > Prepare skill

Procedures

Select a skill and open skill templates

- Right-click the skill to define targets for and select **Prepare skill**.

Split cells to define different values for different intervals

Split the cells to intervals if you need to define different values for different times of the day.

1. Click in the table to select any of the parameters.
2. Right-click in the table and select **Split**.

   The table is now split to show each interval separately. The value that was defined on day level is used as the default value for all intervals.

Adjust skill targets for a telephony, chat, and retail skills

Adjust the values for the days of the week or the intervals that deviate from the default.

1. Adjust the **Service level** target. The service level is expressed as a combination of a **Percentage** and a number of **Seconds**.

   EXAMPLE The service level 80% and 20s means that the target is to answer 80% of the calls within 20s.

2. Adjust the target for **Minimum occupancy**.

   The occupancy is the percentage of the scheduled time on the skill activity that the agent is actively handling contacts. The resource calculation might result in a too high resource need for skills with low volume. Use the **Minimum occupancy** setting to define an acceptable occupancy level and keep the forecasted need lower. This might affect the service level, since it reduces the staffing margins.

3. Adjust the target for **Maximum occupancy**.

   In some cases, the resource calculation results in an extremely high occupancy level for skills with a high volume. Use the **Maximum occupancy** setting to define a manageable occupancy level for the agents and increase the forecasted need.

4. Enter a target for **Minimum agents** if needed.

   Use this to highlight the need for more resources than what the volume on the skill indicates. Only use this setting when necessary, and then only use it for the intervals where it's needed.

5. Enter a target for **Maximum agents** if needed.

   Use this to highlight the need for less resources than what the volume on the skill indicates. Only use this setting when necessary, and then only use it for the intervals where it's needed.

6. Enter a target for **Agents** if needed.

   Use this to override the forecasted agents and use your defined target instead.

7. Adjust the expected **Shrinkage**.

   Shrinkage is the loss of resources because of unplanned absences, such as sick leave. This is used to calculate the total number of agents to schedule, including the number of agents required to cover for unplanned absences.

   To automatically adjust the shrinkage values for the near future, use dynamic shrinkage. See Manage dynamic shrinkage for more information

8. Adjust the target for **Efficiency**.

   The efficiency is the percentage of the scheduled skill time that the agents are available to handle contacts. This is used to adjust for the fact that the agents might need to leave their desk for example to ask a question or to visit the restroom. Define a realistic efficiency level.

9. Click **Next** to adjust the targets for the next day of the week and repeat until you have revised all days.
10. Click **Finish** to save the adjusted skill templates.
11. Remember to apply the adjusted skill templates to the forecast. See Finalize the staffing forecast for more information.

Adjust skill targets for other channel types

Adjust the values for the days of the week or the intervals that deviate from the default.

1. Adjust the target value for **Handled within**.

   Handled within is a target for the maximum time a contact must wait for their case to be handled. The maximum **Handled within** time is 24 times the interval length of the skill.

   > **NOTE** The handled within time is only counted during the skill open hours. If an email arrives during closed hours, the handled within time is calculated from the first interval of the open hours. This means, if you promise your customers a reply within 24h and the skill is open 8h per day, set the handled within time to 8h or less.

2. Enter a target for **Minimum agents** if needed.

Use this to highlight the need for more resources than what the volume on the skill indicates. Only use this setting when necessary, and then only use it for the intervals where it's needed.

3. Enter a target for **Maximum agent**s if needed.

   Use this to highlight the need for less resources than what the volume on the skill indicates. Only use this setting when necessary, and then only use it for the intervals where it's needed.

4. Adjust the expected **Shrinkage**.

   Shrinkage is the loss of resources because of unplanned absences, such as sick leave. This is used to calculate the total number of agents to schedule, including the number of agents required to cover for unplanned absences.

   To automatically adjust the shrinkage values for the near future, use dynamic shrinkage. See Manage dynamic shrinkage for more information

5. Adjust the target for **Efficiency**.

   The efficiency is the percentage of the scheduled skill time that the agents are available to handle contacts. This is used to adjust for the fact that the agents might need to leave their desk for example to ask a question or to visit the restroom. Define a realistic efficiency level.

6. Click **Next** to adjust the targets for the next day of the week and repeat until you have revised all days.
7. Click **Finish** to save the adjusted skill templates.
8. Remember to apply the adjusted skill templates to the forecast. See Finalize the staffing forecast for more information.

Related topics

- Finalize the staffing forecast
- Manage dynamic shrinkage

Calculate workload volume

In order to have the most accurate value for volume to use as a basis for forecasting, you must configure how the volume is calculated. Adjust the offered volume by configuring how to handle abandoned calls and chats and the overflow to and from other queues. The calculated adjusted value is referred to as calculated calls, or

the corresponding name for the other channel types, and shown in various parts of the system.

The same calculation is also used to calculate the actual offered volume to make it possible to compare it to the forecasted volume. These values are presented in the Forecasts module, in the Intraday tool, and in the report “Forecasts vs. actual workload”.

NOTE It is usually only relevant to adjust the workload calculation for telephony and chat skills. This is because they are highly time-sensitive and contacts can be abandoned or flow from one queue to another. Use the default settings for all other types of skills.

Calculation to verify queue data

When you create a completely new workload you often want to verify the queue data. Make adjustments to calculate the total volume on the selected queues, including all abandoned calls or chats, but not include any overflow from other queues or deduct any overflow to other queues.

Define the calculation like this to verify the queue data.

Parameter	Value
Offered	100%
Overflow in	0%
Overflow out	0%
Abandoned	-100%
Abandoned short	100%
Abandoned within service level	100%
Abandoned after service level	100%

Then verify the data by comparing Queue statistics report to the queue data in the ACD platform.

Calculation to adjust the volume

When the data is verified, adjust the calculation of the volume in the workload properties if needed.

Overflow in and overflow out

If there is an overflow in to the selected queue from other queues, consider if you want to staff for that volume on this workload or if that volume should be handled on the original queue. If you want to create a forecast based on the total volume, including the overflow in, set **Overflow in** to 100%.

If you do not want to staff for the overflow in volume on this workload, set **Overflow in** to 0%. This is also the case for example if these calls or chats are already added to the workload through a specific overflow queue or if you don't want to staff for this extra volume.

If there is an overflow out from the selected queue to other queues, you normally want to staff to handle this volume on this workload to prevent the overflow out. In these cases, set **Overflow out** to 0% to not deduct these calls. To create a forecast that considers some of this volume, you can for example define **Overflow out** to -30% to create a forecast that aims to handle 70% of the overflow out volume.

Abandoned calls and chats

In some situations, there are a lot of abandoned calls because the skill is understaffed. When forecasting, you can deduct some of the abandoned calls from the offered calls. Include the percentage of the abandoned calls that you want to staff for.

The **Abandoned** setting contains the total abandoned volume. The total volume is split in three categories, **Abandoned short**, **Abandoned within service level** and **Abandoned after service level**. Deduct **Abandoned** and add the subcategories you want to include.

> **NOTE** The forecast is based on the abandon rate defined for the skill and the Erlang A model. Therefore, the best practice is to exclude Abandoned short and keep Abandoned within service level and Abandoned after service level.

To include the volume that is abandoned within and after service level but not the short calls or chats, define the calculation like this.

Parameter	Value
Abandoned	-100%
Abandoned short	0%
Abandoned within service level	100%

Parameter	Value
Abandoned after service level	100%

To include all abandoned calls, define the calculation like this.

Parameter	Value
Abandoned	-100%
Abandoned short	100%
Abandoned within service level	100%
Abandoned after service level	100%

Related topics

- Create a workload

Queue data file format

A queue data import file can be used to import historical queue data to base a forecast on. The queue data is imported when the workload is set up or later in the Queues view in the workload properties.

Important considerations

Formatting of the import file

- Use a standard CSV or TXT file.
- The file encoding must be UTF-8.
- The file name must be unique. A date and timestamp often help.
- The file cannot contain any column headers.
- The fields can be separated with commas or semicolons. Semicolons are preferred.

- The queue data must be sorted in chronological order based on the date and time columns. You can either sort all rows in chronological order, or sort the rows for each queue in chronological order.
- All fields are required and must be in the indicated order. Therefore, do not delete any fields.
- If you export data from your platform it is likely that the exported file has a different order or a different number of fields than the format defined below. In that case you must manually verify the order in the exported file and rearrange them to match the import format.

The import file fields

Field 1 defines the interval length. Fields 2 to 5 defines the date, time and the unique queue. Fields 6 to 21 contain the queue data for the defined queue and interval.

See this example file for details: Queue import example file.

Even though all fields are required, data is only required for some fields. Please see the list to determine which are required and which are optional.

- The **Required** fields are needed in order to create a basic forecast.
- Some fields are marked as **Suggested**. These are not mandatory but are used to create a more accurate forecast.
- Fields marked as **Optional** are only used for reporting.

If there is no data for a column, enter 0 (zero). Similarly, if there is no data for a specific interval, enter 0.

The format requirements of the fields are important. See the information for each field in the table below.

Import file fields

No.	Field	Type	Unit	Field in data mart (Table:fact_queue)	Importance	Description
01	interval	mm	Minutes	interval_id	Required	The length of the interval (15, 30, and 60 minutes supported).
02	date_from	yyyyMMdd		date_id	Required	The date of the reported interval.

No.	Field	Type	Unit	Field in data mart (Table:fact_queue)	Importance	Description
						This field must be in yyyyMMdd format. If you work in Excel, use the text format for this field. Otherwise Excel often changes the date to the Microsoft format, which causes problems when saving to a CSV file.
03	time	hh:mm	Hours and minutes	interval_id	Required	Start time of the reported interval (24-hour clock). This must be in HH:MM or H:MM format.
04	queue	char(100)		queue_id	Required	The unique alphanumeric identifier of the queue/skill being imported. If there is no unique ID but the queue name is unique, use the queue name in this field

No.	Field	Type	Unit	Field in data mart (Table:fact_ queue)	Importance	Description
						too.
05	queue_name	char(100)		queue_id	Required	The name of the queue being imported. This can be letters or numbers and can contain spaces.
06	offd_direct_ call_cnt	int		offered_calls	Required	The number of offered calls for that interval and queue.
07	overflow_in_ call_cnt	int		overflow_in_ calls	Optional	The number of calls transferred from another queue to this queue.
08	aband_call_cnt	int		abandoned_ calls	Suggested	The number of abandoned calls for that interval and queue.
09	overflow_out_ call_cnt	int		overflow_out_ calls	Optional	The number of calls transferred from this queue to another queue.
10	answ_call_cnt	int		answered_calls	Required	The number of calls that were answered per

No.	Field	Type	Unit	Field in data mart (Table:fact_queue)	Importance	Description
						interval and queue.
11	queued_and_answ_call_dur	int	Seconds	speed_of_answer_s	Optional	The total queue time for all answered calls, in seconds, not mm:ss.
12	queued_and_aband_call_dur	int	Seconds	time_to_abandon_s	Optional	The total queue time for all abandoned calls, in seconds, not mm:ss.
13	talking_call_dur	int	Seconds	talk_time_s	Suggested	The total time agents handled a call, in seconds (not mm:ss).
14	wrap_up_dur	int	Seconds	after_call_work_s	Suggested	The total time agents spent in after call work or wrapup, in seconds (not mm:ss).
15	queued_answ_longest_que_dur	int	Seconds	longest_delay_in_queue_answered_s	Optional	The longest a call waited in queue before being answered, in seconds (not mm:ss).

No.	Field	Type	Unit	Field in data mart (Table:fact_queue)	Importance	Description
16	queued_ aband_ longest_que_ dur	int	Seconds	longest_ delay_in_ queue_ abandoned_s	Optional	The longest time a call waited in queue before the caller abandoned the call, in seconds (not mm:ss).
17	avg_avail_ member_cnt	int		Not in data mart	Optional	Currently not used. Set it to 0 (zero).
18	ans_ servicelevel_ cnt	int		answered_ calls_ within_SL	Suggested	The number of calls that were answered within the service level threshold. The threshold is set in the ACD platform.
19	wait_dur	int	Seconds	idle_time_s	Optional	Currently not used. Set it to 0 (zero).
20	aband_short_ call_cnt	int		abandoned_ short_ calls	Suggested	The number of calls that were abandoned before reaching the "short" call threshold. The threshold is set in the ACD

No.	Field	Type	Unit	Field in data mart (Table:fact_queue)	Importance	Description
						platform.
21	aband_within_sl_cnt	int		abandoned_calls_within_SL	Suggested	The number of calls that were abandoned before reaching the service level threshold. This value excludes the abandoned short calls because they are counted separately (see row 20). The service level threshold is set in the ACD platform.

Related topics

- Import queue data
- Create a workload

Import queue data

Use the web Forecasts tool to import queue data. The queue data that you import can then be connected to a new skill or to an existing skill.

The queue data import automatically adjusts the open hours. Therefore, make sure that the import file only includes the intervals that belong to the date for which you are importing queue data. This is particularly important if the midnight break is not set at midnight for the skill connected to the queue.

EXAMPLE If the midnight break is set at 2:00 AM for a skill, make sure that the import file doesn't contain queue data for the intervals before 2:00 AM on the first day for which you are importing queue data.

You can follow up on when queue data was imported and by whom in the General Audit Trail report. The General Audit Trail report only shows when queue data has been imported via the web Forecasts tool, not when it was done in the client Forecasts module.

Prerequisites

- You have the Web > Forecasts > Modify skill permission.
- The dates to import queue date for must be created in the database. This can be done by running the Initial step in ETL for those dates.

  NOTE This is normally only required if your system is recently set up. Reach out to Cisco support if needed.

Page location

WFM > Forecasts

Procedures

Import queue data

1. Click **Import** and select **Import queue data**.
2. Drop your queue data file in the gray area, or click the gray area to select the file. The queue data file must follow the specified format. See Queue data file format for more information.
3. A preview of the first 100 rows in the selected file is displayed. Review the rows and address any issues in the file before proceeding with the import.

   Any format issues within the rows are highlighted. This can be for example if the date or time format is wrong, or if fields that should contain numeric values do not. Hover any highlighted field to show a tooltip with details.
4. Select the **Time zone** to use in the import. The times and dates in the queue data are stored according to the selected time zone.
5. Click **Import**.

6. A progress bar is shown. When it turns green, the import is completed. Click **OK** to import another file.

> **NOTE**
>
> - The rows are imported in batches. Any already imported batches are kept if the import for some reason fails in a later batch.
> - If the import fails, a message is shown above the table. The message states the issue and on which row it is. Address the issue and then rerun the import. If any values have changed for the already imported batches, the previous values are replaced.

Related topics

- Create a skill (web Forecasts tool)
- General Audit Trail report

Import backlog

By importing a CSV file of email queue statistics, items that are outside of the service level will be identified and added on top of the forecast for the next day, so that they are handled as soon as possible. Both the new forecast and the old forecast will be seen in the day view in the Forecasts tool.

Prerequisites

You have the Web > Forecasts permission.

Page location

Web > Forecasts > Import backlog

Procedures

Import backlog

1. In the **Forecasts** tool, click **Import** and then click **Import backlog**.
2. Upload a CSV file. The file must follow the specified format. See Email queue statistics file format for more information.
3. Select a **Time zone**.

4. Click **Import**.
5. Click **OK**.

Related topics

- Generate forecast (web Forecasts tool)
- Create a skill (web Forecasts tool)
- Adjust skill targets
- Create a workload

Email queue statistics file format

An email queue statistics file can be used to import historical email queue statistics to base a forecast on. The queue data is imported when the workload is set up or later in the Queues view in the workload properties.

Important considerations

Formatting of the import file

- Use a standard CSV or TXT file.
- The file encoding must be UTF-8.
- The file name must be unique. A date and timestamp often help.
- The file cannot contain any column headers.
- The fields can be separated with commas or semicolons. Semicolons are preferred.
- The queue data must be sorted in chronological order based on the date and time columns. You can either sort all rows in chronological order, or sort the rows for each queue in chronological order.
- All fields are required and must be in the indicated order. Therefore, do not delete any fields.
- If you export data from your platform it is likely that the exported file has a different order or a different number of fields than the format defined below. In that case you must manually verify the order in the exported file and rearrange them to match the import format.

The import file fields

See this example file for details: Queue import example file.

Even though all fields are required, data is only required for some fields. Please see the list to determine which are required and which are optional.

- The **Required** fields are needed in order to create a basic forecast.
- Some fields are marked as **Suggested**. These are not mandatory but are used to create a more accurate forecast.
- Fields marked as **Optional** are only used for reporting.

If there is no data for a column, enter 0 (zero). Similarly, if there is no data for a specific interval, enter 0.

The format requirements of the fields are important. See the information for each field in the table below.

Import file fields

No.	Field in database	Type	Unit	Field in Teleopti WFM report "Queue Statistics"	Importance	Data type – Description
01	queue_id	char (100)		n/a – for internal mapping only	Required	The queue's or case type's unique identifier. Primary Key.
02	queue_name	char (100)		Queue	Required	Original queue/case name or definition in the e-mail/CRM system. Primary Key.
03	task_id	char (50)		n/a	Required	The identifier of this single e-mail or case. Primary Key.
04	offered_ date_and_ time		yyyy-mm-dd hh:mi:ss	("Date / Interval" + counted as	Required	Date and time when the e-mail/case entered the queue/skill. Primary Key.

No.	Field in database	Type	Unit	Field in Teleopti WFM report "Queue Statistics"	Importance	Data type – Description
			(24h)	"Offered Calls" and "Answered Calls")		The e-mail/case is reported based on this date and time in Teleopti forecasts.
05	first_ handled_ date_and_ time		yyyy-mm-dd hh:mi:ss (24h)	n/a	Required	Date and time when the e-mail/case was first handled by an agent. If it has been agreed to export e-mails or cases which are not completed yet, this shall be set to the offered_date_and_ time if it has not yet been handled.
06	completed_ date_and_ time		yyyy-mm-dd hh:mi:ss (24h)	n/a	Optional	Date and time when the e-mail/case was fully completed. If it has been agreed to export e-mails or cases which are not completed yet, this can be left empty.
07	task_work_ time_in_s	int		Talk Time	Required	Total time the e-mail/case was handled by agents in this queue (in seconds).
08	after_task_ work_time_ in_s	int	Seconds	After Call Work (ACW)	Required	If applicable, the wrap-up/ACW time for this task in this queue.

No.	Field in database	Type	Unit	Field in Teleopti WFM report "Queue Statistics"	Importance	Data type – Description
09	queuing_ time_in_s	int	Seconds	Speed of Answer	Optional	Queue time for a queued and handled e-mail/case. Should reflect the total time from an e-mail/case entering the queue to being answered, i.e. including handling time and parked time. For cases consisting of several sub-activities, this should be the time until the first answer. If this is not provided, Teleopti will default the queing time to be the difference between offered_date_and_time and first_handled_date_and_ time.
10	is_handled_ within_ service_level	bit		Answered Within Service Level	Optional	Reported as 1 if the email/case was handled within the service level for this queue. Reported as 0 if not.
11	task_status_ description	String		n/a	Optional	String, 50 characters – For informational use or as agreed upon. Could be any text or one of the following: "Completed""Transferred" "Offered" (not completed

No.	Field in database	Type	Unit	Field in Teleopti WFM report "Queue Statistics"	Importance	Data type – Description
						yet)

Related topics

- Import queue data
- Create a workload

Create a skill (web Forecasts tool)

Create a new skill to forecast for. Configure the skill settings to define for example what the service level target is and what activity to use when scheduling for this skill.

When a skill is created in the Forecasts web tool, a workload is automatically created with the selected queues and open hours.

Currently you can create **Inbound telephony**, **Email**, **Chat**, and **Back office** skills in the web Forecasts tool. To create skills of other skill types, use the Forecasts module in the client.

If you need to adjust for example the service level target or the shrinkage later, this is done in the Forecasts module in the client.

Prerequisites

- You have the Web > Forecasts > Modify skill permission.
- There is historical queue data on the queues which are connected to the skill. The queues can be either queues from an ACD integration or queues with imported queue data.

Page location

WFM > Forecasts

Procedures

Create an Inbound Telephony or Chat skill

1. Click **New skill**.
2. Select a **Time zone**. It's often most convenient to select the time zone where the workload is. If the workload covers several time zones, you can select the time zone where the resource planners are.
3. Select **Inbound Telephony** or **Chat** as the Skill type.
4. Select the **Queues** to connect to this skill.

   By default, queues that are not connected to any other skills are shown. Click **Include used queues** to show queues that are already connected to other skills.
5. Click **Next**.
6. Enter a **Name** for the skill.
7. Select the **Skill activity**. This is the activity used when scheduling this skill. The activities which are available to select are the activities for which the **Requires skill** check box is selected.
8. Select the **Interval length**. If you are using the same skill activity as a previously created skill, the interval length is already set. If you want to use a different interval length, select another skill activity or create a new one.

   > **NOTE** If your time zone has an offset from UTC that is not full hours, you must select an interval length that makes it possible to align to full hours. For example, for UTC+5:30, select 15 or 30 minutes. For UTC+5:45, select 15 minutes.
9. Enter the **Service level** target. The service level is expressed as a combination of a percentage and a number of seconds.

   > **EXAMPLE** The service level 80% and 20s means that the target is to answer 80% of the contacts within 20 seconds.
10. Enter the expected **Shrinkage**. Shrinkage is the loss of resources because of unplanned absences, such as sick leave. This is used to calculate the total number of agents to schedule, including the number of agents required to cover for unplanned absences.

To automatically adjust the shrinkage values for the near future, use dynamic shrinkage. See Manage dynamic shrinkage for more information

11. Enter the **Abandon rate**. The abandon rate is used to forecast the number of agents needed and calculate the predicted service level. Analyze your abandon rates when the service level is reached or acceptable and enter that abandon rate for the skill. Avoid using the average abandon rate.
12. For chat skills, enter the **Max parallel tasks**. This is the number of chats that an agent can have ongoing at the same time. The resource need is calculated as the total resource need if each chat was handled one at a time divided by the **Max parallel tasks** value.
13. Add **Open hours** for the skill. The suggested open hours are based on the historical data for the selected queues.
    1. If there are other open hours, click **Add open hours** and adjust the open hours.
    2. Select for which days of the week to use these open hours.

    NOTE If this skill has some queues with different open hours, use the Forecasts module in the client to create an additional workload.
14. Click **Create**.

Create an Email or Back office skill

1. Click **New skill**.
2. Select a **Time zone**. It's often most convenient to select the time zone where the workload is. If the workload covers several time zones, you can select the time zone where the resource planners are.
3. Select **Email** or **Back office** as the Skill type. For a back-office skill, it is possible to set an extended service level target up to 30 days. See Create a skill with an Extended service level target.
4. Select the **Queues** to connect to this skill.

   By default, queues that are not connected to any other skills are shown. Click **Include used queues** to show queues that are already connected to other skills.
5. Click **Next**.
6. Enter a **Name** for the skill.

7. Select the **Skill activity**. This is the activity used when scheduling this skill. The activities which are available to select are the activities for which the **Requires skill** check box is selected.
8. Select the **Interval length**. If you are using the same skill activity as a previously created skill, the interval length is already set. If you want to use a different interval length, select another skill activity or create a new one.

   > **NOTE** If your time zone has an offset from UTC that is not full hours, you must select an interval length that makes it possible to align to full hours. For example, for UTC+5:30, select 15 or 30 minutes. For UTC+5:45, select 15 minutes.

9. Enter a target value for **Handled within**. Handled within is a target for the maximum time a contact have to wait for their case to be handled. The maximum **Handled within** time is 24 times the interval length of the skill. For back-office skills, this value will be used if the extended service level target setting is toggled off.

   The handled within time is only counted during the skill open hours. If an email arrives during closed hours, the handled within time is calculated from the first interval of the open hours. This means, if you promise your customers a reply within 24h and the skill is open 8h per day, set the handled within time to 8h or less.

10. Enter the expected **Shrinkage**. Shrinkage is the loss of resources because of unplanned absences, such as sick leave. This is used to calculate the total number of agents to schedule, including the number of agents required to cover for unplanned absences.

    To automatically adjust the shrinkage values for the near future, use dynamic shrinkage. See Manage dynamic shrinkage for more information

11. Add **Open hours** for the skill. The suggested open hours are based on the historical data for the selected queues.

    1. If there are other open hours, click **Add open hours** and adjust the open hours.
    2. Select for which days of the week to use these open hours.

    > **NOTE** If this skill has some queues with different open hours, use the Forecasts module in the client to create an additional workload.

12. Click **Create**.

Create a skill with an Extended service level target

1. On the **Forecasts** page, in the upper-right corner, click **New Skill**.
2. On the **Create skill** page, select the **Time zone** that you want to apply.
3. Select **Back office** for the **Skill Type**.
4. Toggle the **Extended service level target** button on.
5. Enter a number for **Handled within (days)**.
6. Select the queue(s).
7. Click **Next**.
8. Enter a **Name**.
9. Select an activity for **Skill activity**.
10. Enter a number for **Handled within (hh:mm)** and **Shrinkage (%)**. This will be used as a fall-back if the extended service level is later disabled.
11. Select the **Open hours**. Click **Add open hours** to add more open hours for the skill.
12. Click **Create**.

Related topics

- Edit a skill (web Forecasts tool)
- Import queue data
- Generate forecast (web Forecasts tool)
- Manage dynamic shrinkage
- Adjust skill targets
- Create a skill
- Create a workload

Edit a skill (web Forecasts tool)

Edit the skill settings to change the name of the skill, adjust the abandon rate or the open hours, or change which queues that are connected to this skill.

If you need to adjust the shrinkage or service level targets, use the Forecasts module in the client. See Adjust skill targets for more information.

All skill changes made in the web Forecasts tool are tracked in the general audit trail.

Prerequisites

- You have the Web > Forecasts > Modify skill permission.
- A skill is created.

Page location

WFM > Forecasts

Procedures

View skill properties

1. Select the **Skills** view.
2. Click **Details** on the skill for which you want to see the properties.

   The view which opens presents all the skill properties, for example the time zone, interval length, and default shrinkage.

Edit a skill

1. Select the **Skills** view.
2. Click **Edit** on the skill for which you want to change properties.
3. Change the **Name** if needed.
4. Adjust the **Abandon rate**. This option is available for **Inbound Telephony**, **Chat**, and **Retail** skills.

   Abandon rate is used to forecast the number of agents needed and calculate the predicted service level. Analyze your abandon rates when the service level is reached or acceptable and enter that abandon rate for the skill. Avoid using the average abandon rate.

5. Adjust the **Open hours** for the skill.

1. Adjust the existing open hours and select for which days of the week to use these open hours.
2. If there are days with other open hours, click **Add open hours**, adjust the open hours and select for which days of the week to use these open hours.

> **NOTE** If the skill has additional queues with different open hours, use the Forecasts module in the client to create an additional workload.

6. Add or remove **Queues** for this skill.
7. Click **Save**.

Delete a skill

1. Click **Edit** in the Skills view.
2. Click **Delete**.
3. A confirmation question is shown. It will look different depending on if the skill has one or more workloads.
   - If it has one workload, click **Yes**. This will delete both the skill and the connected workload.
   - If it has more than one workload, click **Keep skill** to only delete the selected workload or click **Delete all** to delete the skill and all its connected workloads.

Changing the handled within setting for a skill

If business requirements change, complete the following steps to edit the Handled within (days) target for a back office skill.

1. On the **Forecasts** page, click the **Skills** view.
2. On the **Edit skill** page, click the **Edit**button for a skill.
3. Edit the number for **Handled within (days)**. This applies to both full days and open hours/days. It distributes the forecasted task across the number of days set in **Handle within (days)**.

> **NOTE** The maximum number is 30 days.

4. Click **Save**.

Edit a skill with an Extended service level target

1. On the **Forecasts** page, select the **Skills** view
2. Click **Edit** on the backoffice skill for which you want to change properties.
3. Edit the **Name**, if required.
4. Toggle the **Extended service level target** button on.
5. Enter a number for **Handled within (days)**. This applies to both full days and open hours/days. It distributes the forecasted task across the number of days set in **Handle within (days)**.

   NOTE The maximum number is 30 days.
6. Select the queue(s). Toggle the **Include used queues** button on, if required.
7. Select the **Open hours**. Click **Add open hours** to add more open hours for the skill.
8. Click **Save**.

Related topics

- Create a skill (web Forecasts tool)
- Adjust skill targets
- Create a workload

Manage dynamic shrinkage

Shrinkage is the loss of resources due to non-skill-related activities, like trainings and meetings, and absences, such as paid time off and sick leave. It is used to calculate the total number of agents needed to handle the forecasted volume by including the number of agents required to cover for absences and non-skill activities which are not yet planned when scheduling the agents. Shrinkage levels are often different depending on the time frame. Most absences and non-skill activities for today and tomorrow are already known, so the shrinkage is low. Looking at a period three weeks from now, we need to use a higher shrinkage because there is still a lot that is unknown.

With dynamic shrinkage, a gradually decreasing share of the original shrinkage defined in the skill template is used for the near future, for a period starting maximum 30 days from today and until today. This is helpful to reduce the manual work to adjust the shrinkage levels.

The dynamic shrinkage values in use for each day and interval are shown in the Forecasts module in the WFM client. When dynamic shrinkage is enabled, the shrinkage values appear dimmed and cannot be edited. The dynamic shrinkage values are updated each night, according to the server time zone. For any dates before or after the dynamic shrinkage period, the original shrinkage values from the skill templates or any manual adjustments are shown.

In the view of dynamic shrinkage templates, you can hover the **Used in skills** field for a template to see which skills that are connected to this template.

NOTE

- Only the default scenario is affected by the dynamic shrinkage templates.
- The share defined in the dynamic shrinkage template adjusts the original shrinkage values from the skill template of the skill. This means that the skill template values for different days of the week or times of the day still have an impact on the actual shrinkage values in use.

Prerequisites

- You have the Web > Forecasts > Dynamic shrinkage permission.

Page location

WFM > Forecasts

Procedures

Create a dynamic shrinkage template and assign it to selected skills

1. Click **Manage** and select **Dynamic shrinkage**.
2. Click **New template**.
3. Ensure the **Enabled** check box is selected.
4. Enter a **Name** for the dynamic shrinkage template.
5. Enter the share to use for today in the **Share of the original shrinkage to use for today** field. Currently only integers are supported.

   NOTE This is not the shrinkage that is applied, but the share of the original shrinkage to use.

> **EXAMPLE** In the skill template for today, the shrinkage is set to 20%. If you set the share to 10%, the applied shrinkage for today will be 2%.

6. In the **Dynamic shrinkage period in days** field, enter the length of the period for which you want the shrinkage to gradually decrease, down to the share set for today. The maximum number of days is 30.

   > **EXAMPLE** The dynamic shrinkage period is 24 days, and the share set for today is 8%. In this case, the share for first day in the period is 100% of the original shrinkage, for the second day it is 96%, for the third 92%, and so on, down to 8% of the original shrinkage set for today.

7. Select the skills to connect to this dynamic shrinkage template in the left-hand list of skills and click the arrow to move them to the right-hand side.

   One dynamic skill template can be connected to several skills. A skill can only be connected to one dynamic shrinkage template at a time.

8. Click **Create**.

   > **NOTE** The shrinkage levels for the selected period are not visible right away. They are updated at midnight, according to the server time zone, and are applied from the next day.

Disable a dynamic shrinkage template

When you disable the dynamic shrinkage templates, the original shrinkage values are restored for all connected skills.

1. Click **Manage** and select **Dynamic shrinkage**.
2. Click **Edit** for the dynamic shrinkage template to disable.
3. Clear the **Enabled** check box.
4. Click **Save**.

> **NOTE** To restore the shrinkage back to the skill template values for only some of the skills which are connected to a dynamic shrinkage template, remove those skills from the dynamic shrinkage template.

Delete a dynamic shrinkage template

1. Click **Manage** and select **Dynamic shrinkage**
2. For the dynamic shrinkage template to delete, click **Delete**.

A dynamic shrinkage template cannot be deleted if there are any skills attached to it. If the **Delete** option is not available, edit the dynamic shrinkage template to remove the connected skills and then try again.

Related topics

- Adjust skill targets
- Adjust the forecast manually on the web

Create a multisite skill

Use multisite skills when you want to distribute the work on a skill between sites or even business units. Create the number of sub-skills that you need and configure what percentage of the forecast to distribute to each sub-skill. Assign agents on the different sites to the appropriate sub-skill. Agents cannot be connected to the multisite skill itself.

EXAMPLE It is decided that site A should handle 40% of the incoming calls and site B should handle the other 60%. A multisite skill is created and two sub-skills added, sub-skill A to handle 40% of the work and sub-skill B to handle 60% of the work. The agents at site A are connected to sub-skill A and the agents at site B are connected to sub-skill B.

The Intraday tool on web shows the total staffing for the multisite skill. The Schedules module in the client shows the staffing per sub-skill.

IMPORTANT

Some functionality is not possible to combine with the use of multisite skills. Avoid using multisite skills if you plan to do any of the following.

- Use absence request approval and absence probability based on staffing levels.
- Use overtime requests and overtime probability.
- View staffing in the Schedules tool or Staffing tool.
- View the Scheduled agents value in the Intraday tool.
- Use BPO Exchange to export the staffing gap and import staffing from external suppliers.
- Let agents move lunches and short breaks with self-scheduling.
- Let agents add their own work hours with self-scheduling.

Prerequisites

- You have the Forecasts permission.
- The activity to use for this multisite skill is created and the **Requires skill** check box is selected for that activity. See Create activities.

Page location

Client > Forecasts

Procedures

Configure the general settings for the multisite skill

1. Right-click the channel type that you want to create a skill for and select **New multisite skill**.

   The channel type cannot be changed once the skill is created.

2. Configure the multisite skill as you would a regular skill. Follow the instructions in Create a skill.

Add sub-skills and configure general settings

In most cases, you add sub-skills immediately after creating the multisite skill. To add a sub-skill to an existing multisite skill, right-click the multisite skill and select **Properties**. Go to **Sub-skills** and select **New**.

1. Enter a **Name** for the sub-skill.
2. Enter a **Description** for the sub-skill if needed.
3. In most cases you want to keep the general settings, as they are inherited from the multisite skill. Make adjustments if needed.

   For more information about Midnight break and Abandon rate, click the respective links.

4. Click **Next** to configure staffing thresholds.

Configure staffing thresholds

Adjust the staffing thresholds if needed. These thresholds have no effect on the forecast. They are used to display staffing level indications in the schedule and for validations of requests and self-scheduling. If you need to adjust the thresholds later, this is done in the skill properties.

1. See Create a skill for more information on how to configure staffing thresholds.
2. Click **Finish**.

Configure sub-skill distribution

The forecast is distributed between the sub-skills according to the sub-skill distribution. Configure the distribution between the sub-skills to use as a default value. If you need to adjust the sub-skill distribution later or configure the distribution on interval level, go to the **Manage multisite distributions** view. See Adjust multisite skill distributions.

1. Select the **Percentage** field for a sub-skill.
2. Enter the percentage of the total forecast to distribute to this sub-skill.
3. Repeat this for each sub-skill. The total percentage must be 100%.
4. Click **OK** to save.

Related Topics

- Adjust multisite skill distributions
- Export forecast to another business unit
- Create a skill
- Adjust skill targets
- Create a workload

Adjust multisite skill distributions

Adjust the distribution of the work to the sub-skills of the multisite skill with the multisite skill distributions templates. The multisite day templates define the default distribution for each day of the week and for different times of the day. If there are specific dates where the distribution is different from the day template, create special day templates.

NOTE The sum of the sub-skill percentages must be exactly 100% for each interval and each day.

The multisite distribution templates are applied on the **Multisite template** row on the **Multisite support** tab of the **Skill** panel. The color indicate the status of the templates.

- If the template is green, it means the most recent version of the standard template for that day of week is applied.
- If the template is blue, it means there is a newer version to apply.
- If the template is black, it means a special template is assigned to that day.

Prerequisites

- You have the Forecasts permission.
- A multisite skill is created.

Page location

Client > Forecasts

Procedures

Adjust multisite skill distributions in the day of week templates

Adjust the distribution between sub-skills in the standard day of week templates.

1. Right-click the multisite skill and select **Manage multisite distributions**.
2. Enter the distribution percentage for each sub-skill in the table.
3. If the distribution between the sub-skills is different during specific periods within the day, select one of the sub-skills, right-click and select **Split**. The template is split into intervals. Adjust the percentages for the intervals that have a different distribution.

   > **NOTE** If most of the day has the same distribution, you can select those intervals, right-click and select **Merge**. These intervals are merged together again, which makes it easier to get an overview of the distributions in the template.

4. Click **Next** to configure the multisite skill distribution for the next day of the week. Repeat for all days of the week.
5. Click **Finish** to save.

Create a special template for multisite skill distribution

Create special templates for days with a different distribution than the standard templates.

1. Right-click the multisite skill and select **Open forecast**.
2. Select the **Day** view in the **Skill** section.
3. Click the **Multisite skill** tab.
4. Click **New**.
5. Enter a **Name** for the template.
6. Enter the distribution percentage for each sub-skill in the table.
7. If the distribution between the sub-skills is different during specific periods within the day, select one of the sub-skills, right-click and select **Split**. The template is split into intervals. Adjust the percentages for the intervals that have a different distribution.

   > **NOTE** If most of the day has the same distribution, you can select those intervals, right-click and select **Merge**. These intervals are merged together again, which makes it easier to get an overview of the distributions in the template.

8. Click **OK**.

Apply multisite skill distribution templates

Apply standard or special distribution templates to the forecasted period of the multisite skill.

1. Right-click the multisite skill and select **Open forecast**.
2. Select the skill **Day** view in the **View** section of the ribbon bar.
3. Ensure **Skill** is selected in the **Show** section of the ribbon bar and that the **Multisite support** tab is selected in the skill view.
4. Select the **Multisite skill** tab.
5. Apply the distribution template.
   - To apply a standard template, select the whole **Multisite template** row and click **Apply standard**.
   - To apply a special template, select the day in the skill view and then click the template to apply.
6. Click **Save**.

Related topics

- Create a multisite skill
- Export forecast to another business unit

Validate historical data

Validate the historical data from the ACD platform to create a reliable base for forecasting. In the validation you work through the historical data in order to identify data that is not representative. This is essential to ensure the quality of the forecast.

During the validation you detect days that deviate from the normal workload. This can be days that are abnormal, such as a snowstorm or a technical issue causing an increase in traffic. These values can be corrected manually.

Other days that deviate from the normal workload are recurring, such as national holidays. These can then be saved as special events and reused later. If an outlier in the data is because of a recurring event, for example a public holiday, it can be added as a special event. Special events have two purposes; to exclude the day from the normal set of data to base forecasts on and to collect a special set of data to forecast for future dates of these recurring events.

The values in the **Validated** rows are used to create the forecast and to calculate seasonal variations and trends.

> **IMPORTANT** Each period only needs to be validated once. Ensure to validate historical data regularly. Create a process to for example in the beginning of each month go through the data of the past month. Over time you collect a large amount of validated data to base your forecasts on.

Prerequisites

- You have the Forecasts permission.
- A skill and a workload are created.
- There is historical data, either through a queue connected to the workload or through imported queue data.

Page location

Client > Forecasts > Prepare workload > Validation tab

Procedures

Select period to validate

Select the period to validate. When working with a shorter period, for example one month, you can use the same period for validation and comparison. The averages are then calculated for the period that you validate.

1. Select a start date and an end date in the **Validation period** fields to define the period to validate data for.
2. Select a start date and an end date in the **Compare with** fields to define a comparison period.

   The data in the comparison period is used to calculate an average for each day of the week. You can compare the data in the validation period to these averages to help you find outliers. For the comparison period to be useful, it must be similar to the validation period regarding for example volumes and average talk time. Do not use a too long period as the comparison period, as those averages won't be significant to the data you are validating.

   If you use the averages, continue to define deviation thresholds. If you don’t need to compare the data in the validation period to averages to find outliers, you don't need to define a comparison period.
3. Click **Apply** to load the data for the selected periods.

Define deviation thresholds

The deviation thresholds help you spot outliers in the data. Original values in the table that deviate more from the average than the defined percentage are highlighted in red. The names of the fields depend on the type of skill. This procedure is based on a telephony skill, but the functionality works in the same way for all types of skills.

1. Enter the deviation percentage in the **Deviation calls** field.
2. Enter the deviation percentage in the **Deviation talk time** field.
3. Enter the deviation percentage in the **Deviation ACW** field.

Term	Description
Original offered calls/chats/emails/tasks	The original value of the offered volume for the day. The value reflects the calculations set in the workload properties. See Calculate workload volume.
Average calls/chats/emails/tasks	The average volume for the specific day of week based on the date

Term	Description
	range in the Compare with fields. For example, if the date range is January 1 to April 30, the row shows the average of all the Mondays, Tuesdays, Wednesdays, and so on, between January 1 and April 30. The values repeat week after week.
Validated calls/chats/emails/tasks	This is the only value that you can manually edit. The value initially matches the Original offered calls/chats/emails/tasks row. You can manually override the value for forecasting in this row by typing a new value in the cell or right-clicking the cell to use the average.
Original talk/handling time	The original value of the talk/handling time. The value is the average in seconds for the day. **NOTE** You can calculate the average by dividing the total handling time by the answered volume. The handling time only counts for intervals where there is an answered volume. If there is no answered volume for the interval, it is not included in the calculation.
Average talk/handling time	The average handling time, in seconds, for the specific day of week based on the date range in the Compare with fields.
Validated talk/handling time	This is the only value that you can manually edit. The value initially matches the Original offered calls/chats/emails/tasks handling time. You can override this value by typing a new value in the cell or right-clicking the cell to use the average.
Original ACW/AEW/ATW	After call/email/task work. This is the original value of the wrap-up time. The value is the average in seconds for the day.
Average ACW/AEW/ATW	The average wrap up, in seconds, for the specific day of week based on the date range in the Compare with field.
Validated ACW/AEW/ATW	This is the only value that you can manually edit. The value initially matches the Original offered calls/chats/emails/tasks wrap-up time. You can override this value by typing a new value in the cell or by right-clicking the cell to use the average.

Remove outlier days

Adjust the values for days with atypical data that you don't want to affect the forecast.

The validation table contains three rows for each measure.

- **Original**, based on the raw data and adjusted according to the defined workload calculations. See Calculate workload volume for more info.
- **Average**, calculated for each day of the week based on the values in the comparison period.
- **Validated**, the validated data. This row shows the raw data values by default, but the values can be adjusted to remove any outliers. The forecast will be based on the values in this row.

Find atypical values easily by looking in the chart. Click an atypical value in the chart to select the day in the table.

There are four ways to handle days with atypical data.

- To mark the day's value as accurate but unique (for example, a holiday), add the date to a special event. See the next procedure for more information.
- To change the value to the average, right-click the cell in the **Validated** row and select **Use average**.
- To change the value by a percentage or smooth out the differences between days, select days, right-click the **Validated** field and select **Modify Selection**. See Modify selected values for more information.
- To change the value to a specific value, click the cell in the **Validated** row and enter the new value.

If you are using the deviation thresholds, you can choose to adjust the **Validated** value to the average for all highlighted days. Select one or more fields, right-click and select **Use average on deviating days**.

If you need to use external data, copy data from a local source and paste it to the **Validated** row. If you are using Windows Virtual Desktop to access Forecasts, you must use **Ctrl+C** and **Ctrl+V** to copy and paste. You must also select **Ctrl+V** before you start copying content from your local source.

Add a date to an existing special event

Add historical and future dates to a special event. The forecast for the future dates is then based on an average of the volume for all the historical dates that belong to the same special event.

1. Right-click the special event you want to add a date to in the **Special events** field and select **Edit**.

   > **NOTE** If the **Edit** option is not available to select, this special event was created in web Forecasts tool and cannot be changed in the client Forecasts module.

2. Select the dates you want to add in the calendar view and move them to the field of selected dates by using the arrow buttons. Select the **Ctrl** key to select several dates.
3. Click **OK**.
4. The selected dates are highlighted in green in the table view.

Create a new special event

> **NOTE** Manage special events more efficiently in the web Forecasts tool, by connecting the same special events to several skills. See Manage special events for several skills for more information.

1. Right-click in the **Special events** field and select **Add special event**.
2. Enter a name for this special event.
3. Select dates in the calendar view and move them to the field of selected dates by using the arrow buttons. Select the **Ctrl** key to select several dates.
4. Click **OK**. The selected dates are highlighted in green in the table view.

Related topics

- Create a skill
- Create a workload
- Modify selected values
- Define intraday arrival patterns

Modify selected values

Use the Modify selection view to adjust several values in a table at the same time. Select the values you want to adjust. The selected values must be in the same row and in a sequence.

Modify the values in one of two ways.

- Enter a new total for the selected days. The new total is then divided according to the current distribution.
- Use a percentage to increase or decrease the values. The percentage is applied to all values.

Apply a smoothing factor if you want to even out the differences between the values. The smoothing factor considers the surrounding values and calculates an average based on them. The higher the smoothing factor, the more days are used to calculate the average.

EXAMPLE When smoothing factor 3 is applied to a date period, the new value for each day is the average calculated for that day, the day before and the day after (in total 3 days). If the **Validated calls** value is 1000 for Monday, 1300 for Tuesday and 1000 for Wednesday, the new smoothed value for Tuesday is 1100.

The overview information and preview chart are updated as changes are made.

NOTE When you confirm the changes by clicking OK, the modified values are applied to the table. These changes cannot be reverted. The possibility to reset only affects the current changes. Previously applied changes are not affected.

Prerequisites

- You have the Forecasts permission.
- A skill and a workload are created.

Page location

This page can be reached from different locations.

- Client > Forecasts > Prepare workload > Validation tab
- Client > Forecasts > Prepare workload > Long-term forecast
- Client > Forecasts > Prepare workload > Workload day templates
- Client > Forecasts > Open Forecast

Procedures

Modify selected values

1. In the table, select the values you want to modify.
2. Right-click the selection and select **Modify selection**.
3. Select the method to adjust the values in the **Modify by entering** menu.
    - **New total**—distribute the new total according to the current distribution pattern.
    - **Percentage**—increase or decrease the selected values by a defined percentage.
4. Enter a new total for the selected period or a positive or negative percentage, depending on the method you selected.
5. Select if you want to use a **Smoothing** factor to even out the differences between the values.
6. Click **OK** to save the changes.

Related topics

- Validate historical data
- Create a long-term forecast
- Define intraday arrival patterns
- Finalize the staffing forecast

Manage special events for several skills

Some days, the historical data is not representative of the normal volume and distribution pattern. It is important to exclude those days to create a reliable set of historical data to use as the basis for long-term forecasting. Though, the historical data for those dates can still be useful when forecasting dates of the same type in the future. Use special events to fulfill both of those purposes. When using special events to forecast future dates, the forecast will be an average of the volume for the historical dates that belong to the same special event and the same skill.

The special events are useful for:

- Dates where the historical data is very different compared to a normal day and this difference will recur in a predictable way, such as New Year's Eve.

- Dates where something happened that had a big impact on the statistics, but what happened will not occur again in a predictable way. For example, days with a snow storm or days with extreme technical issues.

When you handle special events in the web Forecasts tool, you can use the same special events for several skills.

NOTE Special events created in the web Forecasts tool are shown in the Forecasts module in the WFM client, but can only be changed in the web Forecasts tool. If a date has special events added both from the client Forecasts module and from the web Forecasts tool, the special event added from the web Forecasts tool takes precedence. See the procedure below for information on how to convert special events created in the Forecasts module in the WFM client to new special events.

The special events must be maintained by adding new future dates regularly.

EXAMPLE If you create long-term forecasts for the next two years, the special event dates for the next two years must be added to the special events.

Prerequisites

- You have the Web > Forecasts permission.
- A skill is created.

Page location

WFM > Forecasts

Procedures

Create a new special event

1. Click **Manage** and select **Special event**.
2. Click **New special event**.
3. Enter a **Name** for the special event.
4. Select a **Color** for the special event. A square with this color is shown on each included date in the yearly overview. See Close days for several skills at once for more information.

5. Select which dates that are connected to this special event. If this is a special event where you can predict the next occurrences, make sure to add future dates before forecasting for that period.
6. Click **Create**.

Add special events to skills

1. Click **Manage** and select **Special event**.
2. Click in the **Skills** field and then click to select the skills for which you want to add special events.
3. Click in the **Special events** field and select the special events to add to the selected skills.
4. Click **Add**.

Add more dates to a special event

1. Click **Manage** and select **Special event**.
2. Click the **Edit** button for the special event.
3. Select additional dates.
4. Click **Save**.

Add dates and skills to a special event based on legacy special events

Convert special events created in the Forecasts module in the WFM client to new special events that you can apply to several skills.

NOTE If you convert legacy special events and connect them to a new special event which you already created, the dates from the legacy special events are not added to the new special event.

1. Click **Manage** and select **Special event**.
2. Select the check boxes for one or more special events to connect to one new special event.

   EXAMPLE Select the legacy Midsummer's Eve special events from all skills to create a new Midsummer's Eve special event.

3. Click **Convert**.
4. Select **Create new** to create a new special event based on the selected legacy special events, or select to which previously created **Special event** to connect the skills.

5. If you created a new special event, enter a **Name** and select a **Color**. If there are any dates which are connected to the legacy special event that you do not want to add to the new special event, click the **X** for those dates to remove them.

6. Click **Apply**. The skill and dates from the legacy special events are then added to the selected new special event. The legacy special event is deleted when the conversion is complete.

   NOTE The selected legacy special events are deleted when the conversion is complete.

Related topics

- Create a long-term forecast
- Close days for several skills at once

Create a long-term forecast

The long-term forecast is a prediction of the future resource need on day level. It is used to give a rough estimate for the resource need over a longer period, for example the next 6–12 months. The long-term forecast is used as input when creating a long-term staffing budget, and to create a more detailed forecast later.

The long-term forecast is based on historical data and identifies seasonal variations as well as variations within the months and weeks. It does not have any information on the distribution within the day.

NOTE To create a long-term forecast where you can control all details, it must be created separately for each workload. Use the **Quick forecast** to create long-term forecasts for several skills and workloads at a time. See Create forecasts for several workloads for more information.

Select the periods of data to base your long-term forecast on and refine the seasonality patterns for different time periods. Take notes on the periods selected for follow-up on what you have based your forecast on.

The index values represent how a time period compares to the average.

EXAMPLE If the index value for the number of calls during a month is 1, this means that this month has the average number of calls. If the value is 0.9, this month has 90% of the calls of an average month. If the value is 1.1, this month has 110% of the calls of an average month.

The index value for each month, week and day is used to forecast for that month, week and day in the future.

> **EXAMPLE** The index for March is 1.1, the index for the first week of the month is 1.2 and the index for Fridays is 0.7. The forecast for the first Friday in March is calculated by multiplying these index values with the average daily volume, which is 1500. The calculation is 1.1 x 1.2 x 0.7 x 1500 = 1386.

Prerequisites

- You have the Forecasts permission.
- A skill and a workload are created.
- There is at least one year of validated historical data to base the forecast on.

Page location

Client > Forecasts > Prepare workload > Long-term forecast tab

Procedures

Select historical data to base the long-term forecast on

Select one or more periods of historical data to base the long-term forecast on. The periods that are selected on the Data summary tab are used as the suggested selected periods for the seasonality patterns.

1. Select the **Data summary** tab.
2. In the **Select historical data** area, click the symbols at the top to select which way to add historical data periods.
    - Define a number of days, weeks, months or years back from the current date.
    - Define a period, with a start date and an end date.
    - Define individual dates.
3. Define a period and select **Add**.

    You can add more than one period to base the forecast on. Ensure to select the data that is most relevant for the period that you are about to forecast for. Review the data. If you see any extreme values, go back to the Validation tab and adjust. Then reapply the period.
4. Click **Apply** to show the data for the selected periods in the chart.

If you want to remove one of the selected periods, select it and click **Delete**. If you want to remove all selected periods and start over, click **Clear**. Then click **Apply** again to see the result.

5. Click **Next** to refine the variations within the year.

Refine the variations within the year

Review the variations within the year and adjust if needed. The data shown in the chart is based on the previously selected historical data. Adjust the selected historical data periods if needed.

1. Select the **Month of year** tab.
2. Review the variations in number of contacts, handling time and wrap-up time for each month. Note that it is the pattern that is important and not the volume.
3. Adjust the values manually if needed.
4. Click **Next** to refine the variations within the month.

Refine the variations within the month

Review the variations between the weeks of the month and adjust if needed. The data shown in the chart is based on the previously selected historical data. Adjust the selected historical data periods if needed.

> **NOTE** A week is here a 7-day period starting on the first day of the month. For example, week 1 is always from the 1st to the 7th of the month and week 2 is from the 8th to the 14th.

1. Select the **Week of month** tab.
2. Review the variations in number of contacts, handling time and wrap-up time for each week. Note that it is the pattern that is important and not the volume.
3. Adjust the values manually if needed.
4. Click **Next** to refine the variations within the week.

Refine the variations within the week

Review the variations between the days of the week and adjust if needed. The data shown in the chart is based on the previously selected historical data. Adjust the selected historical data periods if needed.

1. Select the **Day of week** tab.
2. Review the variations in number of contacts, handling time and wrap-up time for each day of the week. Note that it is the pattern that is important and not the volume.

3. Adjust the values manually if needed.
4. Click **Next** to consider to apply a trend factor.

Apply a trend factor to the forecast

If your workload is increasing or decreasing with time, it's possible to consider the trend when creating the forecast.

The yearly trend factor shows the average increase or decrease in volume over time when the seasonal variations are disregarded. The chart displays the defined trend for the selected data period.

NOTE At least two years of data is required for the trend calculation to be meaningful.

1. Select the **Trend** tab.
2. Analyze the trend and adjust the percentage to fit your demands.
3. Select the **Use trend** check box to apply the defined yearly trend percentage to the forecast.

   It is optional to use the trend factor. If you don't want to use it, just make sure the **Use trend** check box is cleared.
4. Click **Next** to apply the long-term forecast to a selected period.

Apply the long-term forecast to a selected period

Review the long-term forecast. Select a period and a scenario and apply the long-term forecast.

NOTE Manage special events more efficiently in the web Forecasts tool, by connecting the same special events to several skills. See Manage special events for several skills for more information.

1. Select the **Total** tab.
2. Select which **Scenario** to save this forecast to.

   When you schedule for a selected scenario, the forecast for that scenario is used. You can copy a forecast to another scenario later if needed.
3. Select the time period to apply the long-term forecast to.
4. Click **Apply**.

   The chart displays the long-term forecast that is created based on the validated historical data, the index values for months, weeks and days of the week and the trend.
5. Review the long-term forecast and make changes if needed. Adjust individual values manually.

6. If there are future days that you want to forecast based on historical data from a recurring event, you can add those days to special events. The forecast for the future dates will be based on an average of the volume for all the historical dates that belong to the same special event.
    - Right-click the special event you want to add a date to in the **Special events** field and select **Edit**.

      > **NOTE** If the **Edit** option is not available to select, this special event was created in web Forecasts tool and cannot be changed in the client Forecasts module.

    - Select the dates you want to add in the calendar view and move them to the field of selected dates by using the arrow buttons. Select the **Ctrl** key to select several dates.
    - Click **OK**. The selected dates are highlighted in green in the table view.
7. When you are satisfied with the long-term forecast, click **Finish** to save it to the selected scenario and period.

Related topics

- Create a skill
- Create a workload
- Create forecasts for several workloads
- Manage special events for several skills
- Define intraday arrival patterns
- Finalize the staffing forecast

Define intraday arrival patterns

Define standard workload day templates to describe the typical intraday arrival patterns for each day of the week. These templates detail the distribution of contacts within the day and any variations in handling time and wrap-up time.

Workload day templates are applied to the dates in the forecast to create a detailed forecast with information on how many agents that are needed for each interval of the day.

The workload day templates are created based on historical data. For example, the Monday template is based on the data of all Mondays in the selected historical period. Revise the templates regularly, for example when the customers' behavior is changing or to adjust for seasonal variations in the intraday arrival pattern.

Move through each day of the week and review the table and graph. Adjust values in the table and apply smoothing where necessary.

> **NOTE** Review and update the workload day templates regularly. How often you need to update them depends on how often the customer behavior changes. For example, update the templates each quarter if the customer behavior is different for different seasons.

Prerequisites

- You have the Forecasts permission.
- A skill and a workload are created.
- There is validated historical data to base the intraday arrival patterns on.

Page location

This page can be reached from different locations.

- Client > Forecasts > Prepare workload > Workload day templates tab
- Client > Forecasts > Open Forecast > Manage Workload > Workload day templates

Procedures

Select historical data to base the workload day templates on

Select one or more periods of historical data to base the workload day templates on. The period that is selected on the tab for the first day of the week is used as the suggested selected period for the other days of the week. 8 weeks is often a good period length. Do not use a too long period, as those averages won't be significant for the templates that you are creating.

1. In the **Select historical data** area, click the symbols at the top to select which way to add historical data periods.
    - Define a number of days, weeks, months or years back from the current date.
    - Define a period, with a start date and an end date.
    - Define individual dates.
2. Define a period and select **Add**.

You can add more than one period to base the forecast on. Ensure to select the data that is most relevant for the period that you are about to create templates for.

3. Click **Apply** to show the data for the selected periods in the chart.

   If you want to remove one of the selected periods, select it and click **Delete**. If you want to remove all selected periods and start over, click **Clear**. Then click **Apply** again to see the result.

4. Continue by excluding any non-typical days from the selected data.

Exclude non-typical days from the selected historical data

Exclude days that contain non-typical data so that they do not affect the workload day templates. Focus on the pattern and not the volume.

1. When historical data has been selected, click **Filter data**.
2. Review the chart to identify any non-typical days that could affect the templates in a negative way.
3. Clear the check boxes for the days you want to exclude. The chart is immediately updated.
4. Click **OK**.

Smooth the intraday arrival pattern

Apply a smoothing factor if you want to even out the peaks and troughs in the workload day templates. A higher smoothing factor gives a smoother curve. The smoothing factor considers the surrounding values and calculates an average based on them.

EXAMPLE Smoothing factor 5 is applied to a template. The new value for each interval is the average calculated based on that interval, the two intervals before and the two intervals after (in total 5 intervals).

1. When historical data has been selected and non-typical days excluded, select a **Smoothing** factor in the menu for each measure.

   With a higher smoothing factor, more intervals are used to calculate the average. In most cases that means a smoother curve.

2. Click **Next** to go to the next day of the week. Continue to exclude non-typical days and apply smoothing for all days of the week that the workload is open.
3. Click **Finish** to save the workload day templates.

   NOTE The templates are not automatically applied to the forecast. They must be applied manually. See Finalize the staffing forecast for more information.

Related topics

- Create a skill
- Create a workload
- Validate historical data
- Finalize the staffing forecast

Create forecasts for several workloads

Create long-term forecasts for several skills and workloads at the same time with the Quick forecast. The result is the same as when you click through the steps of creating a long-term forecast, except that you cannot apply any trend factor in the quick forecast.

The Quick forecast also helps to create workload day templates to define the distribution within the day and apply these templates to the selected period.

NOTE Special events are not taken into consideration when running the Quick forecast.

Prerequisites

- You have the Forecasts permission.
- Skill and workloads are created.
- The historical data for the workloads is validated.

Page location

Client > Forecasts > Quick forecast

Procedures

Create long-term forecasts for several skills and workloads

1. Select **Quick forecast**.
2. Select the check box for a skill to create a long-term forecast for all workloads for that skill.

   If you do not want to create a long-term forecast for all workloads on a skill, expand the skill and select the check boxes for the workloads you want to include.

3. When one or more workloads are selected, click **Next**.
4. Define a period of historical data to base the long-term forecast on and then click **Next**.
5. Select a period of historical data to base the workload day templates on. The workload day templates define the distribution within the day.
6. Select a **Smoothing style** to define how much you want to even out the peaks and troughs.
7. Click **Next**.
8. Select for what period you want to create a long-term forecast.
9. Select the **Scenario** to save the forecast in.
10. If the call pattern is more related to the day of the month than the day of the week or the week of the month, select the **Day of month** seasonality check box.

    > **NOTE** Only select this check box if you expect for example the workload on Saturday, October 1 to be more similar to the workload on Thursday, September 1 than the workload on Saturday, September 3.

11. Click **Finish** to create the long-term forecasts.

    The progress of the job is shown in the Running background job view. You can close this view. The job continues in the background until it is done. See Review forecast job history for information on how to check that the long-term forecasts are completed.

    > **NOTE** The quick forecast creates long-term forecasts and workload day templates based on historical data and applies the workload day templates to the selected workloads for the selected period. When that is completed, manually review the forecast to for example adjust the open hours and arrival pattern on bank holidays. See Finalize the staffing forecast for more information.

Related topics

- Create a skill
- Create a workload
- Validate historical data

- Review forecast job history
- Finalize the staffing forecast

Generate forecast (web Forecasts tool)

The main views in the Forecasts tool on web shows all skills and their channel type. Toggle between the Forecasts view and the Skills view to show more details.

- The Forecasts view shows until which date forecasts are created for these skills. The status column shows the result for the forecasts generated in the last three days. A blue pulsing circle indicates that generation of a forecast is in progress. A green circle indicates that a forecast has been generated and a red circle indicates that the generation of a forecast failed. Hover a circle with the mouse pointer for more information. Click to open the forecast for any skill, to see the details of the volume and handling time.
- The Skills view shows if the skills are connected to a dynamic shrinkage template. Click to edit the skill settings.

Generate a forecast for one or more skills. The Forecasts tool calculates a volume forecast and applies a distribution pattern for each day.

The volume forecast and distribution patterns are based on the historical data that is available for the queues that are connected to the skill, maximum three years of data. If there is manually validated historical data, that is used. If not, the original historical data is used. The forecast process then automatically cleans the historical data and replaces outliers with more appropriate values before using the data to base the forecast on.

Different forecasting algorithms are evaluated when generating the forecast. The algorithm that gives the best result when compared to the actual values for a comparison period is used to generate the forecast.

The daily distribution pattern is based on the data for the last three months.

> **NOTE** Forecasts for **Inbound telephony**, **Email**, **Chat**, and **Backoffice** skills can currently be automatically generated using the web Forecasts tool. Use the Forecasts module in the client to generate forecasts for other channel types.

You can also use the Forecast accuracy analyzer to check forecast accuracy. The analyzer tracks weekly snapshots of daily volume forecasts and compares them to actuals over an eight-week period. To learn more, go to View the forecast accuracy analyzer.

Prerequisites

- You have the Web > Forecasts permission.
- A skill is created.
- There is historical queue data on the queues which are connected to the skill. The queues can be either queues from an ACD integration or queues with imported queue data.

Page location

WFM > Forecasts

Procedures

Generate forecast for one skill

1. Select the skill for which to generate a forecast.
2. Click **Actions** and select **Generate forecast**.
3. Select the **Scenario** to save the forecast in.
4. Select the time period to **Generate forecast for**.
5. Click **Generate forecast**.
6. A suggested forecast is shown. Click **Save** to save the forecast as it is or make manual adjustments to the forecast before you save it. See Adjust the forecast manually on the web for more information.

Generate forecast for several skills at a time

1. Select the skills for which to generate a forecast.
2. Click **Actions** and select **Generate forecast**.
3. Select the **Scenario** to save the forecast in.
4. Select the time period to **Generate forecast for**.
5. Click **Generate forecast**.

A background job to generate forecasts for the selected skills is started. The forecast and distribution patterns for the selected period are automatically saved when the job is done. Any previously created forecast for the selected period is overwritten.

Set up automatic updates of forecasts

Turn on automatic forecast updates for your skills.

1. Select the skills for which to set up automatic updates.
2. Click **Actions** and select **Automated forecast**.
3. Drag and drop the circles on the time line to adjust the rolling time period for which to automatically update the forecast.

   EXAMPLE The period is set from 7 to 60 days. This means that each night, the forecast is automatically updated for the period starting 7 days from today and until 60 days from today.

4. Click **Save**.

Turn off automatic updates of forecasts

1. Select the skills for which to set up automatic updates.
2. Click **Actions** and select **Automated forecast**.
3. Click the **Enabled** toggle.
4. Click **Save**.

View the forecast accuracy analyzer

Forecast accuracy is analyzed by tracking weekly snapshots of daily volume forecasts and comparing them to actuals over an eight-week period. The forecast accuracy is calculated using the Mean Absolute Percentage Error, which provides a clear measure of the average percentage deviation from actual values.

1. Click the **Analysis** icon for a skill. 
2. View the forecast accuracy graph.

Related topics

- Adjust the forecast manually on the web
- Import queue data

- Import forecasts for several skills at a time
- Apply suggested forecast

Finalize the staffing forecast

The forecast must be finalized before you can start scheduling for this period.

Apply the previously created standard workload day templates to add the intraday arrival pattern for each day of the week. The intraday arrival pattern defines the distribution within the day and the volume is defined by the long-term forecast.

If you work with preferences, you must apply the workload day templates before opening the preference period. This is important to verify the open hours for each day.

Handle any deviations from the standard volume or intraday arrival pattern.

EXAMPLE

- The workload is closed on a bank holiday—Create and apply a special workload day template that is set as closed.
- The workload has reduced open hours on a bank holiday—Create and apply a special workload day template with reduced open hours and an adjusted intraday pattern.
- A television commercial is planned and will likely cause higher call volumes—Add a campaign percentage for calls for the affected period.
- An up-sell campaign is planned and will likely cause a longer average talk time—Add a campaign percentage for talk time for the affected period.
- You want to use a higher shrinkage percentage for January when the level of sick leave is higher—Create a special skill template and apply it for January.

Continue to revise the forecast as new information is available. This can be done also when the period is scheduled, and the schedule published.

NOTE To automatically adjust the shrinkage values for the near future, use dynamic shrinkage. See Manage dynamic shrinkage for more information

Prerequisites

- You have the Forecasts permission.
- The skill and workloads are created.

- Standard workload day templates for the workloads are created.

> **NOTE** If there are seasonal variations, create long-term forecasts for the workloads for the period and scenario you want to work with. Although, they are not required. Volumes can be defined by the workload day templates.

Page location

Client > Forecasts > Open forecast

Procedures

Open the forecast for a selected period

1. Right-click the skill to finalize the forecast for and select **Open forecast**.
2. Select a start and end date to define the period to open the forecast for.
3. Select for which **Scenario** you want to create a forecast.
4. Click **OK**.

Interpret the workload table

The values in the workload table are divided in forecasted values and actual values. The actual values are presented once the queue statistics for that day are available.

> **NOTE** If the skill has more than one workload, the tables for each workload are available as tabs above the table.

- The total values in the **Forecasted** part of the table are the original forecasted values including any campaign percentage that is added.
- The calculated volume in the **Actual** part of the table is calculated using the formula defined when creating the workload. See Calculate workload volume for more information. The same formula is used for calculating the forecasted volume.

Workload table term	Description
Calls/chats/emails/tasks	Forecasted volume for the month, week, or day interval depending on the view selected in the ribbon bar.
Campaign	Enter a positive or negative percentage to adjust the forecasted volume up

Workload table term	Description
calls/chats/emails/tasks %	or down for the entire month, week, day, or specific interval depending on the view selected in the ribbon bar.
Talk time/chat time/handling time	The average talk time/chat time/handling time, in seconds, for the month, week, day, interval depending on the view selected in the ribbon bar.
Campaign talk time/chat time/handling time %	Enter a positive or negative percentage to adjust the forecasted talk time/chat time/handling time up or down for the entire month, week, day, or specific interval depending on the view selected in the ribbon bar.
ACW/AEW/ATW	The average after call/chat/email/task work (wrap up), in seconds, for the month, week, or day interval depending on the view selected in the ribbon bar.
Campaign ACW/AEW/ATW %	Enter a positive or negative percentage to adjust the forecasted after call/chat/email/task work (wrap up) up or down for the entire month, week, day, or specific interval depending on the view selected in the ribbon bar.
Total calls/chats/emails/tasks	Calls/chats/emails/tasks + (Calls/chats/emails/tasks *campaign calls/chats/emails/tasks %)
Total talk time/chat time/handling time	Talk time + (talktime*campaign talk time %)
Total ACW/AEW/ATW	After call/chat/email/task work (wrap up) + (After call/chat/email/task work (wrap up)*campaign after call/chat/email/task work (wrap up)%)
Template	Apply the appropriate template for the intraday volume arrival pattern. <LONGTERM> = an intraday arrival pattern is not applied. The total volume is distributed equally among all intervals within the open hours. GREEN = the most up-to-date intraday pattern was applied. BLUE = there is a new pattern available to apply. RED = the template was applied by some other method, for example, an external forecast was imported.
Calculated calls/chats/emails/tasks	The actual calls/chats/emails/tasks volume received for the month, week, or day interval depending on the view selected in the ribbon bar. The value is reflective of the calculations configured in the workload

Workload table term	Description
	properties. For further information, see Calculate workload volume. The data is only available after the actual date has occurred.
Abandoned calls	View the actual number of abandoned calls.
Answered calls	View the actual number of answered calls.
Talk time/chat time/handling time	View the actual average talk time/chat time/handling time in seconds.
ACW/AEW/ATW	View the actual average after call/chat/email/task work (wrap up) in seconds.

Interpret the skill table

The skill table is the lower of the two tables. The total values in the skill table are the sums of the total values for all the workloads of the skill.

When you view the skill table on intraday level you can see the skill targets for the day or for selected intervals and adjust them if needed. See Adjust skill targets for more information on how to do that.

The calculated **Minimum occupancy** and **Maximum occupancy** shown on intraday level for telephony and chat skills are indications of how busy the agents will be.

Hours inc stands for hours incoming and is used for email and back office skills to describe the forecasted hours of work required to handle the tasks or emails that arrive on a day. On intraday level, **Agents inc** is used instead.

See How the Skill table parameters work for more information.

Skill table term	Description
Total calls/chats/emails/tasks	Calls/chats/emails/tasks + (calls/chats/emails/tasks*campaign call/chats/emails/tasks %)
Total talk time/chat time/handling time	Talk time + (talk time*campaign talk time %)
Total ACW/AEW/ATW	After call/chat/email/task work (wrap up) + (after call/chat/email/task work (wrap up)*campaign after call/chat/email/task work (wrap up)%)

Skill table term	Description
Service level (%) - only available on intraday view	The service level percentage for the interval
Service level(s) - only available on intraday view	The service level seconds for the interval
Minimum occupancy - only available on intraday view	The occupancy is the percentage of the scheduled time on the skill activity that the agent is actively handling contacts. The resource calculation might result in a too high resource need for skills with low volume. Use the minimum occupancy setting to define an acceptable occupancy level and keep the forecasted need lower. This might affect the service level, since it reduces the staffing margins.
Maximum occupancy - only available on intraday view	In some cases, the resource calculation results in an extremely high occupancy level for skills with a high volume. Use the maximum occupancy setting to define a manageable occupancy level for the agents and increase the forecasted need.
Minimum agents - only available on intraday view	Use this setting to highlight the need for more resources than what the volume on the skill indicates. You must only use this setting when necessary.
Maximum agents - only available on intraday view	Use this setting to highlight the need for less resources than what the volume on the skill indicates. You must only use this setting when necessary.
Agents (manual override) - only available on intraday view	Use this setting to override the forecasted agents and use your defined target instead.
Shrinkage - only available on intraday view	Shrinkage is the loss of resources because of unplanned absences, such as sick leave. You can use shrinkage to calculate the total number of agents to schedule, including the number of agents required to cover for unplanned absences. To automatically adjust the shrinkage values for the near future, use dynamic shrinkage. For more information, see Dynamic shrinkage.
Efficiency - only available on	The efficiency is the percentage of the scheduled skill time that the agents

Skill table term	Description
intraday view	are available to handle contacts. This setting adjusts for the fact that the agents might need to leave their desk, for example, to ask a question. You must define a realistic efficiency level.
Calculated occupancy % - only available on Intraday view	The estimated occupancy for the interval.
Agents - only available on intraday view	The number of agents required for the interval (excluding shrinkage) with the skill table parameters taken into consideration.
Agents with shrinkage - only available on intraday view	The number of agents required for the interval including shrinkage with the skill table parameters taken into consideration
Hours inc	Hours inc is an abbreviation for hours incoming. You can use this setting for email and back office skills to describe the forecasted hours of work required to handle the tasks or emails that arrive on a day.
Hours inc shrinkage	Hours needed including shrinkage.
Template (only available on day view)	GREEN = most up to date skill template is applied. BLUE = there is a new template available. RED = the values were determined elsewhere, such as an external forecast import or when manually changing a value on a particular interval. GREY = dynamic shrinkage is applied. BLACK = a custom skill template was applied.

Apply standard workload day templates

Apply the standard workload day templates to all days to define the intraday arrival pattern. The long-term forecast volumes are not changed when you apply a standard template, unless the template says that the workload is closed. If there are no volumes, they are defined by the templates.

1. Ensure that the workload table is set to **Day** level. If not, click on the **Home** tab and select **Day** in the **Workload** section.
2. Click to select the whole **Template** row in the workload table.
3. Select the **Workload** tab and click **Apply standard**.

The standard workload day templates are applied to the selected days. Each day of the week has its own standard template, for example the Monday template is applied to all Mondays.

4. Click **Save**.

Create a special workload day template

Create special workload day templates to use for days that have different open hours or intraday arrival patterns than this day of the week normally has.

1. Ensure that the workload table is set to **Day** level. If not, click on the **Home** tab and select **Day** in the **Workload** section.
2. Select the **Workload** tab and click **New**.
3. Enter a **Name** that clearly states what this template is used for.
4. Click the ellipses in the top right corner to define the **Open hours** to use in this special workload day template. If this template is for closed days, select the **Closed** check box.
5. If you need to define an intraday arrival pattern, see Define intraday arrival patterns for more information on how to select historical data, exclude non-typical days and smooth the pattern.

   EXAMPLE When creating a special workload day template to be used on New Year's Day, the intraday arrival pattern can be based on historical data from New Year's Days or other similar days in the past.

6. Click **OK** and then click **Save**.

NOTE Special workload day templates can be adjusted if needed. Right-click the special workload day template in the menu below the standard workload day templates and select **Edit**.

Apply special workload day templates

Apply special workload day templates on days that have different open hours or intraday arrival patterns than this day of the week normally has.

1. Ensure that the workload table is set to **Day** level. If not, click on the **Home** tab and select **Day** in the **Workload** section.
2. Click to select the day to apply the template to in the workload table.
3. Select the **Workload** tab.

4. Click the arrow in the section that lists all workload day templates to show the special workload day templates.
5. Click the special workload day template that you want to apply.
6. Click **Save**.

> **NOTE**
> The colors of the workload day templates have different meanings.
>
> - Green—A current standard workload day template.
> - Blue—A standard workload day template is applied, but it is not the latest version. It shows the date and time that it was created.
> - Black—A special workload day template. If it is named <WEB> a new forecast period is created in the Forecasts tool on the web.
> - Red—A manual change of the pattern has been made. It no longer matches any template.

Enter a campaign percentage to increase or decrease the forecast

Enter a campaign percentage to adjust the forecast for a specific period because of for example larger volumes or longer handling times.

1. Decide on which level to apply the campaign; Month, Week, Day or Intraday level.
2. Ensure that the workload table is set to that level. If not, click on the **Home** tab and select the appropriate level in the **Workload** section.
3. Enter a **Campaign percentage** for the period that is affected.

   Depending on if it is the volume, the handling time or the wrap-up time that is affected, enter the campaign percentage in the appropriate row. Copy and paste to enter the same value to many cells.

   It is possible to set negative values to decrease the forecast.
4. Click **Save**.

> **NOTE** To use external data, you can copy data from a local source and paste it to the **Campaign %** row. If you are using Windows Virtual Desktop to access Forecasts, you must use **Ctrl+C** and **Ctrl+V** to copy and paste. You must also select **Ctrl+V** before you start copying content from your local source.

Create a special skill template

The standard skill templates are applied by default. Create special skill templates for days with different skill settings than this day of the week normally has. You can for example use this to apply a template with a lower shrinkage percentage for the next few days.

1. Ensure that the skill table is set to **Day** level. If not, click on the **Home** tab and select **Day** in the **Skill** section.
2. Select the **Skill** tab and click **New**.
3. Enter a **Name** that clearly states what this template is used for.
4. See Adjust skill targets for more information on how to adjust the values in the skill template.
5. Click **OK**.

Apply special skill templates

Apply special skill templates on days with different skill settings than this day of the week normally has.

1. Ensure that the skill table is set to **Day** level. If not, click on the **Home** tab and select **Day** in the **Skill** section.
2. Click to select the day to apply the template to in the skill table.
3. Select the **Skill** tab.
4. Click the arrow in the section that lists all skill templates to show the special skill templates.
5. Click the special skill template that you want to apply.
6. Click **Save**.

Review the forecast

Review the result of the detailed forecast. The total forecasted hours per day, with and without shrinkage, is shown in the skill table on day level.

1. Drill down to intraday level to review the forecasted number of agents per interval, with and without shrinkage.
2. Click **Save** to save the forecast.

Related topics

- Calculate workload volume
- How the Skill table parameters work

- Adjust skill targets
- Define intraday arrival patterns
- Manage dynamic shrinkage
- Agent Metrics report
- Team Metrics report

How the Skill table parameters work

The parameters in the Skill table in the Forecasts module are important to understand when finalizing the forecast. In this topic we clarify the parameters that might need some extra explanation.

Which parameters that are shown in the Skill table vary with the type of skill selected and depending on if you are looking at the table on intraday level or on, for example, the day level.

Minimum and maximum occupancy

The calculated **Minimum occupancy** and **Maximum occupancy** are shown on intraday level for telephony and chat skills. They are indications of how busy the agents will be. It is a predicted occupancy based on the number of forecasted agents in relation to the forecasted work to be done.

Efficiency is not considered when calculating occupancy.

Use the Agent Metrics report and Team Metrics report to see the actual occupancy.

Hours and agents incoming

When you plan for back office or email skills, the tasks or emails arrive at one point in time but can normally wait longer than a call to be handled. The **Handled within** target defines within what time frame the tasks or emails must be handled.

This is visualized by parameters in the Skill table.

- **Hours inc** (Hours incoming) indicates the forecasted hours of work required to handle the emails or tasks that arrive on a day (or in a week or month). This does not necessarily mean that we need to schedule that many hours that day.
- **Agents inc** (Agents incoming) is shown on intraday level. It is the number of agents needed to handle the emails or tasks that arrive that interval. It can be compared with **Agents**, which is the number of agents that are forecasted to work that interval based on the **Handled within** target.

EXAMPLE

A back office skill has all incoming volume within the first interval. The **Handled within** target is defined as 4 h. The interval length is 1 h.

Time	09:00 AM	10:00 AM	11:00 AM	12:00 PM
Agents incoming	4:00	0:00	0:00	0:00
Agents	1:00	1:00	1:00	1:00

Agents

The **Agent** row in the Skill table intraday view shows the number of agents that are forecasted to work that interval.

NOTE If you compare the **Agents** value in the Forecasts module with the **Forecasted agents** value in the Schedules module for an email or back office skill, the numbers might not match. This is because the **Forecasted agents** value in the Schedules module is updated when agents are scheduled for this skill. See Understand the result table parameters for more information.

Adjust the forecast manually on the web

Add your knowledge of the future to the generated forecast. Adjust the forecasted values by overriding them or creating a campaign.

EXAMPLE

- You know that a TV ad campaign is planned to run a certain week. A 20% increase in the number of calls is expected based on that. Create a campaign to increase the forecast by 20% that week.
- The launch of a new product is planned for March 1st, and you expect the number of calls to increase. Override the forecasted number of calls for that day.

It is not possible to add a campaign and override a value for the same day. If you try to create a campaign for a day with an override value, the campaign is not applied. If you apply an override to a day with a campaign, the override removes the campaign for that day.

NOTE Forecasts for **Inbound telephony**, **Email**, **Chat**, and **Backoffice** skills can currently be automatically manually adjusted using the web Forecasts tool. Use the Forecasts module in the client to adjust forecasts for other channel types.

Prerequisites

- You have the Web > Forecasts permission.
- A forecast is generated for the skill.

Page location

WFM > Forecasts

Procedures

Override forecasted values

1. Click **Open forecast** on the skill.
2. Select the day to override.
3. Click **Actions** and select **Override**.
4. Enter the override value for the number of **Calls**, the **Talk time** or the **ACW**.
5. Click **Apply**. The chart is adjusted to show the override value as the **Total**.
    - The **Original** value is shown as a dotted line. If it's not shown, click the original value in the legend to show it.
    - A small purple circle indicates that an override is added for this day.
    - Hover the day to see all details.
6. Click **Save**.

Remove override values

1. Click **Open forecast** on the skill.
2. Select the day with the override value to remove.
3. Click **Actions** and select **Clear override**.
4. Click **Save**.

Adjust the forecast with a campaign

1. Click **Open forecast** on the skill.
2. Select the days to create a campaign for.
3. Click **Actions** and select **Campaign**.
4. Enter a campaign percentage to adjust the number of tasks, the task time, or the after task work.
5. Click **Apply**. The chart is adjusted to show the value including the campaign as the **Total**.
    - The **Original** value, excluding the campaign, is shown as a dotted line. If it's not shown, click the original value in the legend to show it.
    - A small orange circle indicates that a campaign is added for this day.
    - Hover the day to see all details.
6. Click **Save**.

Remove campaign

1. Click **Open forecast** on the skill.
2. Select the days with the campaign to remove.
3. Click **Actions** and select **Clear campaign**.
4. Click **Save**.

Export the forecast to file

1. Click **Open forecast** on the skill.
2. Click **Export to file**.
3. Select the period to export.
4. Click **Export**. The forecast is exported to an XLSX file. The file has one tab for forecast values on day level and one tab with forecast values on interval level.

Related topics

- Generate forecast (web Forecasts tool)
- Manage campaigns for several skills

- Manage special events for several skills
- Close days for several skills at once
- Apply suggested forecast
- Manage dynamic shrinkage

Manage campaigns for several skills

Apply campaigns to adjust the forecast for a specific period when there are events or circumstances that affect the volume or handling time. A campaign can either increase or decrease the volume or handling time.

EXAMPLE

- A planned TV ad campaign is expected to cause larger call and chat volumes.
- A new product is rolled out and the initial support of it is expected to cause longer handling times during the first couple of weeks.
- A lot of customers are calling in about a known issue and this is expected to continue for the next week but because the agents already know the solution, the calls only take about half as long as they usually do.

The named campaigns can be applied to several skills.

You can see the details of each named campaign when you open the forecast in the web Forecasts tool. In the WFM client Forecasts module, the named campaigns are included in the total campaign percentages.

Prerequisites

- You have the Web > Forecasts permission.
- A skill is created.

Page location

WFM > Forecasts

Procedures

Create a new campaign

1. Click **Manage** and select **Campaigns**.
2. Click **New campaign**.
3. Enter a **Name** for the campaign.
4. Enter a campaign percentage for the number of tasks, the task time, or the after task time.
5. Select for which dates this campaign runs.
6. Select a **Color** for the campaign. The campaign color is shown in the campaign view and when opening the forecast in the web Forecasts tool.
7. Click **Create**.

Add campaigns to skills

1. Click **Manage** and select **Campaigns**.
2. Click in the **Skills** field and then select the skills for which you want to add campaigns. Enter a few characters from the name of the skill to find it more easily.
3. Click in the **Campaigns** field and select the campaigns to add to the selected skills.
4. Click **Apply**.

Update the campaign percentage or campaign dates

1. Click **Manage** and select **Campaigns**.
2. Click the **Edit** button for the campaign.
3. Make the adjustments.
4. Click **Save**.

Related topics

- Create a long-term forecast
- Manage special events for several skills
- Manage dynamic shrinkage

Close days for several skills at once

The yearly overview in the web Forecasts tool provides an overview of closed days and days that are marked as special events.

Set days as closed for several skills at once, or choose to reset the standard open hours for a day that is currently set as closed.

All actions in the Yearly overview are tracked in the General Audit Trail report.

Prerequisites

- You have the Web > Forecasts > Modify skill permission.
- A skill is created.

Page location

WFM > Forecasts

Procedures

View closed days and special events for the whole year

1. Click **Manage** and select **Yearly overview**.
2. Select the year to view.
3. Click in the **Skills** field and then click to select skills.

   The year overview is updated based on the selected skills.

   - If a day is filled with a color, all selected skills are closed on that day.
   - If a day is half-filled with a color, some of the selected skills are closed on that day.

- If there is a small colored square on a day, a special event is connected to that day. Hover over the square to see the name of the special event.

  NOTE Only special events created in the web Forecasts tool are shown in the yearly overview.

Close days for several skills at once

1. Click **Manage** and select **Yearly overview**.
2. Select the year to view.
3. Click in the **Skills** field and then click to select skills.
4. Click **Close skills...**
5. Click the **Add dates from special event** field and select a special event. The dates connected to that special event are added under the listed skills.
6. If there are some dates which are connected to that special event that you do not want to close, click the **X** for those dates to remove them.
7. Click **Apply** to close all the selected dates.

Reset open hours for a currently closed day

Reset open hours to the hours set in the standard workload day template for that day of the week.

1. Click **Manage** and select **Yearly overview**.
2. Select the year to view.
3. Click in the **Skills** field and then click to select skills.
4. Click on a closed day in the yearly overview. Closed days are filled or half-filled with a color.
5. If there are any of the listed skills for which you do not want to reset open hours, clear the check boxes for those skills.
6. Click **Apply**.

Related topics

- Manage special events for several skills

Import external forecasts

You can import forecasts from external sources to the default scenario. There are three different ways to import forecast data.

- Import workload—Contains workload information, that is the number of contacts and the average time to handle and wrap up a contact.
- Import staffing—Contains staffing information, that is the number of agents needed to handle the contacts.
- Import workload and staffing—Contains both workload and staffing information.

NOTE For *Email* and *Back office* skill types, only the *Import workload* option is available. You cannot import staffing because for these skill types, the number of forecasted agents for an interval changes based on how many agents that are scheduled for other intervals.

We recommend having only one workload for the skill you import the forecast to because it is not possible to select which workload to import to.

Import forecasts for several skills at a time in the web Forecasts tool. See Import forecasts for several skills at a time for more information.

Prerequisites

- You have the Forecasts > Import forecast from file permission.
- A skill and a workload are created.

Page location

Client > Forecasts > Import forecast

Procedures

Import forecast data

1. Right-click on the skill you want to import the forecast to and select **Import forecast**.
2. Select which information to import. Select to import workload information, staffing information or both.
3. Click **Browse** and select the file to import.

The file must follow the import file format. See Forecast file formats for more information.

4. Click **Import**.

   The import starts running. The progress is shown in the Running background job view. You can close these views. The forecast import continues in the background until it is done. See Review forecast job history for information on how to check that the import is completed.

Related topics

- Forecast file formats
- Import forecasts for several skills at a time
- Review forecast job history
- Export forecast to file

Import forecasts for several skills at a time

Import forecasts from external sources to the default scenario in the web Forecasts tool. You can import forecasts for several skills at a time. In the import file you can choose to include workload information, staffing information, or both.

- Workload—The number of contacts and the average time to handle and wrap up a contact.
- Staffing—The number of agents needed to handle the contacts.

NOTE For *Email* and *Back office* skill types, only the *Import workload* option is available. You cannot import staffing because for these skill types, the number of forecasted agents for an interval changes based on how many agents that are scheduled for other intervals.

The import matches the forecast data to a skill based on the skill name.

We recommend having only one workload for the skills you import forecasts to because it is not possible to select which workload to import to. The forecast is always imported to the workload that was created first.

When you import forecast data, the skills' open hours are set based on the data in the import file.

Prerequisites

- You have the Web > Forecasts > Modify skill permission.
- Skills are created that match the skill names in the forecast import file.

- The forecast import file is formatted according to the specification. See Forecast file formats for more information.
- The forecast import file must be sorted on the skill name.

Page location

WFM > Forecasts

Procedures

Import forecast data

1. Click **Import** and select **Import forecast**.
2. Drop your forecast file in the gray area, or click the gray area to select the file. The forecast file must follow the specified format. See Forecast file formats for more information.
3. A preview of the first 100 rows in the selected file is displayed. Review the rows and address any issues in the file before proceeding with the import.

   Any format issues within the rows are highlighted. This can be for example if the date or time format is wrong, or if fields that should contain numeric values do not. Hover any highlighted field to show a tooltip with details.
4. Click **Import**.
5. A progress bar is shown. When it turns green, the import is completed. Click **OK** to import another file.

> **NOTE**
>
> - The rows are imported in batches by skill. Any forecasts already imported in earlier batches are kept if the import for some reason fails in a later batch.
> - If the import fails, a message is shown above the table. The message states the issue and on which row it is. Address the issue and then rerun the import. If any values have changed for the already imported batches, the previous values are replaced.

Related topics

- Forecast file formats
- Export forecast to file
- General Audit Trail report

Export forecast to file

Export the data in a forecast to a file. The file can be sent to a partner who can import it and staff according to this forecast.

Prerequisites

- You have the Forecasts > Export to file permission.
- A skill and a workload are created, and a detailed forecast is finalized for this workload.
- If you are using Azure Virtual Desktop, see Manage export of files on AVD for details on how to handle the export.

Page location

Client > Forecasts > Export

Procedures

Export forecast to file

1. Right-click on the channel type that contains the skill you want to export and select **Export**.
2. Select **Export to file** and click **Next**.
3. Select the skill to export and click **Next**.
4. Define the period to export the forecast for.
5. Select the **Scenario** to export the forecast data for and click **Next**.
6. Click **Select file** to select where to save the file and to enter an export file name.
7. Select what data you want to export; workload information, staffing information or both.
8. Click **Next** to start the export.

The export is completed when the text File export is done is shown.

9. Click **Finish**.

   The export file follows the forecast file format. See Forecast file formats for more information.

Related topics

- Forecast file formats
- Import external forecasts
- Export forecast to another business unit

Export forecast to another scenario

Work with scenarios to evaluate how different situations affect the staffing need.

Create one forecast based on the historical data. Export this forecast to other scenarios and use those scenarios to make adjustments and simulate alternative situations. Compare the forecasts in the different scenarios to each other.

You can use the forecasts in the different scenarios for scheduling in those scenarios.

NOTE Only the schedule in the default scenario can be published to agents.

Prerequisites

- You have the Forecasts permission.
- A forecast is created for a skill.
- There are at least two scenarios.

Page location

Client > Forecasts

Procedures

Export forecast to another scenario

1. Right-click the skill for which you want to export the forecast to another scenario and select **Open forecast**.
2. Select the period.
3. Select the **Scenario** that contains the forecast you want to export to another scenario.
4. Click **OK**.
5. Click **File** and then select **Export**.
6. Click **Save to…** to export the currently open forecast to the scenario of your choice for the period that is open.

> **NOTE** The scenario you select is now the scenario that is open. If you export the same forecast to multiple scenarios, the last selected scenario is the one that is open.

Related topics

- Create alternative scenarios

Export forecast to another business unit

Export a percentage of the multisite skill forecast to another business unit. When the forecast on a multisite skill is exported, one or more of the sub-skills are connected to selected target skills in business unit. The multisite skill distribution template defines the percentage of the forecast that is exported for each sub-skill.

Prerequisites

- You have the Forecasts > Export forecast to other business unit permission.
- A multisite skill is created.
- A forecast is created for the multisite skill.
- There is a skill in another business unit to export to.

Page location

Client > Forecasts

Procedures

Export a multisite skill forecast to another business unit

1. Right-click the channel type and select **Export**.
2. Select **Export to business unit** and click **Next**.
3. Select the check boxes for the multisite skills to export from and click **Next**.
4. For each sub-skill to export, select the target skill in the other business unit. Click the button with the ellipsis, select the target skill and click **OK**.

   A sub-skill can only export to one target skill. If there are sub-skills that you don't want to export from, leave them without a selected target skill.
5. Click **Next**.
6. Define the date period for which to export the forecast and click **Finish**.
7. The job status view opens. Keep it open to see the progress, or click **Hide**. You can check the progress later in the Job history view. See Review forecast job history

Related topics

- Create a multisite skill
- Adjust multisite skill distributions
- Export forecast to file
- Export forecast to another scenario

Forecast file formats

The file formats for exporting forecast information and importing forecast information are the same.

Export forecast information to send to an external supplier or use the forecast import to import forecast data from an external source.

There are two available file formats. The only difference is if the file includes staffing or not. For *Email* and *Back office* skills, you cannot import staffing information.

NOTE When importing forecasts in the web Forecasts tool, you can import forecasts for several skills at the same time. The import file must be sorted on the skill name.

File format

The columns listed below must be included in the import file. The file must not contain any column headers. The file encoding must be UTF-8.

Columns

- **Skill name** (string50)

  The name if the skill you are importing the data to.

- **Interval start time** (yyyyMMdd HH:mm)

  The date and time for the start of the interval.

- **Interval end time** (yyyyMMdd HH:mm)

  The date and time for the end of the interval.

- **Volume** (decimal)

  The number of contacts. Set to zero when using the import or export option with only staffing information.

- **Average task time** (seconds decimal)

  The average time to handle one contact. Set to zero when using the import or export option with only staffing information.

- **After task work** (seconds decimal)

  The average time used for wrap-up or after task work. Set to zero when using the import or export option with only staffing information.

- **Agents** (decimal)

  The number of agents needed to handle the workload. This column is only needed if you want to import staffing information.

EXAMPLE

The forecast file format, including staffing.

Insurance,20210218 08:00,20210218 08:15,16,135.46,490.74,16.85

Insurance,20210218 08:15,20210218 08:30,25,127.93,443.24,21.48

Insurance,20210218 08:30,20210218 08:45,36,136.78,407.05,28.43

Example file: Forecast import example file

Related topics

- Export forecast to file
- Import forecasts for several skills at a time
- Import external forecasts

Review forecast job history

The job history view shows the status and history of the forecast imports, multisite skill exports and quick forecasts.

Prerequisites

- You have the Forecasts permission.

Page location

Client > Forecasts > Job history

Procedures

Review the forecast job history

The table presents information on the type of job, the user who initiated the job, when it was started and the status. Click a job to show the details for that job in the lower table.

The default setting is to show warnings and error messages in the details table. Select **All** in the toolbar to show all messages. Select **Errors** to show only error messages.

Related topics

- Import external forecasts
- Export forecast to another business unit
- Create forecasts for several workloads

How creating staffing budgets works

This section describes on a high level how the budgeting functionality in WFM works. Note that the budgeting process in WFM is only for staffing and does not include any information on cost. The staffing budget can be used as a basis for your cost budget.

Preparations

There are a few things to prepare before you start to create the staffing budget, to make it as accurate as possible.

- Create a budget group and add the skills that you are creating a staffing budget for. Skills that share resources should belong to the same budget group. Avoid using the same skill in more than one budget group.
- If needed, update the contract, contract schedule and part-time percentage information for the agents who have the skills that you are creating a staffing budget for. This information is used when importing staffing values to the budget.
- Assign the budget group to the agents who have the skills included in the budget group. Do not assign the budget group to the hourly employees if you do not want to include them when importing staffing values to the budget.
- Create a forecast for the skills for the time period that you are creating a staffing budget for. This is not mandatory but enables import of forecast data to the budget.
- Collect input that might impact the number of available resources. This can be for example the attrition rate for agents, any planned recruitment, the percentage of people absent on vacations or because they are ill, and efficiency losses due to the time agents are scheduled on meetings, short breaks or training.

Create a budget

Use the procedures in the Create a staffing budget page for detailed information on how to fill in the values. You do not have to go through the procedures in any specific order. Go through the steps once and then go back to adjust the values if needed.

Compare the available resources to the forecasted agents. Use this tool to test different ways to align the available resources with the forecasted agents.

Revise the budget

The imported staffing and forecast values will not be automatically updated with any changes. The manually entered values might also need to be updated. Import staffing and forecast information again and make manual adjustments where it is needed.

Related topics

- Create a budget group
- Create a staffing budget
- Create allowances for absence requests

Create a budget group

Group skills in a budget group to create a staffing budget for those skills. Put skills that share resources in the same budget group. Resources are shared between two skills when there are agents that have both skills. If an agent gets an absence request approved, the staffing level of all skills within the budget group will be affected, directly or indirectly.

NOTE Do not include the same skill in more than one budget group. If you do, the agents who belong to this budget group will be counted twice when creating staffing budgets.

Prerequisites

- You have the Budgets permission.

Page location

Client > Budgets

Procedures

Create a new budget group

Group skills that share resources in a budget group.

1. Right-click on **Budgeting** and select **New budget group**.
2. Enter a **Name**.
3. Enter the number of **Days per year**.

   Enter 365 if you are using a Western culture setting. There is no need to adjust for the leap year.

   Enter 354 if you are using an Arabic culture with a lunar-based calendar.
4. Select the **Time zone** for the budget group skills.

5. The time zone is used when loading forecasted hours for the skills.
6. Select the **Skills** to include and move them to the box to the right.
7. Click **Finish**.

Related topics

- How creating staffing budgets works
- Create a staffing budget
- Create allowances for absence requests

Create a staffing budget

Create a staffing budget to use as a basis for long-term decisions about staffing, for example recruitment. The staffing budget is based on the forecasted resource need and the number of agents employed. Both values are automatically loaded. Add more information manually to make the budget as accurate as possible.

You can create a budget and then use it to set up allowances for absence requests.

Prerequisites

- You have the Budgets permission.
- To import staff employed, the budget group needs to be assigned to the agents.
- To import forecasted hours, there needs to be a forecast for the skills connected to the budget group.

Page location

Client > Budgets

Procedures

Open budget

Open a budget for the scenario and period to work with.

1. Right-click on the name of a budget group.
2. Select **Open budget**.

3. Select the period to work with. Select to open full months or weeks, depending on if you are planning to work on a monthly or weekly level.
4. Select the **Scenario** to work with. The budget is based on the forecast in the selected scenario. Select the default scenario if you plan on using the staffing budget to create allowances for absence requests.
5. Click **Save**.
6. Click **OK**.

The following table provides an overview of the terminology for the Budgets module.

Term	Description
FTE h/day	FTE stands for Full-Time Equivalent, and FTE h/day is the average number of hours per day for a full-time contract. This value is defined in decimal form. **EXAMPLE** For example, to set this value to 7 hours and 30 minutes, enter **7.5**. It is recommended that you only enter the contract time. For example, if agents are scheduled for 8 hours but have a 30 minute lunch that is not part of their contract, enter **7.5**. **NOTE** If there is a mix of agents who work various contract lengths, you must pick the average contract length or pick the length that most agents work. When **Staff employed** loads, it utilizes the contracts assigned to agents in the People module to calculate the gross number of staff.
Staff Employed	Select the **Staff employed** field to highlight the row and then click the **Staff employed** button in the ribbon bar. Confirm the FTE h/day and click **OK**. The number of FTEs that load is based on the number of agents who are assigned the particular budget group in the People Module in the Person Periods tab. If the agents are not connected to the budget group, add the **Staff employed** value manually.
Attrition rate %	Enter the yearly **Attrition rate** percentage. This is the percentage of agents leaving within one year.

Term	Description
	NOTE You must use the annual attrition rate even when you add the value on a weekly or monthly level. The weekly or monthly attrition calculation is based on the yearly value. The gross staff decreases by about 1/12 of the yearly attrition each month or with about 1/52 each week.
Recruitment	This is a number (head count) of agents. Add any planned **Recruitment** on the month or week that the agent starts.
Gross Staff	This is the calculated value of available resources based on the FTE h/day, staff employed, attrition rate percentage, and recruitment data.
Contractor (hours)	Enter the total number of hours that external resources contribute for each week or month. For example, the external resources could be from an outsourcer or BPO.
Shrinkage	Right-click the table and select **Add Shrinkage** to add information on the percentage of agents who will not work. You can add multiple shrinkage rows. For example, you can add one row for planned absenteeism and another row for unplanned absenteeism. Select the **Include in request allowance** check box to connect the shrinkage to one or more absence types. This is useful to follow up on the usage of these absence types, automatically or manually. After adding the shrinkage, enter the percentage for each of the shrinkages added.
Days off per week	This is the average number of days off for the agents. For example, if the contact center is open seven days per week and agents on average work five days per week, enter **2** in this field. If the contact center is open five days per week and agents on average work five days per week, enter **0** in this field.
Closed	Close days in the budget manually, if needed. Select the **Closed** check box for those days in the **Day** view. This is only required if there are days when the skills are closed but they are not yet closed in the forecast. The days which are closed in the forecast are automatically set as closed in the budget when loading forecasted hours.

Term	Description
Net Staff	This is the calculated FTE resources available after you take into account the contractor hours, absenteeism, and days off per week.
Net staff FC adj	Net staff FC adj is only visible in the **Day** view and shows the required resources after accounting for the days off per week entry. If the days off per week is kept at 0, then the Net staff FC adj will match the Net Staff. These values will match prior to the import of the forecast. However, after you import the forecast, the values will adjust to match the forecast distribution throughout the week. For example, it may require more agents on a Monday than a Friday in the Net staff FC Adj row to account for call volumes on different days of the week.
Overtime (hours)	Enter the total number of overtime hours planned for the week or month. If overtime is added ad-hoc, then the value can be **0**.
Student Hours	This is the expected contribution from agents on hourly contracts.
Efficiency Shrinkage	Right-click the table and select **Add efficiency shrinkage**. You can use the efficiency shrinkage to account for adherence loss, planned breaks (if they are not taken into account for FTE), unplanned breaks, training, meetings, coaching, and so on. You can add a separate line item for each type of efficiency shrinkage, or you can add them all in one line item. You must add the percentages for each efficiency shrinkage. For example, if an agent works on average eight hours per day and is scheduled on short breaks for an average of 0:30h per day, add an efficiency shrinkage for short breaks and enter 6.25% to take the short breaks into consideration.
Forecasted hours	Select the **Forecasted hours** row and, then click the **Forecasted hours** button from the ribbon bar at the top of the screen. This loads all of the forecasted hours for the skills connected to the budget group for the selected period. **NOTE** The imported forecasted hours do not include the shrinkage set on the skill. This makes it possible to compare the available staff to the forecasted resource need. The distribution of

Term	Description
	the available resources within the week is affected by the week distribution of the forecast. The adjusted values never exceed the total number of available FTEs. The adjustments are done for the values in the **Net staff FC** adjusted row and the Budgeted staff row in the day view. As the allowance is calculated based on these six adjusted values, it is distributed according to the forecast distribution. In most cases this means that on a day with a lower forecast, the allowance is also lower.
Forecasted agents	The forecasted need is also shown as Forecasted agents. This is the forecasted hours divided by the FTE h/day. If there is no long-term forecast, you can add the forecasted hours manually.
Difference	This is the difference between the Net net staff and the Forecasted agents in the number of FTEs and in percentage.
Difference (%)	This is the difference in a percentage.
Budgeted leave	This is the number of FTEs that are predicted to be absent based on the shrinkages set up in the budget. Only shrinkages that are included in the request allowance are considered when calculating the budgeted leave. Budgeted leave = (Gross staff + (Contractors (hours) / FTE h/day)) * Sum of all shrinkages included in request allowance.
Budgeted Surplus	This is the difference between the budgeted staff and the forecasted staff when any budgeted absences and efficiency shrinkages are considered. If the skills are overstaffed, the budgeted surplus is the number of FTEs that you can grant time off to, on top of the planned budgeted leave. Budgeted surplus = Budgeted difference / (1 - (Sum of all efficiency shrinkage factors))
Extra	This provides the ability to account for extra resources. Add the number of additional FTEs if needed.
Override	This provides the ability to define the number of FTEs that you want to grant time off to if you use the Budget as a staffing check. This

Term	Description
	overwrites the value that is output by the budgets based on the calculation with the above inputs.
Full allowance	This is the total number of FTEs who you can grant time off to. Full allowance = Budgeted leave + Budgeted surplus + Extra
Threshold (%)	Enter the percentage of the allowance that you can use to automatically approve absence requests in the Threshold field. This is only useful if you automatically approve absence requests.
Allowance after threshold	This is the number of FTEs that you can use for automatic approval of absence requests. The specified number of FTEs or agents, depending on the absence request settings, can get their requests automatically approved for this day. Allowance after threshold = Threshold (%) * Full allowance

Revise the budget

The imported staffing and forecast values are not automatically updated with any changes. If needed, import this information again or adjust it manually. Go through the procedures above again to revise the budget.

Create allowances for absence requests

Use the staffing budget as a basis to create allowances for automatic or manual approval of absence requests. Read more in Create allowances for absence requests.

Related topics

- How creating staffing budgets works
- Create a budget group
- Create allowances for absence requests

Schedulers

Schedulers build and optimize the contact center schedules.

Select agents and period to schedule

Select the agents whose schedules you want to review or work with. Then select the period and the scenario to open.

Only schedules in the default scenario can be published and available to agents.

When you open schedules for a selected period, schedules for a longer period than that are often loaded in the background. The loaded period covers the full schedule period for all agents, plus some time before and after the schedule period. The reason is the need to ensure that all conditions are fulfilled, for example contract rules and scheduling settings.

The full period for which schedules are loaded is stated within parentheses at the top of the schedules view.

When you open schedules for a selected group of agents, the forecast and the staffing levels are loaded for the skills assigned to these agents. If other agents have any of the skills that the selected agents have, the forecast and staffing levels of their skills are also loaded. This is because the staffing of those skills is affected when you make schedule changes for the selected agents.

> **NOTE** If you set your schedule period in the People module to one week, you must open the schedules for full week(s), starting with the day you defined your work week to start on. If you set your schedule period in the People module to one month, you must open the schedules for the full month. If the month ends in the middle of the week, you must open the full last week to prevent schedule errors.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.

Page location

Client > Schedules

Procedures

Open schedules for selected agents

1. Select the agents to open schedules for.

   Select based on business hierarchy or based on groups like for example agents with a specific skill. Select the **Ctrl** key and then click the sites, teams or groups you want to open if you want to select more than one.

2. Right-click and select **Open**.
3. Define the period to view or work with.
4. Select a **Scenario**.
5. Select the check boxes for what you want to load when opening the schedules. The schedules open faster if you only select the ones you need.

   > **NOTE** **Forecasts** and **Load requests** must be selected when opening the schedules if they are needed. **Shrinkage**, **Calculations** and **Validations** can be turned on later, while working with the schedules.

   - **Forecasts**—Loads the forecasts for all relevant skills for the selected agents. This is required to view any forecast information and to run the automatic scheduling.
   - **Shrinkage**—Loads information about the shrinkage for the relevant skills. This is required to view the forecast with shrinkage applied.
   - **Calculations**—Required to show staffing and to perform the resource calculation when for example adding activities or absences.
   - **Validations**—Required to display warnings when work rules are broken.
   - **Load requests**—Required to see and handle requests in the Requests view.

6. Click **OK**.

Related topics

- Run automatic scheduling
- Optimize schedule

- Edit scheduled shifts

Run automatic scheduling

The main automatic scheduling process is used for agents with a contract of the fixed staff employment type. The target is to schedule days off and work shifts in a way that fulfills all work rules defined by their contract set-up.

Select the agents and the period to schedule and open the scheduling options. Use the scheduling options to define any additional rules for the scheduling to consider. This can for example be restrictions like agent preferences or rotations, limitations on the number of agents to schedule or using team or block scheduling. When you selected what to consider, start the automatic scheduling.

Skill activities are only scheduled for agents that have that skill and only within the open hours of the skills. The shifts scheduled for each agent are picked from their shift bag.

When the automatic scheduling is done, you must optimize the schedule. See Optimize schedule for more information. It's usually most efficient to schedule all fixed employees before optimizing the schedule.

For information on how to schedule hourly employees, see Schedule hourly employees.

Prerequisites

- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.
- Any known activities, absences and meetings are scheduled.

Page location

Client > Schedules > Open schedule

Procedures

Select agents and period and open the scheduling options

1. Select the agents and the dates to schedule.
    - Click in the schedule view and select **Ctrl**+**A** keys to select all agents and all dates in this view.
    - Click and drag to select consecutive dates or agents.
    - Click the week header to select all agents for that week.
    - Click the agent name to select the full period for that agent.
2. Click **Schedule**.
3. If needed, select a schedule tag in the **Tag changes with** menu.
4. The selected schedule tag is used for all days scheduled in this round of automatic scheduling.
5. Continue to go through the scheduling options described in the procedures below.
6. When you have selected everything that you want to consider when scheduling, click **OK** to run the automatic scheduling.

> **NOTE** The selected settings are stored for your user. When you open the scheduling options, the options are always set as the previous time you ran the scheduling.

Select which restrictions to consider when scheduling

Schedule according to the selected restrictions. The scheduling fulfills the restrictions to the extent that is possible. When you optimize schedules, you can choose to what extent to fulfill the restrictions.

> **IMPORTANT** When you use restrictions that do not cover the target number of days off, a day off can be scheduled on a day that the restriction has defined as a workday. This makes it possible to only define a few days off in the rotation or availability. The scheduling and optimization will add the remaining days off.

> **NOTE** Dynamic Scheduling is available as an add-on beta app. It ensures that the optimization adheres to the dynamic scheduling availability settings. For more information, view the Select availability with Dynamic Scheduling article in the Innovation Center User Documentation

1. In the scheduling options, select the **General** tab.
2. Select the **Preferences** check box to schedule all days in the selected period according to the agents' entered preferences on how to work and when to have their days off. If a day does not have any preferences, a shift is selected based on the business need.

    1. If the **Schedule only preference days** check box is selected, only days where agents have entered preferences are scheduled.
    2. If the **Use preference must have only** check box is selected, only preference days that the agent has marked with Must have are scheduled. This can be used for example to set a specific schedule tag on the must have days.

3. Select the **Rotations** check box to schedule all days in the selected period according to the defined rotations.

   If the **Schedule only rotation days** check box is selected, the scheduling process only schedules days where the rotation defines what to schedule. This can be used for example to set a specific schedule tag on the rotation days.

4. Select the **Availability** check box to consider the defined availability pattern when scheduling.

   If the **Schedule only availability days** check box is selected, the scheduling process only schedules days where the availability pattern defines what to schedule.

5. Select the **Shift patterns** check box to schedule the agents according to the shift patterns that they were assigned by shift bidding. See How shift bidding works for more information on how shift bidding works.
6. Select the **Hourly availability** check box to only schedule the agents at times when they have entered that they are available. This can be used for fixed employees, but only if they have very flexible contracts.
7. Select the **Shift category limitation** check box to consider any set limitations on the number of shifts of a specific shift category per week or per schedule period.
8. If you want to show troubleshooting information, use block or team scheduling or limits on minimum or maximum staffing, see the procedures below for how to handle that.
9. When the settings on all tabs are done, click **OK** to run the automatic scheduling.

   NOTE The selected settings are stored for your user. When you open the scheduling options, the options are always set as the previous time you ran the automatic scheduling.

Show troubleshooting information

The troubleshooting information contains a message about each day that could not be scheduled, to help you understand why.

1. In the scheduling options, select the **General** tab.
2. Select the **Include troubleshooting information** check box. If there is a day when an agent for some reason could not be scheduled, a message is shown to help you understand why is shown when the scheduling is completed.

Use block scheduling

Schedule the same or similar shifts for an agent within a block. See Block and team scheduling overview for more information.

> **NOTE** Do not combine block scheduling with any other types of restrictions, like preferences or rotations.

1. In the scheduling options, select the **Extra** tab.
2. Select to define a block as the workdays **Between days off** or the whole **Schedule period**.
3. Select how similar the shifts within the block must be; **Same shift category**, **Same start time** or **Same shift**. You can select more than one option.

Use team scheduling

Schedule the same or similar shifts for all agents within a team or group page. See Block and team scheduling overview for more information.

> **NOTE** Do not combine team scheduling with any other types of restrictions, like preferences or rotations.

1. In the scheduling options, select the **Extra** tab.
2. Select which agents to schedule with similar shifts.
    1. Select **Business hierarchy** to schedule agents in the same team with similar shifts.
    2. Select any group page to schedule agents who belong to the same group with similar shifts.
3. Select how similar the shifts within the team or group must be; **Same shift category**, **Same start time**, **Same end time** or **Same activity**. Same activity means the agents have one selected activity at the same time, for example lunch. You can select more than one option.
4. If you select **Same activity**, select the type of activity to schedule at the same time for all agents within the team or group.

Use minimum or maximum staffing limits

If there are limits for the minimum or maximum number of agents to schedule on the skills, ensure to consider those limits when scheduling.

> **NOTE** Scheduling with the min and max staffing options cannot ensure that these rules are fulfilled. The scheduling process prioritizes shifts that help fulfill these rules, but there might be situations where it is not possible.

1. In the scheduling options, select the **Advanced** tab.
2. Select **Use min staffing** to consider any limitations on minimum agents on the skills.
3. Select **Use max staffing** to consider any limitations on maximum agents on the skills.
4. Click **OK**.

Schedule a selected shift category

If there are some agents that should have shifts of the same shift category every workday in the selected period, select the **Use shift category** option.

1. In the scheduling options, select the **Advanced** tab.
2. Select the **Use shift category** check box.
3. Select the shift category to schedule.
4. Click **OK**.

Schedule shifts on full day absences

Schedule a shift under a full day absence in case an agent cancels their absence request.

1. In the scheduling options, select the **Advanced** tab.
2. Select the **Schedule on full day absences** check box.
3. Click **OK**.

Related topics

- Review scheduling issues
- Optimize schedule
- Edit scheduled shifts

Block and team scheduling overview

Block scheduling schedules the same or similar shifts for an agent within a defined period. Team scheduling schedules the same or similar shifts for all agents within a team or group page.

> **NOTE** Block or team scheduling should not be combined with any other types of restrictions, like preferences or rotations.

Block scheduling

When you schedule using block scheduling, the shifts are scheduled in blocks. A block is either the workdays between two days off, or all days in a schedule period. All the agent's shifts within a block are similar. They can be of the same shift category, with the same start time or even be the same specific shift.

When you use block scheduling, you must remember to select the block scheduling option also when optimizing the schedule. Otherwise the blocks will be rescheduled. It is important that you select the same definition of a block, that is **Between days off** or **Schedule period**, when you optimize as you selected when you scheduled.

> **NOTE**
>
> - The agents' shift bags must have rule sets with shifts that are available for all weekdays for block scheduling to work. This applies regardless of if you are block scheduling with the same shift category, same start time or same shift.
> - Block scheduling makes it more difficult to get a good result when optimizing. It works best for large skills with many agents.
> - If you set your schedule period in the People module to one week, you must open the schedules for full week(s), starting with the day you defined your work week to start on. If you set your schedule period in the People module to one month, you must open the schedules for the full month. If the month ends in the middle of the week, you must open the full last week to prevent schedule errors.

Team scheduling

Use team scheduling to schedule all agents in a team to work roughly the same hours. They can work shifts of the same shift category, with the same start time or end time or have a selected activity at the same time, for example lunch.

When optimizing the schedule, you can define if an agent in the team can have a day off while the other agents are working or if they should all have the same days off. This is controlled with the **Same days off** option.

The team scheduling functionality is not restricted to use the business hierarchy teams only. It's possible to use any group page to define the groups. All agents in the same group will be scheduled with similar shifts according to the selected options.

When you use team scheduling, you must remember to select the team scheduling option also when optimizing the schedule. Otherwise the teams will no longer have similar shifts. It is important that you select the same team or group page when you optimize as you selected when you scheduled.

EXAMPLE Team scheduling can be used for carpools, to give all agents in one carpool the same working hours.

NOTE The agents' shift bags must have rule sets with shifts that are available for all weekdays for team scheduling to work well. This applies regardless of if you are team scheduling with same shift category, same start time, same end time or same activity.

Using both block and team scheduling

When using both block and team scheduling at the same time, the chance of a good result is higher if the agents within a team have similar settings for contract, part-time percentage and shift bag.

An agent who changes teams within a block will cause issues if using both block and team scheduling at the same time.

Related topics

- Run automatic scheduling
- Optimize schedule
- Select agents and period to schedule

Review scheduling issues

Review the schedule to check if there are any scheduling issues that requires you to act.

Are there any conflicting restrictions?

If you are scheduling with agent restrictions, such as preferences, rotations or availability, check if any of the restrictions are conflicting and would cause scheduling issues. For example, if an agent has added too many or too few days off in their preferences. Use the Restrictions view to follow up on this. This can be done even before scheduling. See Review conflicting restrictions for more info.

Is the period target fulfilled?

Ensure that the time and days off in the **Current** column matches the time and days off in the **Target** column for all agents. If it does not match, is the variation within the flexibility on the contract? Use the **Schedule period** tab in the **Info** panel to find out. See Review agent details for more information.

Are all days scheduled?

Ensure that all days in the period are scheduled for all selected agents, and that there are no white days in the schedule that do not have a shift. If you are using a fixed period contract time, this is in most situations visible when confirming if the period target is fulfilled.

Select the **Include troubleshooting information** check box when you schedule to show a message if there is a day where an agent cannot be scheduled.

If there is a day that is not scheduled, try to understand why. Use the schedule **Editor** to see if there is any manually scheduled activity or absence that might block the scheduling of a shift. Use the agent **Info** panel for information about for example the agent's contract settings, restrictions and shift setup. See Review agent details for more information.

Are any work rules broken?

Verify that no contract rules or other work rules are broken by the current schedule. Select the **Validations** button to show any validation warnings.

All validation warnings for the open period and the shown agents are also presented on the **Validation alerts** tab in the **Info** panel. See Follow up on validation warnings for more information.

Related topics

- Run automatic scheduling
- Optimize schedule
- Review conflicting restrictions
- Review agent details
- Follow up on validation warnings

Review conflicting restrictions

Use the Restrictions view before scheduling to find any agents with restrictions that would cause them to not be fully scheduled. The purpose is to identify and solve any issues before they cause scheduling issues. The restrictions that are validated in this view are rotations, preferences and availability.

The Restrictions view highlights agents with restrictions that are conflicting with their contract rules and agents that have different restrictions that are conflicting with each other. The following situations are highlighted in the Restrictions view.

- If the restrictions would result in too many days off.
- If the restrictions would result in too much work time.
- If the restrictions would result in too few work hours.
- If the nightly rest cannot be fulfilled because of the restrictions.
- If there are conflicting restrictions, for example both a preference and a rotation, that affect the same day and that cannot be fulfilled at the same time.

Each issue is listed for each period it occurs in. Therefore, one agent can be listed several times.

NOTE

- The Restrictions view does not highlight days that are already scheduled with a shift or day off, even if there is a restriction conflict for that day or the schedule does not fulfill the restrictions for that day.
- If an already scheduled shift or day off conflicts with any restrictions for the surrounding days, this is highlighted in the Restrictions view.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Follow up on restriction issues

1. Select the Period view.
2. Select the agents to show restriction issues for.

   > **NOTE** You must select agents before you go to the Restrictions view. Otherwise no restriction issues are shown.

3. Select the Restrictions view. A list of all restriction issues in the open period is shown. Days with conflicts are marked with a red icon with an exclamation mark.
4. Ensure that the **Info** button is selected.
5. Select the **Into** tab in the **Info** panel.
6. Select the **Restrictions** tab.
7. Select a day with a restriction conflict in the Restrictions view.
8. Use the information on the **Restrictions** tab to understand what is causing the conflict.
9. Solve the issue, to make it possible to schedule this agent.

   How to solve the issue depends on what the problem is, and what the process is in your organization. These are some examples.

   - Try to schedule the agent without any restrictions.
   - Adjust the agent’s preferences if they have not been entered correctly.
   - Adjust the rotation.
   - Schedule a shift manually on the day of the conflict.

Related topics

- Adjust agents' availability
- Adjust agents' preferences
- Create rotations
- Create agent availability patterns
- Review scheduling issues

Follow up on validation warnings

Follow up on any validation warnings to ensure that the schedule does not break contract rules or other work rules.

The validation warnings are shown as a red triangle in the top left corner of the affected days. Hover the mouse pointer over the affected day to show a tooltip with more information on what is causing the warning.

Validation warnings are shown in the following situations.

- The nightly or weekly rest in the contract is broken.
- More time is scheduled than the maximum time per week defined in the contract.
- Less time is scheduled than the minimum time per week defined in the contract.
- More shifts of a specific shift category are scheduled than what is allowed by the shift category limitations.
- A shift overlaps with a day off.
- An activity overlaps an activity which is not overwritable.
- A skill activity is scheduled outside of the open hours of the skill.
- An agent's personal account for an absence type is exceeded.

All validation warnings for the currently open schedule are shown in the **Validation alerts** tab in the **Info** panel.

Automatic scheduling doesn't break any of the contract rules or work rules. If a day cannot be scheduled without breaking at least one of the rules, that day remains unscheduled and a message is shown to highlight that.

The validation warnings can be turned off by clicking the **Validations** button.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Follow up on validation warnings

1. Ensure that the **Validations** button and the **Info** button are selected.
2. Select the **Validation alerts** tab in **the** Info panel.
3. Click any column header to sort the validation warnings based on that column.
4. Double-click a warning to select that day in the schedule view, and act to solve the issue.

Filter what types of validation warnings to show

1. Click **Filter** in the **Validation alerts** panel.
2. Select only the types of validation warnings to show.

Related topics

- Review scheduling issues
- Review agent details
- Review conflicting restrictions

Optimize schedule

The optimization of the schedule reallocates days off and work shifts to make the staffing levels match the forecast as closely as possible. The optimization often needs to be run more than once for an optimal result.

There are seven optimization steps focusing on different aspects. Only run the ones that are relevant for your business. See How schedule optimization works for more information on what is done in each step.

You can run the optimization steps together or one step at a time. The benefit of running for example the days off step first is to be able to check the result and if needed run that step again, before continuing with the next step. If you do decide to run the steps separately, it is often most efficient to run them in the order that they are listed.

Prerequisites

- You have the Schedules > Automatic scheduling permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission to optimize unpublished periods.

Page location

Client > Schedules > Open schedule

Procedures

Select agents and period and open the optimization options

1. If needed, lock any days in the schedule to prevent them from being changed. See Lock schedule days.

   Absences are never changed by the optimization.

2. Select the agents and the dates to optimize schedule.

   - Click in the schedule view and select **Ctrl**+**A** keys to select all agents and all dates in this view.
   - Click and drag to select consecutive dates or agents.
   - Click the week header to select all agents for that week.
   - Click the agent name to select the full period for that agent.

3. Click the arrow next to **Schedule** and select **Optimize**.
4. If needed, select a schedule tag in the **Tag changes with** menu. The selected tag is applied to all days where the schedule is changed in this automatic optimization.
5. Continue to go through the optimization options. See the details described in the procedures below.
6. When you have selected everything that you want to consider when optimizing the schedule, click **OK** to run the optimization.

> **NOTE** The selected settings are stored for your user. When you open the optimization options, the options are always set as the previous time you ran the optimization.

7. Continue to evaluate the result of the optimization. See Review optimization result

Select optimization steps to run

Select which optimization steps to run. See How schedule optimization works for more information on what is done in each step.

1. In the optimization options, select the **General** tab.
2. Select the check boxes for the optimization steps to run.
   - **Days off**—Optimizes the positions of the days off. Use the settings on the **Days off** tab to control how the days off are placed.
   - **Time between days**— Use this option to, for example, move an hour from one day to another while staying as close to the target time as possible. This optimization step might use the permitted target tolerance flexibility defined in the contract, if needed.
   - **Shifts for flexible work time**— Use all of the flexibility without having to stay close to the target time.
   - **Days off for flexible work time**—Uses the day off tolerance on the agents' contracts to optimize the number of days off in the schedule period.
   - **Shifts within day**—Optimizes the shifts used for each day by for example changing the start time and moving breaks.
   - **Intra interval balance**—Optimizes the placement of activities within each interval.
   - **Fairness**—Optimizes to achieve fairness between agents, either by trying to schedule the same number of shifts of the different shift categories on the agents, or by scheduling the preferred shifts on agents with a higher seniority.

Select which restrictions to consider

Select which restrictions to consider while optimizing the schedule, and to what percentage those restrictions must be fulfilled. This is only possible if the restriction was considered during scheduling.

> **NOTE** The optimization can not raise the fulfillment percentage, only lower it. Also, if you are not sure what percentage you should use, start with a high percentage in the first optimization run. If needed, lower the percentage and run the optimization again.

1. In the optimization options, select the **General** tab.
2. In the **Fulfill restrictions** section, select the check boxes for the restrictions to consider.
    - **Preferences**—Ensures that the defined percentage of the agents' preferences are fulfilled after the optimization.
    - **Must haves**— Ensures that the defined percentage of the agents' selected must have preferences are fulfilled after the optimization.
    - **Rotations**— Ensures that the defined percentage of the agents' rotation patterns are fulfilled after the optimization.
    - **Availability**— Ensures that the defined percentage of the agents' availability patterns are fulfilled after the optimization.
    - **Hourly availability**— Ensures that the defined percentage of the agents' entered hourly availabilities are fulfilled after the optimization.
    - **Shift category limitations**— Ensures that the agents' defined shift category limitations are fulfilled after the optimization.
    - **Shift patterns**—Ensures that the optimization adheres to the agents' assigned shift patterns. See How shift bidding works for more information on how shift bidding works.
    - **Dynamic scheduling availability** — Dynamic Scheduling is available as an add-on beta app. It ensures that the optimization adheres to the dynamic scheduling availability settings. For more information, view the Select availability with Dynamic Scheduling article in the Innovation Center User Documentation.

Define how to handle days off

Define how the days off can be placed within the schedule period.

> **NOTE** The week and the weekend days used in the day off optimization settings are defined by the **Work week starts on** setting on the **General** tab in the People module.

1. In the optimization options, select the **Days off** tab.
2. Select the **Keep existing days off** check box and define a percentage if you want to ensure that each agent has a certain percentage of days off that stay in the same position as before the optimization.

3. Select the **Days off per week** check box to control how many days off that can be schedule for an agent per calendar week. A calendar week is defined as seven days from the specified first day of the work week. Define the **Minimum** and **Maximum** number of days off.
4. Select the **Consecutive days off** check box to control how many days off that can be scheduled in a row. Define the **Minimum** and **Maximum** number of consecutive days off.
5. Select the **Consecutive workdays** check box to control how many workdays that can be scheduled in a row. Define the **Minimum** and **Maximum** number of consecutive workdays.
6. Select the **Full weekends off** check box to ensure full weekends off for the agents during the schedule period. A full weekend off is when days off are placed on both the last two days of the work week. For example, if the first day of the work week is set to Monday, the weekend is Saturday and Sunday. Define the **Minimum** and **Maximum** number of full weekends off.

   > **NOTE** For the optimization to ensure that the full weekend off rules are not broken, the rules need to be fulfilled when starting the optimization. For example, if the agents only have one full weekend off after scheduling, the optimization might not be able to ensure that they have at least two full weekends off after optimization.

7. Select the **Weekend days off** check box to control how many of the days off that can be scheduled on the weekend. A weekend day off is a day off on one of the last two days of the work week. Define the **Minimum** and **Maximum** number of weekend days off.
8. Select the **Consider the week before** check box if you want the rules for **Consecutive days off** and **Consecutive workdays** to take the schedule in the last week of the previous schedule period into consideration.

   > **NOTE** Do not select this check box if there is no schedule in the previous schedule period.

9. Select the **Consider the week after** check box if you want the rules for **Consecutive days off** and **Consecutive workdays** to take the schedule in the first week of the next schedule period into consideration.

   > **NOTE** Do not select this check box if there is no schedule in the next schedule period.

Use block scheduling

Ensure that each agent has the same or similar shifts within a block. See Block and team scheduling overview for more information. This requires that scheduling was done with block scheduling.

1. In the optimization options, select the **Extra** tab.
2. Select to define a block as the workdays **Between days off** or the whole **Schedule period**. Ensure to select the same definition of block that you used for scheduling.
3. Select how similar the shifts within the block must be; **Same shift category**, **Same start time** or **Same shift**. You can select more than one option. Ensure to select the same options that you used for scheduling.

Use team scheduling

Ensure that agents within a team or group page have the same or similar shifts. See Block and team scheduling overview for more information.

1. In the optimization options, select the **Extra** tab.
2. Select the agents that must have similar shifts. Ensure to select the same team or group page that you used for scheduling.
   - Select **Business hierarchy** to keep similar shifts for agents in the same team.
   - Select any group page to keep similar shifts for agents who belong to the same group.
3. Select how similar the shifts within the team or group must be; **Same shift category**, **Same start time**, **Same end time** or **Same activity**. Same activity means the agents have one selected activity at the same time, for example lunch. You can select more than one option. Ensure to select the same options that you used for scheduling.
4. If you select **Same activity**, select the type of activity to schedule at the same time for all agents within the team or group.

Define what must be kept the same

When the schedule is published, you often want to be more careful when optimizing. Select which parts of the shifts that you want the optimization to leave as they are. Define a time period for which part of the day to optimize.

NOTE The **Fairness** optimization step will not consider the settings on the **Shifts** tab.

1. In the optimization options, select the **Shifts** tab.

   Select the parameters of the shifts that you don't want optimization to change; **Shift categories**, **Start time**, **End time** or **Total time of selected activity**. You can select more than one option. If you select **Total time of selected activity**, select the activity to focus on.

2. Select the **Alter between** check box to define which time period of the day to optimize. Define a start and end time. The parts of the shifts that are outside of the defined time period are not changed by the optimization.
3. If there are activities in the shifts that must be kept as they are, select them in the **Activities** list and use the arrows to move them to the **Do not move** list.

> **NOTE** If an activity is manually added to an agent's schedule and that activity is not defined in the shift bag, no change is applied to the schedule during optimization because optimization can only choose a different shift that is available in the shift bag. If you do not select **Do not move**, it is possible that the activity will be removed during optimization if it does not exist in the shift bag. Therefore, an alternative option is to add the activity as a personal activity.

Use minimum or maximum staffing limits

If there are limits for the minimum or maximum number of agents to schedule on the skills, ensure to consider those limits when optimizing.

Optimizing with the min and max staffing options cannot ensure that these rules are fulfilled. The optimization process prioritizes shifts that help fulfill these rules, but there might be situations where it is not possible.

1. In the optimization options, select the **Advanced** tab.
2. Select **Minimum staffing** to consider any limitations on minimum agents on the skills.
3. Select **Maximum staffing** to consider any limitations on maximum agents on the skills.
4. If you have already run the optimization once and it could not fulfill the defined values for minimum and maximum agents, select **Use tweaked values** to try to achieve a better result. When you use tweaked values, the optimization is based on the adjusted difference values instead of the relative difference values.

Use limitations on number of seats

If there is a limitation on the number of seats for a site, ensure to consider that limit when optimizing the schedule.

1. In the optimization options, select the **Advanced** tab.
2. Select the **Maximum seats** check box to avoid using more seats than what is defined for the site. The number of seats might be exceeded if needed to build a complete schedule. It the limit is exceeded, this is high-lighted in red on the site tab.
3. Select the **Do not break maximum seats** check box to ensure that the maximum seats limit is not exceeded.

> **NOTE** When the maximum seats value is reached, there might be a situation where it is not possible to schedule any shift for an agent without exceeding the maximum seats limit. Then that day is left blank, without a shift.

Related topics

- How schedule optimization works
- Review optimization result

How schedule optimization works

The optimization of the schedule reallocates days off and work shifts to make the staffing levels match the forecast as closely as possible while still fulfilling the defined work rules. The optimization works to achieve the best possible result within the limits that are defined by the optimization options. Absences are not changed by the optimization.

There are seven optimization steps focusing on different aspects. This section describes the purpose of each optimization step to help you decide which steps are relevant for your business.

> **NOTE** The optimization can only use the shifts that are in the agents' shift bags. The variation of for example shift lengths and the length and placement of the activities within the shifts are therefore critical for the result of the optimization.

Days off

The **Days off** optimization step moves days off within the schedule period to align the schedule to the forecast. The **Days off** optimization is the most powerful optimization step to achieve a staffing balance over the schedule period.

The **Days off** optimization step never changes the number of days off for the schedule period, just the placement of the days off.

The **Days off** optimization step always considers the settings on how to handle days off on the **Days off** tab in the optimization options. It will not move a day off if that move would break the defined rules.

If you are also using the minimum staffing limitations on the **Advanced** tab, the **Days off** optimization step also strives to fulfill the **Minimum agents** value defined in the forecast.

When you use restrictions that do not cover the target number of days off, a day off can be scheduled on a day that the restriction has defined as a workday. This makes it possible to only define a few days off in the rotation or availability. The optimization will place the remaining days off where they are best needed. This increases the scheduling flexibility.

Time between days

You can use the **Time between days** option to, for example, move an hour from one day to another while staying as close to the target time as possible. This optimization step might use the permitted target tolerance flexibility defined in the contract, if needed.

Shifts for flexible work time

With the **Shifts for flexible work time** option, you can use all of the flexibility without having to stay close to the target time.

Days off for flexible work time

The **Days off for flexible work time** optimization step adjusts the number of days off to align the schedule to the forecast. What separates this optimization step from the **Days off** optimization step is that this step uses the days off tolerance on the agents' contracts if needed, both positive and negative. Days off are added or replaced by shifts on the days where it gives the biggest improvement.

The agents can still work the same average work time per day, even though working more or less days than normal, if the **Shifts for flexible work time** optimization step is also selected and the target tolerance on the agents' contracts is big enough. The contract time for the schedule period might consequently change if a day off is added or removed.

The average work time per day will change for the agents when adding or removing days off if the **Shifts for flexible work time** optimization step is not selected. This is because the target contract time is still the same but, the number of days off and consequently the number of workdays, have changed.

Shifts within day

The **Shifts within day** optimization step tries to find a better shift for each day, to further align the schedule to the forecast. This step can for example move a shift to an earlier or later start time, change the activities within the shift and move the breaks. This step cannot change the length of the shift.

Use the optimization options on the **Shifts** tab to define what must be kept the same when you optimize the schedule late in the process. For example, if you are optimizing today's schedule, you can choose to keep the start and end time the same and limit what activities that can be moved.

Intra interval balance

The **Intra interval balance** optimization step is useful when you have agents working telephony or chat skills and are scheduled with activities that are shorter than the interval length.

For example, agents are scheduled on 5-minute breaks within a 15-minute interval. The **Intra interval balance** optimization step detects if there is an uneven distribution of those breaks within an interval. It will then replace some shifts with shifts that have a different placement of the break within the interval to achieve a better balance.

This optimization step can change the shift start time, change the activities and move breaks, within the limits that are defined by the optimization options on the **Shifts** tab.

The intra interval balance for each interval is shown on the intraday level in the schedule result table. On the day level, the lowest intra interval balance value of the day is shown.

The intra interval balance is calculated by dividing the minimum resources with the maximum resources for each interval. When the value is lower than 80%, it is considered to be an issue and highlighted in red. See Understand the result table parameters for more information.

Fairness

The **Fairness** optimization step tries to achieve fairness between agents within the schedule period. Only use this for agents who are scheduled flexibly, without preferences or other restrictions.

The fairness optimization can work towards one of two goals.

- Schedule the same number of shifts of the different shift categories, or as close as possible to the same number, for agents within the same team or group.
- Schedule preferred shifts for agents with a higher seniority level. The seniority is counted from the start date of the agent's first person period. The preferred shifts are configured in Options. See Configure preferred working days and shifts for more information.

The type of fairness to use is defined on the agents' workflow control set.

The **Fairness** optimization step swaps shifts between agents to achieve a better fairness level. A swap of shifts is only done if the shifts have the same contract time. Therefore, it will be harder to improve the fairness if there are a lot of shifts with different shift lengths.

The agents must have the same skills for a swap to be possible. Also, the **Fairness** optimization step cannot swap a shift to an agent if that shift is not in their shift bag.

> **NOTE** The **Fairness** optimization step does not consider the settings on the **Shifts** tab, where you specify to keep for example the start time or shift category.

Fairness when using team scheduling

If using team scheduling, the fairness optimization step tries to achieve fairness between teams or group pages. The team or group page to compare with is selected in the **Team scheduling** section on the **Extra** tab of the optimization options.

> **NOTE**
>
> - A swap of shifts cannot be made if it would break work rules for any of the agents in the teams.
> - When optimizing fairness with team scheduling, the teams must have the same number of agents for it to work.
> - When using seniority fairness optimization with team scheduling, the team with the highest average seniority get the preferred shifts.

Related topics

- Optimize schedule

Erlang formula overview

The calculation of the number of resources needed for each day and interval is based on the Erlang A model. The Erlang A model is an extension of the Erlang C model, so you need to understand Erlang C to understand Erlang A.

Erlang C

Erlang C is a traffic modeling formula used in call centers to determine the number of resources needed to keep the wait times within the contact center's service level targets. This method assumes that all callers stay in the queue until the call is answered, and therefore might overestimate the staff that is required. When

scheduling the agents, Erlang C can also be used to calculate the predicted service level.

Erlang C bases its formula on three factors; the number of agents providing service, the number of callers waiting and the average amount of time it takes to serve each caller.

Erlang A

The difference between Erlang A and Erlang C is that Erlang A takes the average patience into account, where Erlang C assumes that callers have infinite patience. If you set the abandon rate for a skill to 0%, this is the same as using Erlang C because that means that you are saying that no one will leave the queue.

The average patience is the average time a caller is willing to wait before leaving the queue. WFM uses the abandon rate for the skill to estimate the average patience. The average patience is used to calculate the waiting probability in the formula below.

Calculation of agents needed

The calculation of the number of agents needed with Erlang A uses these measures.

- Service level
- Service time
- Number of calls
- Average handling time
- Minimum occupancy
- Maximum occupancy
- Average patience with abandon rate

Calculation of predicted service level

The calculation of the predicted service level with Erlang A uses these measures.

- Scheduled agents
- Number of calls
- Average handling time
- Service time
- Minimum occupancy
- Maximum occupancy
- Average patience with abandon rate

Formula

This formula is used to calculate the probability that a customer must wait for service.

$$P_W = \frac{A\left(\frac{n\mu}{\theta}, \frac{\lambda}{\theta}\right) \cdot E_{1,n}}{1 + \left(A\left(\frac{n\mu}{\theta}, \frac{\lambda}{\theta}\right) - 1\right) \cdot E_{1,n}}$$

where

$$A(x,y) = 1 + \sum_{j=1}^{\infty} \frac{y^j}{\prod_{k=1}^{j}(x+k)}$$

and

$$E_{1,0} = 1$$
$$E_{1,n} = \frac{\rho E_{1,n-1}}{1 + \rho E_{1,n-1}}$$

and

$$\rho = \frac{\lambda}{n\mu}$$

- **Pw**—Probability that a customer must wait for service.
- **λ**—Number of calls.
- **μ**—Service rate (1/μ = Average handling time)
- **n**—Number of agents.
- **θ**—Individual abandon rate (1/ θ = Average patience).

Related topics

- Finalize the staffing forecast
- Run automatic scheduling
- Optimize schedule

Review optimization result

Evaluate if the optimization has achieved a good result. Use the **Result** table to get an overview of the result. The result is good if the scheduled hours match the forecasted hours for all days in the schedule period and all intervals of the day. If a skill is overstaffed or understaffed, the best possible result is if the skill is equally overstaffed or understaffed for all days and intervals.

If you are not satisfied with the result, you might need to run some of the optimization steps again. If that doesn't help, you must investigate why the optimization cannot achieve a good result.

You can also use the **Result** table to verify that any limits on minimum agents, maximum agents or maximum seats have been fulfilled.

The **Result** table has one tab per skill. The skills shown are the skills of the agents you selected when you opened the Schedules module. If there are multi-skilled agents and therefore the staffing on the agents' skills is affected by the staffing on other skills, those other skills are also loaded and shown as tabs. You can create summary tabs to look at the results of more than one skill at the same time. If a site has a limit on the maximum seats available, the site is shown as a tab. The tabs that are most important to you can be pinned for easy access.

Use the different levels in the **Result** table to look at the data on for example intraday level or day level.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Review optimization result

Review the optimization result to see if there are days or intervals that are not sufficiently staffed. The understaffing and overstaffing thresholds that are set for each skill help you identify days or intervals where too few or too many agents are scheduled by highlighting them in red, yellow or blue.

For more information on how to interpret each parameter, see Understand the result table parameters.

1. Select the **Shrinkage** button if you want to consider the shrinkage factor when reviewing the result. When considering shrinkage, the forecasted hours are slightly increased to compensate for any unplanned absences, like illness.

   If you want to include shrinkage depends on whether you are looking at a future period or for example this afternoon. For future periods, include shrinkage. For today and tomorrow, you usually do not want to include shrinkage as most absences have already been added.

2. Select the tab of the skill for which you want to look at the optimization result.
3. In the **Result** table, right-click and select **Day**.
4. Look at the **Relative difference** for the period. If it is close to zero, the scheduled hours for the day match the forecasted hours for the day. Verify that the **Relative difference** is roughly the same for each day. If not, try running the optimization steps **Days off** and **Time between days** again.
5. When the **Relative difference** for the period looks good, right-click in the **Result** table and select **Intraday**.
6. Look at the **Relative difference** for the intervals of the day. If it is close to zero, the scheduled agents for the interval match the forecasted agents for the interval. Verify that the **Relative difference** is roughly the same for each interval. If not, try running the optimization step **Shifts within day** again.

NOTE The **Standard Deviation** and **RMS** values are also helpful when reviewing the optimization result. See Understand the result table parameters to learn more about them.

Follow up on minimum and maximum agent limits

If there are limits in the forecast on the minimum or maximum number of agents to schedule for certain intervals, this is highlighted in the **Result** view.

1. In the **Result** table, right-click and select **Day**.
2. Look at the **Scheduled hours** row. If a day is highlighted in red or blue, a limit is broken for that day.
3. If a limit is broken one day, select that day in the schedule view.
4. In the **Result** table, right-click and select **Intraday**.

5. Scroll through the intervals of the day and look at the **Scheduled heads** row. If the minimum agents limit is not fulfilled, the value in the **Scheduled heads** row is highlighted in red. If the maximum agents limit is exceeded, the value in the **Scheduled heads** row is highlighted in blue.

Follow up on maximum seats limits

If there is a limit on maximum seats for a site, that site is shown as a tab in the **Result** table.

1. In the **Result** table, right-click and select **Day**.
2. Select the tab of the site.
3. Look at the **Max used seats** row. If a day is highlighted in red, the maximum seats limit is broken for that day.
4. If the limit is broken one day, select that day in the schedule view.
5. In the **Result** table, right-click and select **Intraday**.
6. Scroll through the intervals of the day to find the intervals where the maximum seats limit is broken, to address it.

Group the results of two or more skills

Create a skill summary tab to group the results of two or more skills.

1. Right-click in the **Result** table.
2. Select **Create skill summary**.
3. Enter a **Summary name**.
4. Select the skills to include in the summary.
5. Click **OK** to add the summary tab.

Pin a skill tab

Pin a tab to make it show up among the first tabs. This is useful when you have many skills and there are some that are more important than others.

1. Right-click on a tab in the **Result** table.
2. Select **Pin to front**. Pinned tabs are highlighted in green and shown among the first tabs on the row, with any other pinned tabs.

Present data in the chart

Present the most important **Result** table data in the chart to get a good overview.

- See Manage what to show in the chart for more information.

Related topics

- Optimize schedule
- Publish schedules

Understand the result table parameters

The parameters in the Result table in the Schedules module are important to understand when reviewing the result of the scheduling and optimization.

Which parameters that are shown in the Result table vary with the type of skill selected and depending on if you are looking at the table on intraday level or on, for example, the day level. There are also parameters that are only shown when there are activities that are shorter than an interval or that start or end within an interval.

The values in the table can be shown with or without shrinkage. Select the **Shrinkage** button in the ribbon to have the results factor in the shrinkage estimates that are entered in the Forecast.

> **EXAMPLE** The shrinkage for the workload is set to 5%. Select the **Shrinkage** button to take the 5% cushion into consideration and show the matching results. Click it again to remove the 5% cushion and show the staffing with just the raw staffing calculation.

Forecasted hours or agents

Forecasted hours is the number of agent hours needed to cover the forecasted workload. On an intraday level, **Forecasted agents** is used instead. This is the number of agents needed to handle the tasks forecasted for each interval. These values are loaded from the detailed forecast for the skills.

For channel types like email and back office, the **Forecasted hours or agents** value is affected by what is scheduled and then the values do not match what is in the original forecast for that day or interval. This is because those tasks do not have to be handled in the same interval that they arrive. They can be handled from the interval that they arrive and in any of the following intervals, within the **Handled within** time. Therefore, the work can be handled earlier or later than what was planned in the forecast, depending on when more agents are available based on the schedule.

> **EXAMPLE**
> A back office skill has the Handled within target defined as 4h. The interval length is 1h.
>
> **Forecasted volume, before scheduling.**

Time	09:00	10:00	11:00	12:00
Forecasted agents	1:00	1:00	1:00	1:00
Scheduled agents	0:00	0:00	0:00	0:00
Absolute difference	-1:00	-1:00	-1:00	-1:00
Relative difference	-100%	-100%	-100%	-100%

Forecasted volume after scheduling, with 1h understaffing.

Time	09:00	10:00	11:00	12:00
Forecasted agents	0:30	1:00	1:15	1:15
Scheduled agents	0:15	0:45	1:00	1:00
Absolute difference	-0:15	-0:15	-0:15	-0:15
Relative difference	-50%	-25%	-20%	-20%

The **Forecasted agents** value is adjusted to keep the **Absolute difference** even across the **Handled within** time intervals.

Scheduled hours, agents, or heads

Scheduled hours is the number of agent hours scheduled on the selected skill. On the intraday level, **Scheduled agents** is used instead. This is the number of agents (FTEs) scheduled to handle the tasks for each interval.

Scheduled heads is the number of actual persons scheduled for a skill. This is only shown on intraday level.

> **EXAMPLE** 9 multi-skilled agents are scheduled to work on a skill during an interval. As they are also taking calls on other skills, the work they are scheduled to do on this skill is in total as if 4 agents were working only on this skill. In this case, **Scheduled agents** shows 4 and **Scheduled heads** shows 9.

If there are limits on minimum or maximum agents for a skill and those limits are broken, that is highlighted on the **Scheduled hours** row. If the minimum agents limit is not fulfilled, the value in the **Scheduled hours** row is highlighted in red. If the maximum agents limit is exceeded, the value in the **Scheduled hours** row is highlighted in blue. On an intraday level, it is the **Scheduled heads** value that is highlighted if a maximum or minimum agents limit is broken.

Limits on maximum and minimum agents are defined in the skill targets.

Absolute, relative, and adjusted difference

The **Absolute difference** presents the difference between what is forecasted and what is scheduled in number of hours or, on intraday level, in number of agents.

The **Relative difference** presents the difference between what is forecasted and what is scheduled as a percentage.

When the **Relative difference** exceeds the understaffing and overstaffing thresholds that are set for the skill they are highlighted. Red means critical understaffing, yellow means understaffing and blue means overstaffing. This helps you quickly identify days or intervals where too few or too many agents are scheduled.

> **EXAMPLE**
>
> Skill properties are set up to have **Overstaffing** start at 20%. The skill properties are set up to have **Understaffing** start at -10% and **Critical understaffing** start at -25%.
>
> - 20% to 100% are highlighted in blue.
> - 20% to –10% are not highlighted.
> - -10% to –25% are highlighted in yellow.
> - -25% to –100% are highlighted in red.

If the **Relative difference** for a day is highlighted in red in the Day view (right-click in the Results view to change your view), even though the skill is overstaffed on day level, that means that there is at least one critically understaffed interval within the day. If the forecast for an interval is zero, the relative difference cannot be calculated. The **Relative difference** is in these cases displayed as NaN.

During optimization of the schedule, the optimization uses the **Relative difference** to identify the days or intervals with the highest and lowest relative staffing with the purpose of achieving a more even staffing level for the whole period. In the rare cases that **Tweaked values** are used when optimizing, the optimization uses the **Adjusted difference** instead.

RMS and standard deviation

RMS (Root mean square) and **Standard deviation** are useful values to look at to understand the distribution of the scheduled agents compared to the forecast.

The **RMS** value tells you how close the staffing follows the forecast within that period. **Standard deviation** tells you how evenly the scheduled hours are distributed according to the forecast levels. Primarily, strive to achieve even levels for all days and intervals of the schedule period. Secondly, strive to achieve as low values as possible.

EXAMPLE

There are 4 intervals in a day. The **Relative difference** values for these intervals affect the **RMS** and **Standard deviation** values on day level.

- In situation 1, the schedule perfectly matches the forecast, and both RMS and Standard deviation are 0.
- In situation 2, the skill is understaffed, but evenly understaffed for all intervals. RMS is 10, which means that the skill is understaffed or overstaffed. Standard deviation is 0, as the scheduled hours are evenly distributed between the intervals.
- In situation 3, the staffing of the skill is not close to the forecast, as shown by the RMS. The staffing is very unevenly distributed, indicated by the Standard deviation.

Situation	Relative Difference Interval 1	Relative Difference Interval 2	Relative Difference Interval 3	Relative Difference Interval 4	RMS	Standard Deviation
1	0	0	0	0	0	0

Situation	Relative Difference Interval 1	Relative Difference Interval 2	Relative Difference Interval 3	Relative Difference Interval 4	RMS	Standard Deviation
2	-10	-10	-10	-10	high	0
3	-10	10	-10	10	high	high

Predicted service level

Predicted service level (PSL) indicates the service level that can be reached with the current schedules. PSL is calculated based on the forecast, considering the efficiency and the occupancy factors. The shrinkage factor is taken into consideration when calculating PSL if the **Shrinkage** button is selected. It is important to note that the **Predicted service level** is, in fact, a prediction and not a guarantee of performance.

PSL is calculated differently for different skill types.

- For inbound telephony, chat, and retail skills, PSL is calculated with Erlang A. It shows the percentage of calls or chats that is predicted to be handled within the number of seconds defined in the service level target.
- For the other skill types, PSL is calculated as **Scheduled agents incoming** divided by **Forecasted agents incoming**.

The PSL is the same as the defined service level target if the number of scheduled agents equals the number of forecasted agents. The highest possible PSL percentage is 100%.

EXAMPLE For one interval the target service level is 80% answered within 20s. Considering volumes and handling time, this leads to a forecasted staff of 10 agents. When 10 agents are scheduled, the PSL is 80%. This means that 80% of the calls are predicted to be answered within the 20s defined in the target service level.

Predicted average speed of answer

Predicted average speed of answer (PASA) indicates the average speed of answer that can be reached with the current staffing levels. PASA is calculated based on the forecast, considering the efficiency and the occupancy factors. The shrinkage factor is taken into consideration when calculating PASA if the **Shrinkage** button is selected.

PASA is calculated differently for different channel types.

- For inbound telephony and chat channel types, PASA is calculated with Erlang A. It shows the predicted average time a customer must wait in queue.
- For the other channel types, PASA is calculated with this formula:
  PASA = Forecasted agents incoming × Handled within ÷ (2 × Scheduled agents incoming)

NOTE In a skill summary where different channel types are included, PASA is calculated for just the telephony and chat skills.

Predicted abandon rate

Predicted abandon rate (AR) indicates the abandon rate that can be reached with the current staffing levels. Predicted AR is calculated based on the forecast and scheduled agents, considering the efficiency and the occupancy factors. The shrinkage factor is taken into consideration when calculating predicted AR if the **Shrinkage** button is selected.

Predicted AR is only calculated for inbound telephony and chat channel types. It is calculated with Erlang A and shows the predicted abandon rate for a customer.

NOTE In a skill summary where different channel types are included, Predicted AR will only be shown if all underlying skills are telephony or chat skills

Forecasted and scheduled hours incoming

The **Forecasted hours incoming** and **Scheduled hours incoming** are used for email and back office skills to describe the total forecasted and scheduled hours for the tasks or emails that arrive on a day. On intraday level, **Forecasted agents incoming** and **Scheduled agents incoming** are used instead.

When you plan for back office or email skills, the tasks or emails arrive at one point in time but can normally wait longer than a call to be handled. The agents can be scheduled to handle the work that arrives in one interval over the following intervals, according to the defined **Handled within** target on the skill.

EXAMPLE

A back office skill has all incoming volume within the first interval. The **Handled within** target is defined as 4 h. The interval length is 1 h.

Time	09:00	10:00	11:00	12:00
Forecasted agents	0:30	1:00	1:15	1:15

Time	09:00	10:00	11:00	12:00
Scheduled agents	0:15	0:45	1:00	1:00
Forecasted agents incoming	4:00	0:00	0:00	0:00
Scheduled agents incoming	3:00	0:00	0:00	0:00

Absolute and relative difference incoming

The **Absolute difference incoming** and **Relative difference incoming** present the difference between what the **Forecasted hours incoming** and the **Scheduled hours incoming** in actual numbers and as a percentage.

Intra interval balance

The **Intra interval balance** indicate how well the staffing is balanced within each interval. The **Lowest intra interval balance** value presented on day level is the lowest **Intra interval balance** value for an interval on that day.

The **Intra interval balance** is shown for telephony and chat skills, but only show values when there are activities that are shorter than an interval or that start or end within an interval. Intra interval resources are calculated for each 5-minute period within the interval.

The balance for an interval is calculated by dividing the lowest number of resources for a 5-minute period with the highest number of resources for a 5-minute period. If the **Intra interval balance** is 100%, it is perfectly balanced. If the value is less than 80%, this is considered to be an issue and is highlighted in red.

EXAMPLE

In one interval, 100 agents are scheduled to work on a phone skill. They all have a 5-minute break within the interval.

- 50 of the agents have their break the first 5-minute period.
- 30 of them have their break the second 5-minute period.
- 20 of them have their break the last 5-minute period of the interval.

The intra interval balance is 62,5%, since the minimum resources is 50 when the other 50 agents are on break and the maximum resources is 80, when only 20 agents are on break.

To solve issues with the **Intra interval balance**, use the **Intra interval balance** optimization step.

Related topics

- Run automatic scheduling
- Optimize schedule
- How schedule optimization works
- Review optimization result

Manage what to show in the chart

Use the chart in Schedules and Forecasts to visualize data from the table. The chart gives you a better overview of the information and how it varies over the selected period.

Prerequisites

- You have the Schedules permission to change the chart in Schedules.
- You have the Forecasts permission to change the chart in Forecasts.

Page location

This page can be reached from different locations.

- Client > Schedules
- Client > Forecasts > Open forecast

Procedures

Manage what data to display in the chart

Select to show the rows that you want to follow up on in the chart.

NOTE Some data are only shown for certain channel types. If you want to show that type of data, first select a skill of that channel type.

1. Select the **Home** tab and ensure that the **Chart** button is selected and the chart visible.
2. Select the **Chart** tab.
3. Select what level to work on.
    - In Forecasts, select to view **Workload** or **Skill** and on what level.
    - In Schedules, the level is controlled by what is selected for the table view.
4. Select the table row that you want to display in the chart.
5. Click the **Grid in chart** button to select to show the values in the selected row. When the button shows an open eye, the values are shown in the chart.
6. Select to display the values as **Lines** or **Bars**.
7. Click the left or right arrow to select the y axis to show the values on.

   Place similar values on the same y axis to make the chart easier to read.
8. Click **Select color** to pick a color for the line or bars.
9. Repeat steps 4 to 8 to add data from another row to the chart.
10. To remove data from the chart, select that row and click the **Grid in chart** button. When the button shows a closed eye, the values are not shown in the chart.

Related topics

- Finalize the staffing forecast
- Review optimization result
- Understand the result table parameters

Review shift category distribution

Review the distribution of shift categories in your schedule. Choose to show the distribution per date, per agent or a summary for the open schedule.

The shift category distribution information can be used to follow up on the result of the fairness optimization.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Review shift category distribution per date

1. Ensure that the **Info** button is selected.
2. Select the **Shift category distribution** tab in the **Info** panel.
3. Select the **Per date** tab. The table shows the shift category distribution for each date in the opened period. Double-click a column header in the table to sort by that column.

Review shift category distribution per agent

1. Ensure that the **Info** button is selected.
2. Select the **Shift category distribution** tab in the **Info** panel.
3. Select the **Per agent** tab. The table shows the shift category distribution for all agents in the schedule view for the opened period. Double-click a column header in the table to sort by that column.
4. Use the **Agent** filter to show for example a specific team or only full-time employees.

Review the shift category distribution summary

1. Ensure that the **Info** button is selected.
2. Select the **Shift category distribution** tab in the **Info** panel.

3. Select the **Distribution** tab.
4. Use the chart and the table to understand the distribution of shift categories.

The chart presents the number of agents that have been scheduled with a specific number of the selected shift category.

EXAMPLE The Early shift category is selected in the menu above the chart. The bar for the value 5 on the x axis reaches 7 on the y axis. This means that there are 7 agents who have 5 early shifts each.

The table gives a summary for each available shift category.

- **Min**—The lowest number of shifts of this shift category scheduled for an agent.
- **Max**—The highest number of shifts of this shift category scheduled for an agent.
- **Average**—The average number of shifts of this shift category scheduled for the agents.

Related topics

- Review optimization result
- Review agent details

Publish schedules

Enter a publishing date to define how far ahead schedules are visible to agents. This is an end date. The agents can see all schedule content before and on the selected date. Schedules later than this date are visible to users with the Global Functions > View unpublished schedules permission. If there is an open preference period, any schedules in the default scenario within that period are also visible to the agents.

If there is no publish date set, no schedule is published.

NOTE You can only publish schedules in the default scenario.

Prerequisites

- You have the Global function > Publish schedule permission.
- To publish schedules from the Schedules module, you must have the following permissions.
    - The Schedules permission.

- The Global functions > View schedules permission.
- The Global functions > View unpublished schedules permission.

Page location

Publishing schedules can be done in two different places.

- Client > Schedules > Open schedule
- Client > Options > Scheduling > Workflow control set

Procedures

Publish schedules in the Schedules module

1. Right-click on the day you want to publish schedules to and select **Publish**.
2. Verify that the defined date stated in the date selection box is correct.
3. Verify that you want to publish schedules for all the listed workflow control sets.

   NOTE The defined publish date applies for all agents with the listed workflow control sets, not just the teams that you have currently open in the schedule view.

4. Click **OK**.
5. Click **Save**. The schedule is now published to the agents.

Publish schedules in Options

1. Select the workflow control set to publish schedules for.
2. Define an end date to **Publish schedules to**.
3. Click **Apply** to save. The schedule is now published to the agents.

Related topics

- Optimize schedule
- Edit scheduled shifts

Adjust agents' preferences

Adjust the agents' schedule preferences if they would cause issues when scheduling. Common issues are that agents have added too many days off or that they have not considered the nightly or weekly rest in their preferences.

Use the Restrictions view to identify if agents have added preferences that conflict with any work rules or other restrictions. See Review conflicting restrictions for more information.

You can also add agents' preferences for them if they for some reason cannot add them themselves before the period for entering preference closes.

Use the **Restrictions** tab in the agent **Info** view to review the restrictions that apply to each day. See Review agent details for more information.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify person restriction permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Adjust or add agent preferences

1. Right-click the day in the Schedule view or Restrictions view and select **Add preference**.
2. Change the agents' preference.

   NOTE If agents can enter extended preferences, where they can set start and end time intervals and activity preferences, ensure to also check the **Extended** and **Activity** tabs.

3. Click **OK**.

Delete agent preferences

Delete an agent's preferences for one or several days if their preferences are causing conflicts with work rules or other restrictions. Note that you cannot restore any deleted preferences.

NOTE This action deletes both the preferences and any hourly availability for the selected day.

1. Select the agent in the Schedule view.
2. Go to the Restrictions view.
3. Select the agent whose restrictions you need to delete.
4. Select the days where you want to delete the preferences.
5. Click **Delete**.

Related topics

- Adjust agents' availability
- Enter how you prefer to work

Adjust agents' availability

Adjust the agents' hourly availability to work or their availability to work overtime. This might be needed if they would cause issues in scheduling.

Use the Restrictions view to identify if agents have added hourly availability that conflict with any work rules or other restrictions. See Review conflicting restrictions for more information.

You can also add agents' hourly availability for them if they for some reason cannot add them themselves before the period for entering preference closes.

Use the **Restrictions** tab in the agent **Info** view to review the restrictions that apply to each day. See Review agent details for more information.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify person

restriction permission.

- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Adjust or add hourly availability for an agent

1. Right-click the day in the Schedule view or Restrictions view and select **Add hourly availability**.
2. Change the hours for which the agent is available.
3. Click OK

Delete hourly availability for an agent

Delete an agent's hourly availability for one or several days if it is causing conflicts with work rules or other restrictions. Note that you cannot restore deleted hourly availabilities.

NOTE This action deletes both the hourly availability and any preferences for the selected day.

1. Select the agent in the Schedule view.
2. Go to the Restrictions view.
3. Select the agent whose hourly availability you need to delete.
4. Select the days where you want to delete the hourly availability.
5. Click **Delete**.

Adjust overtime availability for an agent

Add overtime availability for when an agent can work extra hours.

1. Right-click the day in the Schedule view and select **Add overtime availability**.
2. Change the hours for which the agent is available to work overtime.
3. Click **OK**.

Delete overtime availability

Delete agents' previously added availability to work overtime.

1. In the Schedule view, select the days for which you want to remove the overtime availability.
2. Right-click and select **Delete** special.
3. Select the **Overtime availability** check box.
4. Click **OK**.

Related topics

- Adjust agents' preferences
- Enter when you are available to work
- Enter availability to work overtime

Create allowances for absence requests

Create allowances to use for automatic approval of absence requests. This is useful for periods that are not scheduled and where decisions to approve or deny cannot be based on the staffing situation. The allowances can also be used as a basis for manual decisions.

The allowances are often based on a staffing budget where the allowance for each day is calculated based on the available resources and the forecasted need. If you already know how much your allowance for each day is, you can enter the allowance manually.

> **NOTE** Only absences that are marked as **Is contract time** will deduct from the budget allowance for agent absence requests. For further information, see Create absence types

Prerequisites

- You have the Budgets permission and the underlying Request allowances permission.
- You have created a budget group.

Page location

Client > Budgets > Open budget

Procedures

Open budget

Open the budget for the default scenario and the period to set up allowances for.

1. Right-click on the name of a budget group
2. Select **Open budget**.
3. Select the period to work with.
4. Select the **Default scenario**.
5. Click **OK**.

Create allowances manually

Set up allowances for absence requests without creating a staffing budget.

1. Click **Day view** to work on day level.
2. Enter the **FTE h/day** for the full period.

   FTE stands for Full-Time Equivalent and FTE h/day is the average number of hours per day for a full-time contract. This value is defined in decimal form. To set it to 7 hours and 30 minutes, enter 7.50.

3. Right-click and select **Add shrinkage**. Select the **Include in request allowance** check box and select to include all absence types you want to create allowances for. Click **OK**.
4. Enter the total allowance for each day in the **Override** field.
5. Enter the percentage of the allowance that can be used to automatically approve absence requests in the **Threshold** field. This is only useful when automatically approving absence requests.
6. **Full allowance** shows the total number of FTEs that can take this day off. **Allowance after threshold** shows the percentage that can be automatically approved. An absence request will not be automatically approved if that would cause the absences included in the request allowance on that day to exceed the **Allowance after threshold** value.

Create allowances based on the staffing budget

Use a previously created staffing budget as a basis for creating allowances for absence requests. See How creating staffing budgets works for more information.

1. Click **Day view** to work on day level.
2. Review the shrinkages and ensure that the absence to follow up on are set as included in the request allowance. Enter a percentage for each shrinkage.

3. Review the **Budgeted leave**, **Budgeted surplus**, and add any **Extra** allowance. The sum of these values is the **Full allowance** available for the day.
4. Enter a value in the **Override** field to override the calculated allowance. This is typically used when you are understaffed and still need to allocate time for vacation.
5. Enter the percentage of the allowance that can be used to automatically approve absence requests in the **Threshold** field. This is only useful when automatically approving absence requests.
6. **Full allowance** shows the total number of FTEs that can take this day off. **Allowance after threshold** shows the percentage that can be automatically approved. An absence request will not be automatically approved if that would cause the absences included in the request allowance on that day to exceed the **Allowance after threshold** value.

Interpret calculated budget allowance values

- **Budgeted leave**

  This is the number of FTEs that are predicted to be absent based on the shrinkages set up in the budget. Only shrinkages that are included in request allowance will be considered when calculating the budgeted leave.

  Budgeted leave = (Gross staff + (Contractors (hours) / FTE h/day)) * Sum of all shrinkages included in request allowance

- **Budgeted surplus**

  This is the difference between the budgeted staff and the forecasted staff when any budgeted absences and efficiency shrinkages have been considered. If the skills are overstaffed, the budgeted surplus is the number of FTEs that can be allowed to take time off on top of the planned budgeted leave.

  Budgeted surplus = Budgeted difference / (1 - (Sum of all efficiency shrinkage factors))

- **Full allowance**

  This is the total number of FTEs that can be allowed to take time off.

  Full allowance = Budgeted leave + Budgeted surplus + Extra If there is a value in the override field, the full allowance is always the same as the override value.

- **Allowance after threshold**

This is the number of FTEs that can be used for automatic approval of absence requests. This many FTEs or agents, depending on the absence request settings, can get their requests automatically approved for this day.

Allowance after threshold = Threshold (%) * Full allowance

Related topics

- How creating staffing budgets works
- Create a budget group
- Create a staffing budget
- How using budget allowance works
- Review allowance when approving absence requests

How using budget allowance works

Budget allowance is an allotment for how many agents can be away on a specific day. This can be used for automatic approval of absence requests, often for periods which are not scheduled or where the staffing situation for other reasons is not a good basis to decide if an agent can be away or not.

Set up budget allowance

Create budget groups in the Budgets module. Set up the allowance for each budget group. The budget group is a group of skills which are related, often through cross-skilled agents. Set absence types as included in the request allowance on a custom shrinkage in the budget to include them in the calculation of allowance. See Create allowances for absence requests for more information.

Assign the agents a budget group based on the skills they are working with.

Use allowance for automatic approval

When using allowance for automatic approval of absence requests, the absence request validation will check if the **Allowance after threshold** value in the budget has been exceeded. It will deny (or waitlist) the absence request if the allowance is exceeded or if the approval of this request would cause it to be exceeded.

When setting up the allowance, decide if automatic approval of absence requests can use all the calculated allowance, or to only allow automatic approval until a certain percentage. Not using the full allowance provides some margin if the forecast or staffing situation changes and you can always change the value later.

See How absence request validation works for more details on using budget allowance for automatic approval of absence requests.

Use allowance for manual approval

When approving absence requests manually in the web Requests tool, use the View allowance view to see how much of the allowance that has already been used and how much that remains.

See Review allowance when approving absence requests for more details on how to interpret the values in that view.

Related topics

- Create allowances for absence requests
- How absence request validation works
- Review allowance when approving absence requests
- Create rules to handle absence requests
- Review absence and text requests

Manually handle requests in the client

> **NOTE** The Requests view in the Schedules module is retired from version 8.9.650.108. Use the Requests tool on web to manage requests. See Review absence and text requests and Manually handle shift trade requests for more details on how to use the Requests tool.

Approve or deny requests manually in the Requests view in the Schedules module.

The Requests view lists all requests from the selected agents and for the selected time period in a table. Requests outside of the opened period are shown but appears dimmed. Double-click a request to see the details of the request.

The seniority value shown in the Requests view is the number of months that the agent has been employed. It is counted from the start date of their first person period.

Overtime requests cannot be handled in the Requests view. See Review overtime requests for more information.

Prerequisites

- You have the Schedules > Requests permission and the underlying Approve and View allowance permissions.
- You have the Global functions > View schedules permission.

Page location

Client > Schedules > Open schedule > Requests

Procedures

Approve or deny a request

1. Select the request in the table.
2. Click on **Approve** or **Deny**.

   > **NOTE** The agent is not notified that their request is approved or denied until you save. Look at the impact and, if needed, change your decision before saving.

3. Click **Save** to save the decision and notify the agent.

Reply to a request

You can send a message to an agent who sent a request. This can be just a text message, for example asking a follow-up question, or a message in connection to approving or denying the request.

1. Select the request in the table.
2. Click **Reply**, **Reply and approve** or **Reply and deny**.
3. Enter your reply.
4. Click **Reply**.
5. Click **Save** to send the message to the agent.

Check the remaining allowance

1. Click **View allowance**.
2. Select the **Budget group** that the agents are in.
3. Choose to view **Full allowance** or **Allowance after threshold**.

Full allowance is the total allowance in FTEs for the selected day and budget group.

Allowance after threshold is the part of the allowance that can be used for automatic approval of requests.

4. To view other weeks, use the arrow buttons at the top of the table.

> **NOTE** For more information on how to interpret the parameters in the table, see Review allowance when approving absence requests.

Sort requests

- Click the column header to sort on. The requests are sorted in ascending order based on that column. Click the column header again to sort the request in descending order.
- Click another column header to sort primarily on that column, and secondly on the first column you clicked.

Filter requests

1. Enter the text to filter on in the **Find** field. You can filter on any text shown in the table.
2. Press the **Enter** key.

Show the Request history

The Request history shows all already handled requests for an agent. The requests are moved from the Requests view to the Request history two weeks after it was either approved or denied.

1. Select **View history**.
2. Select the agent to view the history for in the drop-down menu.
3. If needed, use the **Previous** and **Next** buttons to browse through the list of requests to find the one you are looking for.
4. Select a request in the list to show the request details.

Related topics

- Review absence and text requests
- Manually handle shift trade requests

Troubleshoot issues with absence requests

Problem	Things to check
An absence does not deduct from the budget allowance. An absence does not deduct from the agent's personal account or personal allowance. An absence adds a day off when looking at WFM client > Schedules > Days off. An absence does not show up when pulling an absence report.	■ Check on which day(s) of the week the problematic absences occur. ■ If requested by the agent, go to Web > Requests. ■ If manually added by a scheduler, go to Web > Schedules or Client > Schedules. ■ Go to Client > People > Person Periods and check the contract schedule assigned to the agent in question. ■ Go to Client > Options > Contract > Contract Schedule, select the contract schedule that was assigned to the agent and verify which days are added as default working days and days off.

NOTE For any of the problem scenarios, the absence can be manually added by an admin or requested on MyTime by an agent.

Contract schedules define how many working days and days off an agent has per week and which days off are the default days off per week. Unchecked days in the contract schedule are considered default days off. The days off are usually added as absences for a future date where schedules are not yet generated and the day the absence was added for is marked as a "default day off" per the contract schedule. This is applicable for full day absences. Part day absences on non-scheduled days will not show in the allowance.

When scheduling agents with no restrictions (rotations or availabilities), the system by default schedules agents with this contract schedule for Monday to Wednesday. The days off can then be rearranged through optimization. If restrictions such as availabilities or rotations are used, then the system will schedule working days and days off according to those restrictions.

If there is no schedule in place for future dates, and an absence is added to a day that is not selected in the contract schedule (either through an agent request or manually adding the absence), WFM will not deduct from the agents personal account balance or from the budget allowance and the absence will not show up in reporting. This is by design because the WFM system assumes the day will be a day off anyway.

Workaround 1

Create "skeleton" schedules for future days or generate "placeholder schedules" for future dates where absences can be requested by agents. This option works well for customers who have relatively static schedules where agents work the same shifts or days every week. After you generate the schedules, when absences are requested it will deduct from the scheduled days and will not deduct from the scheduled days off. This works even when the schedules are not published for future dates.

Workaround 2

Create a seven day contract schedule, select all days in the contract schedule, and assign to agents in the People module.

1. Create a seven day contract schedule.
2. Assign to agents in **People** > **Person Periods**.

   > **NOTE** If you are implementing this change, before assigning the seven day contract schedule to agents, first go to the **Schedule Periods** tab, copy the **Days off** column, and paste the values into the **Override days off** column. Then, proceed with step 2.

3. Go to **People** > **Schedule Periods**, add **Override days off** and then add the number of days off an agent should have per week.

Troubleshoot issues with full day and part day absence requests

Problem	Things to check
Absences were approved or denied unexpectedly.	Was it a full day or a part day absence request? ■ Part day absence requests always have times in the Request module. ■ Full day absence requests only have dates in the Request module.
Absences did not deduct from the budget allowance, personal account allowance, or show up in standard reports.	Check the schedule history for the agent to see if they had a working shift, day off, or no schedule prior to submitting the request.

Behavior of full day absence requests when schedules exist

NOTE This applies to both published and unpublished schedules.

Check staffing type	Absence added on top of	Will validate the staffing check method	Will impact the budget allowance for staffing numbers	Will validate agent's personal account balance	Will deduct from an agent's personal account balance
Budget / Budget group head count	Working shift	Yes	Yes	Yes	Yes
Budget / Budget group head count	Day off	No	No	No	No
Intraday / Intraday with Shrinkage	Working day	Yes	Yes	Yes	Yes
Intraday / Intraday with Shrinkage	Day off	No	No	No	No

Behavior of full day absence requests when schedules do not exist

NOTE This primarily depends on the agents' assigned contract schedule and which days are set as default working days and default days off. The following table shows the behavior for an agent that has a five day contract schedule with Monday to Friday checked as default working days. For further information, see Contract schedule.

Check staffing type	Absence added on top of	Will validate the staffing check method	Will impact the budget allowance for staffing numbers	Will validate agent's personal account balance	Will deduct from an agent's personal account balance
Budget / Budget group head count	Monday to Friday	Yes	Yes	Yes	Yes
Budget / Budget group head count	Saturday and Sunday	No	No	No	No
Intraday / Intraday with Shrinkage	Monday to Friday	Yes	Yes	Yes	Yes
Intraday / Intraday with Shrinkage	Saturday and Sunday	No	No	No	No

Behavior of part day absence requests when schedules exist

NOTE This applies to both published and unpublished schedules.

Check staffing type	Absence added on top of	Will validate the staffing check method	Will impact the budget allowance for staffing numbers	Will validate agent's personal account balance	Will deduct from an agent's personal account balance
Budget / Budget group head count	Working shift	Yes	Yes	Yes	Yes

Check staffing type	Absence added on top of	Will validate the staffing check method	Will impact the budget allowance for staffing numbers	Will validate agent's personal account balance	Will deduct from an agent's personal account balance
Budget / Budget group head count	Day off	No	No	No	No
Intraday / Intraday with Shrinkage	Working day	Yes	Yes	Yes	Yes
Intraday / Intraday with Shrinkage	Day off	No	No	No	No

Behavior of part day absence requests when schedules do not exist

NOTE Everything will be approved regardless of the budget or personal account. There is an option to deny part day absences. For further information, see Manage absence request settings.

Check staffing type	Absence added on top of	Will validate the staffing check method	Will impact the budget allowance for staffing numbers	Will validate agent's personal account balance	Will deduct from an agent's personal account balance
Budget / Budget group head count	Working shift	No	No	No	No
Budget / Budget group	Day off	No	No	No	No

Check staffing type	Absence added on top of	Will validate the staffing check method	Will impact the budget allowance for staffing numbers	Will validate agent's personal account balance	Will deduct from an agent's personal account balance
head count					
Intraday / Intraday with Shrinkage	Working day	No	No	No	No
Intraday / Intraday with Shrinkage	Day off	No	No	No	No

Schedule activities manually

Schedule activities for one or several agents manually. The activities can be scheduled as regular activities or personal activities.

Any activity can be scheduled as a personal activity. The purpose of personal activities is that they are scheduled for a specific agent. This can for example be a training or e-learning session. A personal activity is not moved when the schedule is optimized and it stays with the agent it was scheduled on, even if the agent trades their shift.

Schedule any known personal activities before you run the automatic scheduling. The automatic scheduling then tries to find a main shift that fits with the pre-scheduled activity. If the personal activity is not possible to combine with a main shift, the day will not be automatically scheduled.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.

- You have the Global functions > Modify schedules permission and the underlying Modify assignment permissions.
- You have the Global functions > View unpublished schedules permission to add activities for unpublished periods.
- You have opened the Schedules module for the agents and period to work with.

Page location

Client > Schedules > Open schedules

Procedures

Schedule an activity

1. Select the agents and the date to schedule the activity on.
2. Right-click and select **Add activity**.
3. Select the **Activity** to schedule.
4. Define the start and end time for the activity.
5. Click **OK** to add the activity.

Schedule a personal activity

1. Select the agents and the date to schedule the personal activity on.
2. Right-click and select **Add personal activity**.
3. Select the type of **Activity** to schedule.
4. Define the start and end time for the personal activity.
5. Click **OK** to add the personal activity.

   The personal activity is indicated in the schedule by a small blue arrow in the top right corner. It is visible in the shift editor when a shift has been scheduled.

Related topics

- Schedule time off manually
- Schedule days off manually

- Edit scheduled shifts
- Run automatic scheduling

Schedule time off manually

When an agent is away, this must be entered in the schedule. Schedule time off for one or several agents manually. The time off can be for a part of the day, for the full day or for several days.

It is important to add any absences to the schedule as soon as you know about them, to make it possible to spot and act on any understaffing as early as possible.

Sometimes an absence is known far in advance, for example an already approved vacation week. Ensure to schedule this before you run the automatic scheduling. Then it is taken into consideration when the other agents are scheduled.

Sometimes agents call in sick in the morning. Add these absences directly and review the impact on the staffing situation.

Full-day absences

When you schedule a full-day absence it always covers the whole shift that is scheduled for that day. If it is entered before the scheduling, it prevents a shift from being scheduled there. An agent can only have one full-day absence per day. If a full-day absence is applied to an agent on a day which already has a full-day absence, it replaces the previously applied full-day absence. If you schedule an absence with a length that corresponds to a full day, this will be added as a full-day absence even if the **Full-day absence** check box is not selected.

Part-day absences

A part-day absence is scheduled for just the selected time period. An agent can have more than one part-day absence per day. The part-day absences can overlap each other. If they do, the most recently applied one is shown.

A part-day absence always belong to a specific date, and will not affect shifts on other dates.

> **EXAMPLE** An agent has a night shift on a Monday that ends at 7:00 AM on Tuesday, and for that shift there is an absence from 4:00 AM to 7:00 AM. This absence belongs to the Monday, even if those hours are actually on the Tuesday. If the Monday night shift is later removed, and the agent is scheduled with a shift that starts 6:00 AM on the Tuesday, that absence doesn't affect the Tuesday shift.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify absence permissions.
- You have the Global functions > View unpublished schedules permission to add absences for unpublished periods.
- You have opened the Schedules module for the agents and period to work with.

Page location

Client > Schedules > Open schedules

Procedures

Schedule time off

1. Select the agents and the dates to schedule the absence on.
2. Right-click and select **Add absence**.
3. Select the type of **Absence** to schedule.
4. If the time off is for one or more full days, select the **Full-day absence** check box.
5. Define the start and end time for the absence.
6. Click **OK**.

Related topics

- Schedule activities manually
- Schedule days off manually
- Run automatic scheduling

Schedule days off manually

Days off are normally scheduled by the automatic scheduling. They are then placed either by what is defined in the contract schedule or by a restriction, for example a rotation or the agents' preferences.

Sometimes there is a need to schedule a day off manually, for example around public holidays.

If you schedule a day off manually for fixed employees, and that day off is in addition to the normal number of days off for the schedule period, there must be tolerance on the agents' contracts to handle that.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permissions.
- You have the Global functions > View unpublished schedules permission to add days off for unpublished periods.
- You have opened the Schedules module for the agents and period to work with.

Page location

Client > Schedules > Open schedules

Procedures

Schedule a day off

1. Select the agents and the date to schedule the day off on.
2. Right-click and select **Add day off**.
3. Select which **Day off** to schedule, if there are more than one.
4. Click **OK** to add the day off.

Related topics

- Schedule activities manually
- Schedule time off manually

- Create days off

Edit scheduled shifts

Make schedule changes to individual shifts in the editor in the Schedules module. For example, move the lunch or change the length of a training session.

The activities and absences are placed in their own layers. If two items overlap each other, the order of the layers defines which item that is visible in the schedule. There are separate sections for activities, personal activities, overtime activities and absences. A layer can be moved up or down within its own section, but the order of the sections is fixed. The order of absence layers cannot be changed. The most recently added absence layer is the one that is shown.

The full shift shown in the editor is a projection of how the shift currently looks. All schedule changes are done in the layers.

NOTE The procedures below are written for activities, but can also be used for personal activities, overtime activities and part-day absences.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission to work with unpublished periods.

Page location

Client > Schedules > Open schedule

Procedures

Show the editor and select a shift

1. Select the **Editor** button to show the editor.
2. Select the agent and day in the schedule view to show the shift in the editor.

3. Click **Show** in the editor to show all layers of activities.

Shorten or extend an activity

1. In the activity layer in the editor, hover the mouse pointer over the start or end of the activity. The mouse pointer turns into a double arrow.
2. Move the start or end of the activity to the desired position.

Move an activity

1. In the activity layer in the editor, hover the mouse pointer over the activity. The mouse pointer turns into a cross with arrows in each direction.
2. Move the activity to the desired position

Change the increments to move the activities

The **Snap to interval** setting defines the increments used when changing the start or end time or moving an activity within the editor. This is useful to more easily hit the right time.

- Move the **Snap to interval** slider to the desired increment.

Define which activity to show

Change which activity that is shown in the shift when two activities are overlapping.

- Right-click the activity that you want to show and select **Move down**.

Add an activity

There is an easy way to add activities in the editor.

1. Click to select a time period in the timeline above the shift.
2. Select **Add activity** in the menu that pops up.
3. Select the **Activity** to add.
4. Adjust the start and end time if needed.
5. Click **OK**.

Delete an activity

- Right-click the activity to delete and select **Delete**.

Move a full shift

This moves all main activities and overtime activities, but not personal activities, meetings and absences.

- Press the **Shift** key and drag and drop the shift to the new position.

Related topics

- Copy and paste schedule items
- Schedule activities manually
- Schedule time off manually
- Schedule days off manually

Copy and paste schedule items

Copy, cut, paste and delete shifts, activities or absences to make manual changes easier.

When you use the copy, cut and delete actions, what is copied, cut or deleted is affected by the schedule layers. The visible layer is always affected first. This can be a main shift or a full-day absence. Separately added activities and overtime activities are connected to the main shift and are removed together with the main shift. Personal activities and part-time absences are only affected if there is no main shift.

EXAMPLE

- Select a day with a shift, copy the shift and paste it to another day.
- If an agent has called in sick, copy that person's shift and use the Paste special function to paste it to another person's day off as overtime.
- Select a day with a full-day absence and select cut. The absence is cut. Any shift underneath remains and becomes visible.
- Select a day with a shift, a personal activity and a part-day absence and click Delete. The shift is deleted. The personal activity and the absence remain. If you click Delete again, the personal activity is removed, and the absence remains.

If you want to cut, paste or delete an item that is not in the top layer, use the Cut special, Paste special or Delete special actions.

NOTE Meetings are not affected by the copy, cut, paste and delete actions.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.

- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission to work with unpublished periods.

Page location

Client > Schedules > Open schedule

Procedures

Copy schedule items

1. Click to select the area to copy from in the schedule view.
2. Click **Copy**.

Cut schedule items

1. Click to select the area to cut from in the schedule view.
2. Click **Cut**.

Paste schedule items

1. Click to select the area where you want to paste the copied or cut items.
2. Click **Paste**.

> **NOTE**
> There are many considerations when pasting copied or cut schedule items.
>
> - If you copy or cut schedule items from multiple days or agents but only select one day to paste to, the selected day is used as the top left corner of the area to paste to and all copied or cut items are pasted.
> - If the selected area is bigger than the area you copied or cut from, the copied or cut items are automatically pasted repeatedly until the area is filled.
> - A copied or cut item is no longer available to paste if you add a new schedule item manually between copying or cutting and pasting.
> - If you copy a schedule item from one agent and paste it to an agent in another time zone, the start and end times are adjusted. For example, if you copy an 8AM to 5PM shift for an

agent in Stockholm time zone and paste it to an agent in London time zone, the pasted shift is still 8AM to 5PM in Stockholm time zone, and shows as 7AM - 4PM for the London agent.

- When you paste a day off on top of a shift, the underlying shift is deleted.

Delete schedule items

1. Click to select the area to delete from in the schedule view.
2. Click **Delete**.

Cut specific schedule items

Use **Cut special** to cut specific schedule items.

1. Click to select the area to cut from in the schedule view.
2. Right-click and select **Cut special**.
3. Select the check boxes of the items to cut.
4. Click **OK**.

Paste specific schedule items

Use **Paste special** to paste specific schedule items.

NOTE You can paste special without using **Cut special** first. Copy a shift and then use **Paste special** to paste only the parts of that shift that you want to paste, for example the overtime or personal activity.

1. Click to select the area to paste to in the schedule view.
2. Right-click and select **Paste special**.
3. Select the check boxes of the items to paste.
4. If you paste a shift, you can select the **Shift as overtime** check box to add it as an overtime shift for the agent.
5. Click **OK**.

Delete specific schedule items

1. Click to select the area to delete from in the schedule view.
2. Right-click and select **Delete special**.

3. Select the check boxes of the items to delete.
4. Click **OK**.

Related topics

- Schedule activities manually
- Schedule time off manually
- Schedule days off manually

Swap shifts between agents

Swap shifts between agents on one or more days.

There are three types of swaps.

- **Swap**—A plain swap of the schedule between two agents on one or more days. With the **Swap** option, a shift never moves to another day. It will stay on the same day but move to another agent.
- **Swap and reschedule**—Use **Swap and reschedule** when two agents want to swap days off, as this option schedules new work shifts for the agents where they previously had a day off. The shifts selected are the most suitable shifts based on the business needs.
- **Swap raw**—Swaps two selections of the same size, with any number of agents and shifts. The two selections are swapped with each other without any consideration of business needs or work rules.

NOTE Shifts and overtime activities are swapped. Absences, personal activities and meetings are not swapped.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission to work with unpublished periods.

Page location

Client > Schedules > Open schedule

Procedures

Swap shifts

1. Press and hold the **Ctrl** key and click on the shifts or days off to swap.
2. Click **Swap**.

Swap days off and reschedule

1. Press and hold the **Ctrl** key and click on the days off to swap.
2. Click the small arrow next to the **Swap** button.
3. Select **Swap and reschedule**. The days off are swapped and new shifts are scheduled according to the most recent scheduling settings.

Swap shifts with Swap raw

1. Make a selection in the schedule.
2. Press and hold the **Ctrl** key and then make another selection of the same size and shape as the first one.
3. Click the small arrow next to the **Swap** button.
4. Select **Swap raw**. The shifts and days off in the selected areas are swapped.

Related topics

- Edit scheduled shifts
- Create rules to handle shift trade requests
- Set up validations for shift trade requests
- Trade shifts with other agents

Replace invalid shifts

Ensure that the scheduled shifts are valid shifts from the shift bag with the **Adjust shifts to match shift bag** scheduling option. This is done to ensure that the scheduled shifts adhere to laws and other work rules. For example, if you have manually changed the length of the shift, run this option afterwards to ensure that the day has the correct number of breaks.

The **Adjust shifts to match shift bag** option checks each selected shift to verify that the shift is available in the agent's shift bag. If not, it replaces the shift with a shift from the shift bag. It will pick the shift with the same start and end time that gives the best result from a business perspective.

If there are no shifts with the same start and end time in the agent's shift bag, no replacement is made. When the **Adjust shifts to match shift bag** check is completed, a message is shown to highlight any days where an invalid shift could not be replaced.

> **NOTE** **Adjust shifts to match shift bag** only works if there are no issues for the schedule period. The contract time target must be fulfilled or at least possible to fulfill.

Prerequisites

- You have the Schedules > Automatic scheduling permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Replace invalid shifts with shifts from the shift bag

1. In the schedule view, select the shifts that you want to check and if needed replace.
2. Click the arrow next to **Schedule** and select **Adjust shifts to match shift bag**. The check starts immediately, no settings are needed.

3. If any issues are highlighted, where an invalid shift could not be replaced with a shift from the shift bag, act to address those issues.

Related topics

- Edit scheduled shifts

Manage meetings (Meetings tool)

Use the Meetings tool on the web to get an overview of planned meetings and to schedule meetings for one or many persons in the organization.

The type of meeting is indicated by an icon.

- —One-time meetings.
- —1:1 meetings.
- —Meetings that are part of a recurring series of meetings.
- —Meetings that were initially included in a series, but have been edited and no longer follow the series.

Meetings can also be added and planned from the Schedules tool.

The meetings are shown in all views where shifts are shown in detail. A tooltip states the subject, time, location, and the agenda for the meeting. In the day view in the WFM client Schedules module, meetings are indicated with a small black arrow.

NOTE

- Meetings that are created in the Meetings module in the client cannot be managed in the web Meetings tool, and meetings that are created in the web Meetings tool cannot be managed in the Meetings module in the client.
- Meetings can only be planned in the default scenario.

Prerequisites

- You have the Web > Meetings permission.
- Activities are created.

Page location

WFM > Meetings

Procedures

View planned meetings

When you open Meetings, the week view is shown with the current week selected.

1. Apply filters to display meetings. See how to filter below.
2. Select a date in the calendar or browse with the arrows.
3. Change to the preferred view: **Month**, **Week**, **Work week**, **Day**, or **Agenda**.

Filter the view in Meetings

You must filter the view to show planned meetings. The view is automatically updated when you add a filter.

- Select one or more of the following parameters to show meetings:
  - Sites, teams or persons in the **Participants** filter field.
  - Users in the **Created by** filter field. The logged in user is shown at the top of the list.
  - Activities in the **Activity** filter field.
  - Recurring meeting or single meeting in the **Type of meeting** filter field.

NOTE

- If you see a message to apply more filters, there are too many meetings to display in the selected view and period. Try adding more specific filters.
- If the meetings are transparent, they are currently synchronizing.

Schedule a one-time meeting

1. Ensure to select the time zone in which to create the meeting.
2. Click **New meeting** and select **Meeting**, or double-click the time and day for which you want to create the meeting.
3. Enter a **Title**. This field is required to save the meeting.
4. Adjust the start and end time and select the date. 30-minute increments are listed as suggestions, but you can enter any time manually.

5. Select an **Activity** for the meeting.

   > **EXAMPLE** Create a meeting and select the “Team meeting” activity to clarify the purpose of the meeting.

   The list of available activities contains the activities that are contract time but not connected to a skill. The selected activity is shown when looking at shift details.

6. Enter a **Location**.
7. Select **Participants** by choosing sites, teams, or persons.

   - If you want to select participants based on their skills, click the **Filter** button and select skills or skill groups.
   - Click the **Participants** field, and then select sites, teams, or persons.
   - The persons you select are shown in the **Participants** field.
   - Click the **X** to exclude a person from the meeting.

   If you have an external list of participants, you can copy and paste them to include them in the meeting. See the section Import participants from an external list below for more information.

8. Enter a meeting agenda in the **Agenda** field. The agenda is visible to the participants. If you add a URL, they can click it to easily access it.
9. Enter an **Internal note** if needed. Internal notes are only visible for users with permission to Meetings.
10. Click **Save**.

> **NOTE** A warning is shown if the meeting covers any non-overwritable activities for the selected participants. You can choose to place meetings on top of non-overwritable activities or move the non-overwritable activities for the participants.

Schedule a series of recurring meetings

You can only create recurring meetings for one year from the meeting start date. For example, if you create a recurring meeting for December 5, 2023, you can only schedule it as a recurring meeting until December 4, 2024.

1. Ensure to select the time zone in which to create the meeting.
2. Click **New meeting** and select **Meeting**, or double-click the time and day for which you want to create the meeting.
3. Enter a **Title**. This field is required to save the meeting.
4. Adjust the start and end time and select the date. 30-minute increments are listed as suggestions, but you can enter any time manually.
5. Select an **Activity** for the meeting.

   EXAMPLE Create a meeting and select the "Team meeting" activity to clarify the purpose of the meeting.

   The list of available activities contains the activities that are contract time but not connected to a skill. The selected activity is shown when looking at shift details.
6. Enter a **Location**.
7. Select **Participants** by choosing sites, teams, or persons.
   - If you want to select participants based on their skills, click the **Filter** button and select skills or skill groups.
   - Click the **Participants** field, and then select sites, teams, or persons.
   - The persons you select are shown in the **Participants** field.
   - Click the **X** to exclude a person from the meeting.

   If you have an external list of participants, you can copy and paste them to include them in the meeting. See the section Import participants from an external list below for more information.
8. Enter a meeting agenda in the **Agenda** field. The agenda is visible to the participants. If you add a URL, they can click it to easily access it.
9. Select a **Recurrence** and a pattern for the recurrence. The alternatives are:
   - **Every day**, to repeat every 1 to 10 days.
   - **Every workday**, to repeat on one or more selected days Monday to Sunday.
   - **Every week**, to repeat every 1 to 10 weeks and on one or several selected days Monday to Sunday.

- **Every month**, to repeat every 1 to 10 months on a selected date of the month or on a selected day of the week in a selected week of the month.

10. Select which date the meeting series **Ends**. The maximum length of a series of recurring meetings is one year from the first start date.
11. Enter an **Internal note** if needed. Internal notes are only visible for users with permission to Meetings.
12. Click **Save**.

NOTE A warning is shown if the meeting covers any non-overwritable activities for the selected participants. You can choose to place meetings on top of non-overwritable activities or move the non-overwritable activities for the participants.

Schedule 1:1 meetings

NOTE

- Both the participants and the host must have scheduled shifts before you can schedule 1:1 meetings.
- Within the same 1:1 series, the meetings are scheduled with a 15-minute gap between the individual meetings.

1. Ensure to select the time zone in which to create the meetings.
2. Click **New meeting** and select **1:1 meeting**.
3. Enter a **Title**. This field is required to save the meeting.
4. Configure the **Meeting period**. This is the date period for which to schedule 1:1 meetings.

   NOTE If you want to schedule for example one 1:1 meeting per calendar week, select the first day of the week as the start date.

5. Configure during which **Time of day** to schedule the 1:1 meetings.
6. Select the **Meeting length** to use.
7. Select an **Activity** for the meeting.

   EXAMPLE Create the meeting and select the *1:1 meeting* activity to clarify the purpose of the meeting.

The list of available activities contains the activities that are contract time but not connected to a skill. The selected activity is shown when looking at shift details.

8. Enter a **Location**.
9. Select **Participants** by choosing sites, teams, or persons.
    - If you want to select participants based on their skills, click the **Filter** button and select skills or skill groups.
    - Click the **Participants** field, and then select sites, teams, or persons.
    - The persons you select are shown in the **Participants** field.
    - Click the **X** to exclude a person from the meeting.

    If you have an external list of participants, you can copy and paste them to include them in the meeting. See the section Import participants from an external list below for more information.
10. Select a **Host** for the meeting. This is the person with whom the participants have their 1:1.
11. Enter a meeting agenda in the **Agenda** field. The agenda is visible to the participants. If you add a URL, they can click it to easily access it.
12. Select how often the 1:1 meetings should **Recur**.

    EXAMPLE Schedule one 1:1 meeting every other week by selecting "1 time every 2 weeks".
13. Enter an **Internal note** if needed. Internal notes are only visible for users with access to the Meetings tool.
14. Click **Save**.

    NOTE If all occurrences cannot be scheduled for all selected participants, a message with the number of occurrences that cannot be saved is shown for each participant. Click the message to expand it and show more details. You cannot save the meeting until those issues are addressed. Make adjustments to for example the meeting period, the meeting length, the list of participants, or the recurrence frequency to solve the issues and then click **Save** again.

Schedule e-learning sessions

E-learning sessions are scheduled on activities that are connected to a skill and at the times where they have the least negative effect on the staffing levels.

NOTE You can schedule e-learning sessions for the next seven weeks because that is the period for which detailed staffing information is available.

BEST PRACTICE It takes up to one hour for changes in the Schedules module in the WFM client to update the staffing information in the web. Therefore, if changes are made in the Schedules module that significantly affect the staffing levels, wait one hour or confirm that the staffing information in the web tools matches the staffing information shown in the WFM client Schedules module before you schedule the e-learning sessions.

1. Ensure to select the time zone in which to add the e-learning sessions.
2. Click **New meeting** and select **E-learning**.
3. Enter a **Title**. This field is required to save the e-learning.
4. Configure the **Meeting period**. This is the date period for which to schedule the e-learning. The selected agents will get one e-learning session each during this period.
5. Configure during which **Time of day** to schedule the e-learning.

   You can set different times for the days of the week if needed. Turn off the **Same time for all days** toggle and set the time period for each day of the week. Turn off the toggle for a day to exclude that day completely.
6. Select the **Meeting length** to use for the e-learning sessions.
7. Enter a **Minimum continuous work time** to ensure that agents spend a minimum amount of productive time on an activity before and after e-learning sessions. This setting is optional.
8. Select an **Activity** for the meeting.

   The list of available activities contains the activities that are contract time but not connected to a skill. The selected activity is shown when looking at shift details.
9. Select **Participants** by choosing sites, teams, or persons.
   - If you want to select participants based on their skills, click the **Filter** button and select skills or skill groups.
   - Click the **Participants** field, and then select sites, teams, or persons. The persons you select are shown in the **Participants** field.
   - Click the **X** to exclude a person from the meeting.

If you have an external list of participants, you can copy and paste them to include them in the meeting. See the section Import participants from an external list below for more information.

10. Add **Thresholds** to set a staffing level limit for scheduling e-learning sessions.

    1. Click in the **Thresholds** field and then click to select the skills for which to check the staffing levels. The skills assigned to the selected participants are shown in the **Participant skills** section.

       NOTE If the agents are cross-skilled, scheduling e-learning for the participants might indirectly affect the staffing levels on other skills.

    2. Enter the **Critical understaffing** threshold value for each selected skill. This means that an e-learning session will not be scheduled if it would cause the staffing level to go below the threshold value.

11. Enter a meeting agenda in the **Agenda** field. The agenda is visible to the participants. If you add a URL, they can click it to easily access it.

12. Enter an **Internal note** if needed. Internal notes are only visible for users with access to the Meetings tool.

13. Click **Save**.

14. In the **Meeting series** view, follow up on the e-learning sessions you scheduled. If the status is *Succeeded*, all selected agents were scheduled with an e-learning session.

    If a warning is shown, e-learning sessions could not be scheduled for all selected agents. The most common reason is that the agent does not have a shift scheduled within the meeting period, for example because they are on leave.

    - Click **Show details** to show for which agents the e-learning could not be scheduled.

      The **Reason** column contains information for each agent on why e-learning could not be scheduled for them. This helps you understand what adjustments that are needed to try to reschedule those agents.

    - On the **Unscheduled agents** tab, select the agents to try to reschedule and click **Reschedule**.

    - Adjust the **Meeting period** or the **Time of day** and click **Save** for a new attempt to schedule e-learning sessions for the agents.

Edit a scheduled meeting

1. Click the meeting to edit.
2. In the new window, click **Edit**.
3. If this is a recurring meeting, select which meetings you want to edit.
    - **This instance**—Update meeting details only for this instance. This instance will then no longer belong to the series. It can then only be updated by editing this specific meeting. It is not updated when editing the series.
    - **Entire series**—Update meeting details for all meetings in the series, including previous instances.
    - **This and following**—Update the selected meeting and all the following meetings in the series, but keep earlier meetings in the series as they are.
    - **This day and following for all participants**—Update all 1:1 meetings in the series that are scheduled on this day or any of the following days in the meeting period, but keep earlier meetings in the series as they are.
4. Click **Edit**.
5. Update the meeting with the new details.
6. Click **Save**.

Import participants from an external list

If you have an external list of participants, for example in Microsoft Excel, you can copy and paste them to include them in the meeting. The participants must belong to a team to be possible to import.

1. Click the import button. 
2. Copy the participants' names or email addresses from the external list and paste them to the import field. The names or email addresses must be separated by semicolons.
3. Click **Check names**.
    - For every name or email address which can be matched to a user in Cisco WFM, the user is added to the second field.
    - If there are any names or email addresses that cannot be matched, a message is shown to highlight that.

4. Click **Import** to add the participants to the meeting.

Delete a meeting

1. Click the meeting to delete.
2. In the new window, click **Delete**.
3. If this is a recurring meeting, select which meetings you want to delete.
    - **This instance**—Delete only this instance. This instance will then be deleted from the series.
    - **Entire series**—Delete all meetings in the series, including previous instances.
    - **This and following**—Delete this meeting and all the following meetings in the series, but keep earlier meetings in the series as they are.
    - **This and following for this participant**—Delete this 1:1 meeting and all the following meetings in the series for the selected participant.
    - **This day and following for all participants**—Delete all 1:1 meetings in the series that are scheduled on this day or any of the following days in the meeting period, but keep earlier meetings in the series as they are.
4. Click **Delete** to confirm that you want to delete.

Delete several meetings at once

Select several meetings and delete them all at once for 1:1 meetings, e-learning meetings, recurring meetings, and single meetings in the Agenda view. If a selected meeting belongs to a series, only the selected instance of the meeting is deleted. The other meetings in the series are not affected.

1. Click the menu in the top right corner to select the **Agenda** view.
2. Select the month to work with.
3. Select the type of meeting(s).
4. Select the check boxes for the meetings to delete. If you want to select all the meetings for that month, click **Select all**.
5. Click **Delete selected**.
6. Click **Delete** to confirm.

Related topics

- Make schedule changes (Schedules tool)

View planned meetings in the client

View the meetings that were planned using the Meeting planner in the Windows client. The Meeting overview shows meetings that were booked in the selected scenario. You can select to show all meetings planned for a selected group of agents or to show all meetings created by you.

Select a meeting in the overview to show details for that meeting, such as the location and the participants.

Plan new meetings, move or adjust details for existing meetings and delete meetings directly from the Meeting overview.

> **NOTE** Meetings that are created in the Meetings module in the client cannot be managed in the web Meetings tool, and meetings that are created in the web Meetings tool cannot be managed in the Meetings module in the client.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.

Page location

Client > Schedules > Meeting overview

Procedures

Define which meetings to show

> **NOTE** If you select both a specific group of agents and to show all meetings created by you, all meetings for the selected agents and all meetings created by you are shown.

1. Select for which **Scenario** to view meetings.
2. Select if you want to show meetings for a specific group of agents or meetings that are created by you.

- To show all meetings planned for a specific group of agents, click **Participants** and select the check boxes for the sites, teams, agents or group pages to show meetings for. Click **Close**.
- To show all meetings that you planned, select the **Meetings created by me** button.

Plan a meeting

1. Select a time period on a date in the calendar view.
2. Right-click and select **Add**.
3. Add participants and meeting details. See Plan meetings in the client for more information.

Add or remove participants

Add participants to a planned meeting, or remove participants who for example have changed teams.

> **NOTE** If you edit the details of a recurring meeting, the changes apply to all occurrences of this meeting.

1. Double-click the meeting.
2. To remove participants, select their names and select the **Delete** key.
3. To add participants:
    1. Click **Address book**.
    2. Search or filter to find the agents to add.
    3. Select the agents to add and click to add them as **Required** or **Optional** participants.
4. Click **Save**.

Move a meeting

> **NOTE** If you edit the details of a recurring meeting, the changes apply to all occurrences of this meeting.

- To move a meeting within a week, select the meeting and move it to the new day or time.
- To move a meeting to another week, right-click the meeting and select **Cut**. Then go to the other week, right-click at the time to place the meeting and select **Paste**.

Copy and paste a meeting

Add a copy of an existing meeting to another time or day.

- Right-click the existing meeting and select **Copy**.
- Right-click at the time to place the meeting and select **Paste**.

Delete a meeting

NOTE When you delete a recurring meeting, all occurrences of this meeting are deleted.

1. Right-click the meeting and select **Delete**.
2. Click **Yes** to confirm.

Export a meeting to another scenario

Export all meetings planned for the currently open scenario to a selected scenario.

1. Click **Export**.
2. Define the period for which to export the meetings.
3. Select the **Scenario** to export to.
4. Click **Export**.
5. Click **Close**.

Related topics

- Plan meetings in the client
- Find good slots for meetings in the client
- Define pattern and range for recurring meetings

Plan meetings in the client

Plan one-time or recurring meetings for selected agents. It is beneficial to plan recurring meetings and meetings you know about in advance before you schedule that period. That way, the best shifts can be selected to fulfill the staffing need during the meeting.

When planning meetings when there is already a schedule, the meeting planner can help you find a good time for the meeting. This is based on who is planned to participate and the staffing level impact.

The subject, location and message that you enter for the meeting are presented to the participating agents in the schedule view in MyTime.

NOTE Meetings that are created in the Meetings module in the client cannot be managed in the web Meetings tool, and meetings that are created in the web Meetings tool cannot be managed in the Meetings module in the client.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify meetings permission.

Page location

This functionality can be accessed from different locations.

- Client > Schedules > Add meeting
- Client > Schedules > Meeting overview > Add
- Client > Schedules > Open schedule > Create meeting

Procedures

Add a meeting

1. Add participants to the meeting.
    - Click **Address book**.
    - Search or filter to find the agents to add.
    - Select the agents to add and click to add them as **Required** or **Optional** participants. If you use the **Suggested time** or **Pick best meeting slot** functions to find a suitable time for the meeting, it will only consider the schedules of the required participants.
2. Enter a **Subject** and a **Location** for the meeting.
3. Choose a time for the meeting.
    - Adjust the **Start time** and **End time** manually if the meeting must be at a specific time.

- Use the **Schedules** and **Impact** views for help to find the best time to plan the meeting, where the impact on the staffing is the lowest. See Find good slots for meetings in the client in the client for more information.

4. Select the **Activity** type for the meeting.
5. If this meeting is a recurring meeting, define a pattern and range. See Define pattern and range for recurring meetings for more information.
6. Enter more information, for example a meeting agenda, in the text field.
7. Click **Save** to add the meeting to the schedules of all participants.

Delete a meeting

NOTE When you delete a recurring meeting, all occurrences of this meeting are deleted.

- In the Schedules module, select that day's schedules for the participating agents. Right-click the selection, select **Meetings** and then **Delete meeting**. If there is more than one meeting on the selected day, you must select which meeting to delete.
- In the Meeting overview, right-click the meeting and select **Delete**.

Related topics

- View planned meetings in the client
- Find good slots for meetings in the client
- Define pattern and range for recurring meetings

Find good slots for meetings in the client

Review agents' schedules in the Schedules view to find a good time for a meeting or use the **Pick best meeting slot** function in the Impact view to find the meeting time with the lowest impact on staffing levels.

The Schedules view gives you an overview of the meeting participants' schedules. It will also present suggested times for the meeting, based on the duration of the meeting and the participants' schedule. The suggestions are for times where all required participants are scheduled on a shift, on activities that are defined as work time and where no required participant is scheduled on a non-overwritable activity. You can define a time period for when to suggest times, for example only between 1PM and 5PM.

The Impact view shows you how the meeting affects the staffing levels on the agents' skills. The **Pick best meeting slot** finds the times for a meeting where the staffing impact is the lowest. You can define a date period for when to find the best times.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify meetings permission.
- You have started planning a meeting. See Plan meetings in the client.

Page location

This functionality can be accessed from different locations.

- Client > Schedules > Add meeting
- Client > Schedules > Meeting overview > Add
- Client > Schedules > Open schedule > Create meeting

Procedures

Pick a suggested meeting time based on scheduled activities

1. In the **Schedules** view, define the meeting duration by defining a **Start time** and an **End time**.
2. Define for which hours of the day to suggest meeting times by defining the **Start period** and **End period**.
3. Select a date in the calendar view.
4. Click one of the suggested meeting times to select it.

Manually check the impact of a suggested meeting time

1. In the **Impact** view, define the suggested **Start time** and **End time** for the meeting in the bottom left corner of the window.
2. Click in the staffing table to update the staffing numbers to how it would be if the meeting is scheduled.

3. Review the staffing levels during the selected time period. If the relative difference is blue, the skill is overstaffed. If it is yellow, it is understaffed and if it is red, the skill is critically understaffed.
4. Decide if they are good enough or if you want to try a different time.

Find the meeting slot with the lowest impact on staffing

1. In the **Impact** view, adjust the length of the meeting if necessary, by defining the **Start time** and **End time**.
2. Enter a date interval for when you want to plan the meeting by defining a **Start time** and an **End time** in the **Pick best meeting slot** area.
3. Click **Find**. The number of slots found are shown above the **Find** button. The slot with the lowest negative impact on the staffing is selected.
4. Click the arrow buttons to see the other slots found. They are displayed in order based on the impact on the staffing.

Related topics

- View planned meetings in the client
- Plan meetings in the client
- Define pattern and range for recurring meetings

Define pattern and range for recurring meetings

Define the pattern for a recurring meeting to describe how often to schedule this meeting. Define the range for a recurring meeting to set during which date period to schedule this meeting.

> **NOTE** It is not possible to change or delete one occurrence of a recurring meeting. If one of the occurrences of the meeting is deleted, all occurrences are deleted. If you move the start time of the meeting from 10:00 to 11:00, all occurrences of the meeting are moved to 11:00. If you need that type of flexibility, an alternative is to create one meeting and copy it to other days.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.

- You have the Global functions > Modify meetings permission.
- You have started planning a meeting. See Plan meetings in the client.

Page location

This functionality can be accessed from different locations.

- Client > Schedules > Add meeting
- Client > Schedules > Meeting overview > Add
- Client > Schedules > Open schedule > Create meeting

Procedures

Define the recurrence pattern and range

1. Click **Recurrent meeting**.
2. Adjust the **Appointment time** if needed. The meeting is always scheduled at this time. To schedule a meeting with varying start times, you must create multiple one-time meetings instead of using the recurrence function.
3. Define how often to schedule the meeting with a **Recurrence pattern**.
    - For a daily pattern, select **Daily**. Enter the frequency, for example 1 to schedule the meeting every day or 2 for every other day.
    - For a weekly pattern, select **Weekly**. Enter the frequency, for example 1 to schedule the meeting every week or 2 for every other week. Select the check boxes to define on what days of the week to schedule the meeting. You can select more than one day, for example to schedule a meeting every Monday and Thursday.
    - For a monthly pattern, select **Monthly**. To schedule the meeting on a specific date, for example the 1st day of each month, enter the date and the frequency. To schedule the meeting on a specific day of the week and a specific week of the month, for example the fourth Friday each month, select the week, day of week and enter the frequency.
4. Enter a start date and an end date to define the **Recurrence range**. The maximum range for recurring meetings is 6 months.
5. Click **OK**.

Remove recurrence for a meeting

1. Open the meeting.
2. Click **Recurrent meeting**.
3. Click **Remove reccurence**.
4. Click **OK**. When saved, this meeting is now only scheduled once.

Related topics

- View planned meetings in the client
- Plan meetings in the client
- Find good slots for meetings in the client

Schedule overtime

Schedule overtime to add extra work hours for already scheduled agents. The overtime is added directly before or after the agent's shift, or scheduled as an overtime shift on a day where the agent is not already working. The scheduled overtime is not included in the target contract time for the period.

When scheduling overtime, you can control how long overtime hours to schedule and between which hours to add overtime. It is also possible to define if you want to adhere to the contract rules for weekly work time, weekly rest and nightly rest.

If you have asked the agents to enter when they are available to work overtime, you can choose to only schedule overtime on agents who have entered that they are available.

To see if any agents have entered availability for the time period where you need people, use the overtime availability filter. See Filter agents on overtime availability for more information.

> **NOTE** Overtime can also be scheduled by asking agents to send overtime requests. The requests can be automatically approved or denied based on the resource needs.

Prerequisites

- You have the Schedules > Automatic scheduling permission.
- You have the Global functions > View schedules permission.

- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.
- There must be a resource need on a skill with the selected skill activity, and the skill must be open.

Page location

Client > Schedules > Open schedule

Procedures

Schedule overtime

1. Select the agents and the dates to schedule overtime for.
    1. Click and drag to select consecutive dates or agents.
    2. Click the date header to select all agents for that date.
2. Click the arrow next to **Schedule** and select **Schedule overtime**.
3. Select a **Skill activity**. This is the activity that is connected to the skill that you want to schedule overtime for. The selected activity is used to calculated how much overtime that is needed.
4. Define the **Overtime duration**. This controls how much overtime that is added to each agent that is scheduled with overtime, for example minimum 30 minutes and maximum 1 hour.
5. Define **Between** which hours of the day to schedule overtime.
6. To schedule a full overtime shift on agents who have a day off, select from which shift bag to pick shifts in the **Use shifts from** menu.
7. If the scheduling of overtime can break any contract rules, select the check boxes for those rules; **Maximum work time per week**, **Nightly rest** or **Weekly rest**.
8. Select the **On available agents only** check box to only schedule overtime on agents who have entered that they are available for that time period. Otherwise, any of the selected agents can be scheduled with overtime.
9. Select the **Type of overtime** to be used. This defines how agents are compensated for working overtime. See How extra compensation works for more information.

10. If needed, select a schedule tag in the **Tag changes with** menu. The selected tag is applied to all days where overtime is scheduled.

Related topics

- Filter agents on overtime availability
- How extra compensation works
- Create rules to handle overtime requests
- Request to work extra hours

Filter agents on overtime availability

Filter the agents in the Schedule view to only show agents who have entered that they are available to work overtime during a specific interval.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.
- Agents have entered overtime availability.

Page location

Client > Schedules > Open schedule

Procedures

Filter agents on overtime availability

1. Select the day to apply the filter to.
2. Select the **Overtime availability** filter button.
3. Define the time period for which you want to check the availability.

4. Select if you want a full match or if a partial match is acceptable.
    - **Full**—Only agents who are available for the whole interval are shown.
    - **Full or partial**—Agents who are available for the whole interval or a part of the interval are shown.
5. Click **OK** to show agents who are available to work overtime during the defined interval.

Related topics

- Schedule overtime

Notify agents

Notify agents by SMS or email when there is important information. This can be used for example to notify agents that more agents are needed in the afternoon and that extra hours are available.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- A product activation key including the SMSLink license is applied.
- The notification settings are configured. See Turn on schedule change notifications.

Page location

Client > Schedules > Open schedule

Procedures

Notify agents via SMS or email

1. Select all agents to send a message to in the Schedule view.
2. Right-click and select **Notify agent**. A web page is opened where the selected agents are listed.
3. Enter your subject and message.
4. Click **Send**. Your message is sent to all listed agents in an email or an SMS, depending on the notification settings.

Related topics

- Turn on schedule change notifications
- Send messages to agents
- Configure notifications—Set up and assign notifications for the rest of the Webex WFO suite

Schedule hourly employees

Schedule agents with hourly contracts to add more resources, for example during peak hours or in the evenings. When scheduling hourly employees, the automatic scheduling procedure adds shifts on the days that are the most understaffed. More shifts are scheduled as long as the added shifts reduce the understaffing for a majority of the shift intervals. Ensure the shifts for the hourly staff support the staffing demand. For example, that there are both short and normal shift lengths.

You can guarantee the scheduling of an agent by setting a minimum required time in the contract settings in WFM. The minimum required time overrides any overstaffing.

The automatic scheduling of hourly employees can keep adding shifts even when the resource need is fulfilled if the agents' contracts state that they must at least work a defined number of hours per scheduled period.

The agents can give their input on when they are available to work. Consider their entered hourly availability when scheduling to only schedule those agents who have said that they are available. This is good to avoid schedule conflicts for agents who for example both work and study.

To see if any agents have entered availability for the time period where you need people, use the hourly availability filter. See Filter agents on hourly availability for more information.

Prerequisites

- You have the Schedules > Automatic scheduling permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Select agents and period and schedule hourly employees

1. Select the agents and the dates to schedule.
    - Click in the schedule view and select **Ctrl**+**A** keys to select all agents and all dates in this view.
    - Click and drag to select consecutive dates or agents.
    - Click the week header to select all agents for that week.
    - Click the agent name to select the full period for that agent.
2. Click the arrow next to **Schedule** and select **Schedule hourly employees**.
3. If needed, select a schedule tag in the **Tag changes with** menu.
4. The selected schedule tag is used for all days scheduled in this automatic scheduling.
5. Continue to go through the scheduling options described in the procedures below.
6. When you have selected everything that you want to consider when scheduling hourly employees, described in the procedures below, click **OK** to run the automatic scheduling.

    The selected settings are stored for your user. When you open the scheduling options, the options are always set as the previous time you ran the automatic scheduling.

Select which restrictions to consider when scheduling

Schedule according to the selected restrictions. The scheduling always fulfills the restrictions completely. For hourly employees, it’s common to only use the **Hourly availability** restriction.

1. In the scheduling options, select the **General** tab.
2. Select the **Preferences** check box to schedule all days in the selected period according to the agents' entered preferences on how to work and when to have their days off. If a day does not have any preferences, a shift is selected based on the business need.

    If the **Schedule only preference days** check box is selected, only days where agents have entered preferences are scheduled.

If the **Use preference must have** only check box is selected, only preference days that the agents have marked with **Must have** are scheduled. This can be used for example to set a specific schedule tag on the must have days.

3. Select the **Rotations** check box to schedule all days in the selected period according to the defined rotations.

   If the **Schedule only rotation days** check box is selected, the scheduling process only schedules days where the rotation defines what to schedule. This can be used for example to set a specific schedule tag on the rotation days.

4. Select the **Availability** check box to consider the defined availability pattern when scheduling.

   If the **Schedule only availability days** check box is selected, the scheduling process only schedules days where the availability pattern defines what to schedule.

5. Select the **Hourly availability** check box to only schedule the agents at times when they have entered that they are available.

6. Select the **Shift category limitation** check box to consider any set limitations on the number of shifts of a specific shift category per week or per schedule period.

Use minimum or maximum staffing limits

If there are limits for the minimum or maximum number of agents to schedule on the skills, ensure to consider those limits when scheduling.

> **NOTE** Scheduling with the min and max staffing options cannot ensure that these rules are fulfilled. The scheduling process prioritizes shifts that help fulfill these rules, but there might be situations where it is not possible.

1. In the scheduling options, select the **Advanced** tab.
2. Select **Use min staffing** to consider any limitations on minimum agents on the skills.
3. Select **Use max staffing** to consider any limitations on maximum agents on the skills.

Related topics

- Filter agents on hourly availability
- Tag schedule days

- Publish schedules

Filter agents on hourly availability

Filter the agents in the Schedule view to only show agents who have entered hourly availability for a specific interval. Hourly availability is mainly used for employees with an hourly contract.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.
- Agents have entered hourly availability.

Page location

Client > Schedules > Open schedule

Procedures

Filter agents on hourly availability

1. Select the day to apply the filter to.
2. Select the **Hourly availability** filter button.
3. Define the time period for which you want to check the availability.

   NOTE Only agents who are available for the full interval are shown.

4. Click **OK** to show agents who are available to work during the defined interval.

Related topics

- Schedule hourly employees

Review staffing levels

Use the Staffing tool to review the staffing levels for a skill or skill group. The staffing levels are shown for published schedules for today, 7 weeks forward and 7 days back. The staffing information can be exported to an Excel file for further reporting.

The staffing view is immediately updated by any changes to the forecast and by schedule changes made in the web scheduling tools or through agent requests. Changes made in the Schedules module in the WFM client are visible in the staffing view within an hour.

> **NOTE** The staffing view always shows a full business day based on the skill time zone. For example, if a skill is configured for time zone UTC -6 and is open from 8:00 AM to 6:00 PM, the staffing displays 8:00 AM to 6:00 PM when time zone UTC -6 is selected in the web schedule view. However, if the time zone view is changed to UTC +0, the staffing displays 2:00 PM to midnight.

Prerequisites

- You have the Staffing permission.

Page location

WFM > Staffing

Procedures

Select skills

Click one of the fields at the top to select an individual skill or a skill group.

Review staffing levels

The number of Forecasted agents and Scheduled agents are shown as lines in the staffing chart. The deviation between the forecasted and scheduled agents, that is the Understaffing or the Overstaffing, is shown as a bar for each interval.

Select the **Use shrinkage** check box to present the Forecasted agents value that takes shrinkage into consideration. Shrinkage is normally used for future periods, where there are more uncertainties regarding for example the amount of absences.

Hover a measure in the legend to highlight it. It is also possible to click a measure in the legend to hide it. This makes it easier to focus on the measures that are important to you. Click the measure again to show it.

NOTE The staffing value shown in the Staffing tool does not take agents' proficiency values into consideration.

Select which day to view

Use the arrows to go to the day before or the day after.

Use the calendar view to select a specific date.

Export staffing data to an Excel file

Export staffing data for a selected period to an Excel file. Staffing data is available from 7 days back and 7 weeks forward, counting from today.

NOTE

- The date format in the export is based on your culture settings.
- The Total scheduled agents measure shows the number of FTEs that are scheduled on this skill. The Total scheduled heads measure is the number of physical agents scheduled on this skill.

1. Select the skill you want to export staffing data for.

   The Excel export function is only available for individual skills, not for skill groups.

2. Click **Export to file**.
3. Select the date interval.
4. Click **Export** to download a file with the staffing data for the selected period.

View imported BPO files

If you are using BPO Exchange and have imported staffing files, information about the files that have been imported successfully for the selected day and skill is shown below the chart.

Hover the cursor over the file name for detailed information about the date and time of the import and which user that performed the import.

Related topics

- Export staffing gap
- Import staffing from external suppliers
- BPO exchange file formats
- Create skill groups

Export staffing gap

There might be situations, for example a peak period of the year, when your agents cannot fulfill the forecasted resource need. Use the BPO Exchange functionality to export the gap between the forecasted agents and the internally scheduled agents to a file. The export file can then be sent to an external supplier (a BPO).

The staffing gap can be exported for today and the next seven weeks. Choose to export the gap for an individual skill or for several skills at the same time using a skill group.

NOTE The export does not consider the shrinkage defined in the forecast.

Prerequisites

- The BPO Exchange license is applied.
- You have the Staffing > BPO Exchange permission.

Page location

WFM > Staffing > BPO Exchange

Procedures

Export staffing gap

Export the gap between the forecasted agents and the scheduled agents. See BPO exchange file formats for more information about the file format.

NOTE The times in the export file are according to your time zone, that is the time zone of the user who is doing the export.

1. Click **Export gap**.
2. Select the skill or skill group to export the gap for.

   If you export the gap for a skill group, the file contains the summarized staffing gap for all the skills included in the skill group.

3. Select the **Export period**. Available dates to export are today and seven weeks forward.
4. Click **Export to file**.

   The data is exported to a comma-separated CSV file.

Related topics

- Review staffing levels
- Import staffing from external suppliers
- BPO exchange file formats
- Create skill groups

Import staffing from external suppliers

Import staffing from external suppliers (BPOs) to be added in addition to any internal resources. The staffing import updates the staffing levels. This gives you a good foundation to make decisions on any further actions needed. For example, if you need to postpone meetings or ask agents to work extra time to fulfill the remaining resource need.

Previous imports can be overwritten by a new import. This is useful if the staffing numbers at the BPO changes over time. The new values overwrite the old values when a new staffing file is imported for the same BPO source, the same skill combination and the same intervals as the previously imported file.

When using different skill combinations in the import files, these are different resources, even if some of the skills are the same.

> **EXAMPLE** Two staffing files are imported. The first file is for the Direct Sales skill and the other file is for the Direct Sales skill and the Channel Sales skill. The agents in the first file are the considered to be single-skilled and the agents in the second file are considered to be multi-skilled.

The imported staffing data is displayed in the Staffing tool and the Intraday tool on web, as well as in the Schedules module in the client. The total scheduled time per skill, including the imported data, is shown in the standard report Forecast vs Scheduled Hours report.

It is possible to remove previously any imported staffing contribution for a BPO. This is useful when you for example want to stop using a BPO from a specific date.

Staffing imports can be done for today and the next seven weeks.

Prerequisites

- The BPO Exchange license is applied.
- You have the Staffing > BPO Exchange permission.

Page location

WFM > Staffing > BPO Exchange

Procedures

Import staffing

Import staffing from external suppliers. See BPO exchange file formats for more information about the required file format.

NOTE For Daylight Saving Time (DST) in the fall, you must remove the 1:45am to 2:00am interval in order to import a staffing file successfully.

1. Click **Import staffing**.
2. Drop the staffing file to import in the field or click to select a file to import.

   The staffing file is imported once you get the message that the import was successful. The successful imports are shown in the main Staffing view for the affected dates and skills.

Clear previously imported staffing

Clear staffing to remove the imported staffing contribution from a supplier. If you want to replace previously imported staffing for the same supplier and skill combination, import a new file instead. The staffing in the new file will overwrite the previously imported staffing.

1. Click **Clear staffing**.
2. Click in the **Select BPO** field and select the BPO that you want to remove the staffing for.
3. Select the period for which you want to remove data. Maximum seven weeks forward from today can be selected.
4. Click **Remove**.
5. Click **Yes** to confirm.

Related topics

- Review staffing levels
- Export staffing gap

- BPO exchange file formats
- Forecast vs Scheduled Hours report

BPO exchange file formats

Use the BPO Exchange functionality when an external supplier handles part of your workload. Export the gap between the forecasted agents and the internally scheduled agents to a file to send to an external supplier (a BPO). When the BPO has scheduled according to your resource need, you can import their external staffing for you to get a good overview of the staffing situation.

This section describes the file formats for the export file and the import file.

Export file format

The BPO Exchange export file format is the same format as used in the forecast import. The times in the export file are in your time zone, that is in the time zone of the user who is doing the export.

Export file columns

Column	Format	Description
skillname	string 50	The name of the skill to export the gap for
startdatetime	yyyyMMdd HH:mm	The date and the time for the start of the interval.
enddatetime	yyyyMMdd HH:mm	The date and the time for the end of the interval.
tasks	integer	Included to be compatible with the forecast import. Always zero in the export.
tasktime	seconds decimal	Included to be compatible with the forecast import. Always zero in the export.
aftertasktime	seconds decimal	Included to be compatible with the forecast import. Always zero in the export.
agents	decimal	The number of agents needed to cover the gap between forecasted and scheduled agents.

EXAMPLE

Insurance,20210326 08:00,20210326 08:15,0,0,0,16.85

Insurance,20210326 08:15,20210326 08:30,0,0,0,21.48

Insurance,20210326 08:30,20210326 08:45,0,0,0,28.43

Import file format

There are a number of requirements that the staffing import file must fulfill for the import to be successful.

- The dates included in the import file must have a forecast for the skill or skill combination.
- The intervals included in the import must be within the skill open hours.
- The times in the export file must be in your time zone, that is in the time zone of the user who is doing the import.
- The file encoding must be UTF-8.
- The file must contain all the columns listed below.

Import file columns

Column	Format	Description
source	string 100	The name of the BPO. This is required to handle imports from different BPOs separately.
skillcombination	string	The skill or combination of skills. If the agents have more than one skill, use | to separate the skills. See the example below.
startdatetime	yyyy-MM-dd HH:mm or yyyyMMdd HH:mm	The date and the time for the start of the interval.
enddatetime	yyyy-MM-dd HH:mm or yyyyMMdd HH:mm	The date and the time for the end of the interval.
agents	decimal	Number of agents scheduled at the BPO for this interval.

EXAMPLE

BPO1,Channel Sales|Direct Sales,2021-04-01 10:00,2021-04-01 10:15,12.5

BPO1,Channel Sales|Direct Sales,2021-04-01 10:15,2021-04-01 10:30,17.0

BPO1,Channel Sales|Direct Sales,2021-04-01 10:30,2021-04-01 10:45,18.5

Related topics

- Export staffing gap
- Import staffing from external suppliers

How shift bidding works

Shift bidding is a process where agents bid for which weekly shift pattern they prefer. The agents are assigned shift patterns in accordance to their rank and agents with a higher rank are more likely to get the shift pattern they want. They are then scheduled according to the assigned shift pattern each week until there is a new bid process.

This topic includes some recommendations on how to prepare for the bid process, and how to configure it.

Prepare for a bid process

The shift patterns which agents bid on are based on actual schedules for a selected week. Therefore you need to prepare the schedules to use.

1. Create a shift bidding scenario. This scenario can be reused each time you create a new bid process.
2. Create a forecast for three typical weeks. Save it in the shift bidding scenario.
3. Schedule and optimize agents for those three weeks in the shift bidding scenario. If you want each shift pattern to have the same start time for the days within the pattern, use block scheduling and select to use same start time within the schedule period.

   Create the schedule either for the actual agents or for dummy agents that you have created for this purpose. Agents who are only scheduled in a different scenario than the default scenario do not count towards the number of scheduled agents used to calculate the license cost.
4. All agents who are included in a bid process must have a unique rank. Determine what criteria to rank the agents by. Available criteria are employment start date, any optional columns, and a random numeric value. The employment start date is useful to rank by seniority. The optional columns are useful to rank by any external ranking process. The random criteria can be used as a tiebreaker.

Configure the bid process

Create bid processes to assign shift patterns to use for a selected group of agents. This shift pattern is used for scheduling the included agents until the next bid process assigns new shift patterns (or you decide to not use shift patterns when scheduling). These are the main steps for managing a bid process.

1. Define the periods of the bid process.
    - Give the agents for example a week to preview the patterns that will be available to bid on, to give them the chance to talk to family and friends about what shift patterns to prioritize.
    - The bid period should be at least a week, to ensure that all agents have a chance to place their bids, even if they are not working every day.
    - The schedule start date is the date from which the patterns assigned in this bid process are scheduled.
    - Be clear in the public note about for which period the shifts assigned in this bid process apply, for example three months from the schedule start date. This is also a good place to provide information to the agents on for example how many patterns they need to rank in their bid.
2. Select and rank agents.
    - Include agents in the same bid processes if they have similar contract rules and work hours. It's also recommended that they have the same skills to ensure good coverage.
    - The number of agents and which team they work in is constantly changing. Ensure to select the schedule start date when adding agents to consider any known changes between now and then and include the right people in the bid process.
    - Rank the agents according to for example their start date or any numeric information in optional columns. This could for example be performance information, like agents' gamification leaderboard position. The rank must be unique for each agent, so in some situations you might need to add additional criteria to use as the basis for the ranking.
3. Select shift patterns.
    - The shift patterns are based on a 7-day period in the schedule you prepared in the shift bidding scenario. Select to load the schedules from the middle week of the three weeks that you prepared.
    - If the number of agents in the bid process is higher or lower than the number of shift patterns, add or remove shift patterns until the numbers match.
    - Note that the shift patterns which you offer in the bid process must be available in the agents' shift bags in order to schedule the agents according to their bids.
4. Activate the bid process.

See View and create bid processes for more information.

Manage the active bid process

When the bid process is active and agents are placing their bids, follow up to ensure that agents are placing bids and that they have placed bids on enough shift patterns.

1. Use the **Progress** tab to view how many shifts the agents have ranked. If the agents have ranked as many patterns as their rank position, they will get one of the patterns that they have ranked.
2. Use the **Preview results** tab to see which pattern that will be assigned to the agents according to the currently placed bids, and which patterns that are not assigned to any agent.
3. If there are still unassigned patterns when the bid period is over, you can force those patterns to the agents who don't have any in the preview results.
4. Finalize the bid process to make the results available for scheduling.

See Manage active bid processes for more information.

Schedule according to assigned shift patterns

When the bid process is finalized, you can schedule according to the assigned patterns. The only thing you need to remember is to select the **Shift patterns** check box when scheduling and when optimizing schedules for agents included in the bid process.

The shift pattern for each agent and day is displayed in the Restrictions tab in the agent info panel.

Related topics

- View and create bid processes
- Manage active bid processes
- Bid on shift patterns—agent perspective

View and create bid processes

The topic describes how to create and configure bid processes for shift bidding. If you have not created a bid process before, see How shift bidding works for an overview of how the process works and some important preparations.

The Shift bidding view gives you an overview of all shift bidding processes. The bid processes can be in three different stages.

- **Inactive**—This stage is when you configure the bid process.
- **Active**—This stage is when the configuration of the bid process is completed, and agents are previewing the shift patterns or placing bids. When the bidding is done, you can make adjustments and then finalize the bid process.
- **Finalized**—This stage is when the bid process is completed, the shift patterns are assigned to the agents, and those patterns can be used for scheduling.

Prerequisites

- You have the Web > Shift bidding permission to view the bid processes.
- You have the Web > Shift bidding > Manage bid process permission to create and configure bid processes.
- You have prepared a schedule to use in the creation of shift patterns. See How shift bidding works for more information.

Page location

WFM > Shift bidding

Procedures

View bid processes

The Shift bidding view shows all bid processes.

- Click the name of the bid process or any of the links, like **Settings** or **Agents**, to see the details.
- For all bid processes, the number of agents and the number of shift patterns are shown.
- For inactive bid processes, the checklist is shown to indicate what is already configured and what is left to do.
- For active bid processes, there is a progress bar showing the three steps; *Preview*, *Bidding* and *Closed*. A filled blue circle indicates that the step is ongoing and a blue circle with a check mark indicates that the step is completed.
    - Click **Progress** to see if agents have placed their bids.

- Click **Preview results** to see which patterns that are assigned and how many that are still unassigned.

- For finalized bid processes, you can see how many of the selected agents that were assigned shift patterns.
  - Click **Report** to see how many of the patterns that were forced and how many that were unassigned.
  - Click **Results** to see the assigned shift patterns for all agents.
- Use the filter to more easily find the bid processes you are looking for.
  - Click the **Inactive**, **Active** or **Finalized** button at the top of the list to only show bid processes with the selected status.

Create a new bid process

Create a new bid process and select for which dates it applies. After completing this step, the first four items on the checklist are green.

1. Click **New bid process**.
2. Enter a name for the bid process.
3. Select a **Preview start date**. This is the date when the agents can see the shift patterns that are available to bid on, but before they can place any bids. The purpose of the preview is to for example give the agents a chance to discuss with their family before they place their bids.
4. Select a **Bidding start date**. This is the date when the agents can start placing their bids.
5. Select a **Bidding end date**. This is the last date when agents can place bids in this process.
6. Select a **Schedule start date**. This is the date from which the patterns assigned in this bid process are scheduled.
7. Select a **Pattern type**. This controls which parameters to use for the shift patterns in this bid process. When scheduling agents according to the shift patterns, the scheduling process adheres to the parameters of the selected pattern type.
   - *Start and end time*—The start and end time of each shift are shown to the agents when they are bidding on the shift patterns. When scheduling according to the bid process, the start and end times of each scheduled shift follow the agent's assigned shift pattern.

- *Start time*—Only the start time of each shift is shown to the agents when they are bidding on the shift patterns. When scheduling according to the bid process, the start time of each scheduled shift follows the agent's assigned shift pattern.
- *Start time and contract time*—The start time and contract time of each shift are shown to the agents when they are bidding on the shift patterns. When scheduling according to the bid process, the start time and contract time of each scheduled shift follow the agent's assigned shift pattern.

8. Select the **Use shift category** check box if you want to use shift category as an additional parameter for the shift patterns in this bid process. This can be used for example to let agents bid on specific types of shifts.
9. Enter a **Public note**. This note is shown to the agent who are in the bid process.
10. Click **Save**.
11. Continue by selecting and ranking agents.

Select and rank agents

Select and rank the agents who are going to bid in this bid process. After completing this step, the checklist items *Add agents*, *Rank agents*, *Unique ranks*, and *Ensure no missing ranks* are green.

1. For the selected bid process, select the **Agents** tab.
2. Click **Add agents**.
3. Select the date for which to load sites and teams. The agents included are the ones who belong to the team, site or group page based on their settings for the selected date. In most cases, the best choice is to select the same date as the schedule start date for the bid process.
4. Select sites and teams, or group pages to include in this bid process. It is important that the shift patterns which agents bid on can be scheduled for those agents. Therefore, the agents who are included in the same bid processes must have similar contract rules and work hours.
5. Click **Add all** to add all the agents for the selected teams, sites and group pages or select some of those agents and then click **Add selected**.
6. Click **Rank agents**.
7. Click the **Select a criteria** field and select a criteria to rank by from the list. Available criteria to rank by are *Start date*, any optional columns and *Random*. The *Start date* criteria uses the *Employment start date* set in the web People tool. The *Random* criteria assigns a randomized number

to each agent included in the bid process.

> **NOTE** When agents are ranked by the values in an optional column, their rank for a bid process does not updated automatically if the value in the optional column changes. You must manually update the ranks. The ranks can only be updated for inactive bid processes.

8. Select to rank agents **Ascending** or **Descending** based on this criteria.
9. All agents must have a unique rank. If needed, click **Add criteria** to add additional criteria to rank by.

> **EXAMPLE** Agents are primarily ranked by start date. Some agents started on the same day, and therefore have the same rank. The *Random* criteria is added to give those agents a unique rank.

10. Click **Fetch rankings** to load the criteria values and show the ranks based on those values.
11. Click **Save**.
12. Continue by selecting shift patterns.

Select shift patterns

Select shift patterns for the agents to bid on. After completing this step, the checklist items *Add shift patterns* and *Ensure all shift patterns are valid* are green.

1. For the selected bid process, select the **Shift patterns** tab.
2. Click **Add shift patterns**.
3. Select the sites and teams or the group pages to load shift patterns from.

> **EXAMPLE**
> - Load shift patterns from a selected site to create a bid process for that specific site.
> - Load shift patterns from a selected *Contract* group page to create a bid process for part-time employees.
> - Load shift patterns from a selection of both a site and a *Contract* group page to create a bid process for the part-time employees in that site.

4. Select from which scenario to load shift patterns.
5. Select a date. Shift patterns will be loaded from a 7-day period starting on the selected day.
6. Click **Fetch patterns** to load shift patterns based on the schedule for the selected agents in the selected scenario.

7. Select the patterns that you want the agents to bid on. Normally, you can select all the patterns.
8. Click **Add selected** to add the selected patterns to the bid process, or **Add all** to add all the loaded patterns. The details shown for the shift patterns are based on the selected pattern type and if shift category is set to be included in this bid process.

   > **NOTE** By default the shift patterns are shown according to your configured time zone. Select the agents' time zone to show the start and end times for the shift patterns from their point of view.

9. Click the plus or minus button for a pattern to balance the number of added shift patterns with the number of agents. You can also click the check box to select patterns, and then click **Remove selected shift patterns** if you need to remove more patterns.

   The balance between the number of agents and the number of shift patterns is important for you to control which shift patterns that are assigned. This is your way to control good coverage. When the numbers match, the items *Agents* and *Shift patterns* in the checklist are green.

10. Continue by activating the bid process.

Activate bid process

Activate the bid process. Active bid processes are shown to agents on the preview start date.

1. For the selected inactive bid process, click **Activate bid process**.
2. Click **Activate** to confirm.

   > **NOTE** See Manage active bid processes for more information on how to manage the active bid process and finalize it.

Related topics

- How shift bidding works
- Manage active bid processes
- Bid on shift patterns

Manage active bid processes

This topic describes how to manage an active bid process, and finalize the bid process to make the assigned patterns available for scheduling.

NOTE For more information on how to create and configure a bid process, see View and create bid processes.

Prerequisites

- You have the Web > Shift bidding > Manage bid process permission to manage and finalize bid processes.
- You have the Web > Shift bidding > Place delegated bid permission to place bids on behalf of agents.
- You have created and activated a bid process. See View and create bid processes for more information.

Page location

WFM > Shift bidding > Select a bid process

Procedures

Check the progress of an active bid process

- For the selected active bid process, select the **Progress** tab.
- The agents are shown in the order of their rank. For each agent, view how many of the total patterns they have ranked. The agent should rank at least as many patterns as indicated by their own rank.
- You can also see if the latest changes were done by the agent or by an administrator.

Place a bid on behalf of an agent

1. For the selected active bid process, select the **Progress** tab.
2. Click **Place bid** for the agent whose bid you want to place.
3. Click the preferred shift patterns to select them and click the arrow to move them to the list of ranked patterns.

   You can select the check boxes for the preferred **Days off**, or use the filters for **Earliest start time** and **Latest start time**, to more easily find the preferred shift patterns.
4. Drag and drop the ranked patterns to the preferred order.
5. Click **Save**.

Remove agents from the bid process

If an agent no longer should participate in the bid process, for example because they resigned, remove them from the bid process.

1. For the selected active bid process, select the **Agents** tab.
2. Select the agents to remove.
3. Click **Remove selected agents**.
4. When you remove agents, the bid process often have more shift patterns than agents. To address that, remove the same number of shift patterns.

Remove shift patterns from the bid process

You often need to remove shift patterns from the bid process if you have remove agents from the bid process.

1. For the selected active bid process, select the **Shift patterns** tab.
2. Select the shift patterns to remove.
3. Click **Remove selected shift patterns**.
4. Click **OK** to confirm the removal.

   If there are more than one occurrence of the selected shift pattern, this is mentioned in the confirmation message. If you click **OK**, all occurrences of this shift pattern is removed. To only remove one occurrence, click the minus button for this pattern.

Preview results and force unassigned patterns

1. For the selected active bid process, select the **Preview results** tab. This view shows a preview of the results from two perspectives.
   - The **Agents** view shows what patterns the agents would be assigned if the bid process was finalized now. The **Choice** column shows in which position the agents ranked these patterns.
   - The **Shift patterns** view shows what shift patterns that are assigned and which ones that are still unassigned.
2. If the bid period is over and there are still unassigned shifts, you can force the unassigned patterns to the agents who have not bid at all or not included enough patterns in their bid. These patterns are then randomly assigned.

3. Continue by finalizing the bid process.

Finalize bid process

Finalize the bid process to make the results available for scheduling.

1. For the selected active bid process, select the **Preview results** tab.
2. If you are happy with the preview results, click **Finalize bid process**.
3. Click **Finalize** to confirm.

Follow up on a finalized bid process

- Select the **Results** tab. It shows what patterns the agents were assigned in the bid process.
  - The **Choice** column shows in which position the agents had ranked the pattern they were assigned.
  - Click an agent's name to show how the agent ranked the patterns.
  - Click **Export to CSV** to export all agents' assigned patterns.
- Select the **Report** tab. It shows how many agents that got their number 1 pattern choice, how many agents that got their number 2 pattern choice, and so on.
  - Click **Agents** on any row to see the names of the agents.
  - *Forced* means the agent got a pattern they had not ranked.
  - *Unassigned* means that the agent didn't get any pattern assigned.

Related topics

- View and create bid processes

Review agent details

Review the details about the rules and restrictions that apply to a specific agent. This is useful when troubleshooting, for example to understand why an agent has not been scheduled.

Prerequisites

- You have the Schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Show detailed agent information

1. Select the **Info** button. The **Info** panel is shown on the right side of the window.
2. Ensure that the **Info** tab is selected.
3. Select the agent and day to show details for in the Schedule view. This is important because most of the information on the agent **Info** tab is based on the selected period. The information can be different if the next day is selected, for example because a new person period or schedule period starts.

Review an agent's schedule period information

- The **Schedule period** tab presents information related to the agent's schedule period.
- The dates for the selected schedule period and the targets for that period are shown in the **Period** section. Any values within parentheses clarify if there is any tolerance for that parameter.
- The **Current** section contains information about what is currently scheduled for the agent in this schedule period. Any value that differs from the target for the period is displayed in red.
- The **Schedule period** tab also shows information on the number of currently unscheduled days in the schedule period, and the average work time needed for the unscheduled days to fulfill the target.

Review an agent's restrictions

- The **Restrictions** tab displays to what percentage the restrictions are fulfilled and the details for any restrictions that apply on the selected day. You can also follow up on the agent's personal accounts for different types of absences.
- The restriction fulfillment calculation is based on the days with restrictions and scheduled shifts in the selected schedule period. For example, if only two days in the schedule period have preferences, the fulfillment is 50% if one of the days is fulfilled.
- The sections for **Availability**, **Rotations**, **Hourly availability**, **Overtime availability**, **Preference**, **Shift category limitations** and **Shift patterns** show the detailed restrictions that apply for the selected day.

- The personal accounts are shown for each type of absence. This gives you an overview of the number of days or hours that the agent has used for the ongoing period and how many that they have remaining. The personal accounts for last year, current year and next year are shown.

Review an agent's person period information

- The **Person period** tab shows information about the selected agent's person period.
- The **Period** section presents when the ongoing period started and ends and what team the agent belongs to.
- The **Person skills** section shows the agent's active skills and their proficiency level for those.
- If there is a limit on **Max seats** for the site that the agent belongs to, the site shows here.
- The **Person period** tab also includes information on the agents **Contract**, **Contract schedule**, **Part-time percentage**, **Employment type**, **Shift bag** and **Budget group**.

Review general information about an agent

- The **Person** tab displays general information about the agent, such as their email address, employment number and any note entered for them in the People module.
- The information on which **Workflow control set** the agent belongs to, which time zone they are in and what day of the week that the work week starts on can all be interesting when troubleshooting any scheduling issues for this agent.
- The **Optional column** section contain the defined values for the selected agent for each optional column in the People module.

Review fairness for an agent

The **Fairness** tab helps you compare the selected agent's schedule for the schedule period to the schedules of other agents in the same team or group page. Select which group to compare with at the top of the tab.

Review the percentage of the agent's scheduled shifts that are of a specific shift category and compare it to what the percentages are for the team or group page and for all agents loaded to schedules. This includes not only the agents you can see, but all agents who have any of the skills that are shown as tabs.

> **NOTE** The percentages on the **Fairness** tab are based on the period that is open in the Schedules module and the closest schedule period before the opened period.

Related topics

- Review scheduling issues

Sort schedules

Sort the schedule in the Schedules module in the client to easily find the agents or shifts you want to work with. Sort on agent names, scheduled time or days off or use parameters such as start time, end time, shift contract time and seniority ranking.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > View unpublished schedules permission to view schedules that are not yet published.

Page location

Client > Schedules > Open schedule

Procedures

Sort by names or other columns

1. In the Schedule view, double-click on the heading of the column you want to sort on. The rows are sorted ascending according to the selected column
2. Double-click again to sort descending.

Sort by scheduled shifts

1. In the Schedule view, select the day to sort by.
2. Right-click, select **Sort by** and select what to sort by.

Related topics

- Select on what level to view schedules

- Filter agents

Filter agents

Use the agent filter in the Schedules module in the Windows client to find the agents to work with. Either select sites, teams or group pages to filter agents or use the advanced filter to filter agents based on a search.

The filter view shows the agents that you selected when you opened the Schedules module. The first tab shows the business hierarchy and the following tabs show the available group pages. It is possible to combine selections from different tabs. For example, select one team on the **Business hierarchy** tab and select the group "100%" on the **Part-time percentage** tab to show full-time employees in the selected team.

With the advanced filter you can search for agents by their name, email address, application logon or employment number.

NOTE The agent filter uses the selected date. Agents can for example change teams or add more skills over time. Ensure to select a relevant date to display the correct information.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Filter agents

1. Click the **Agents** filter button.
2. Select a tab, either the **Business hierarchy** tab or one of the group pages.
3. Select check boxes to select agents, teams or group pages.

4. Repeat the previous two steps to combine selections on different tabs.
5. Click **OK**.

Search for agents to show

Search for and add one agent at a time.

1. Click the **Agents** filter button.
2. Click **Advanced**.
3. Enter the text to search for in the **Search** field, for example a name or employment number.
4. Double-click an agent in the **Possible matches** section to add them to the **Filtered results**.
5. Click **OK** to show only the agents on the filtered results list in the Schedule view

Search for multiple agents at a time

Use the **Multiple** tab in the advanced filter to for example paste a string of names, resolve that string to match with agent names and filter out those agents.

1. Click the **Agents** filter button.
2. Click **Advanced**.
3. Click the **Multiple** tab.
4. Type or paste the text to filter on in the **Search** field. For example, paste a string of comma-separated names or employment numbers, copied from Excel.
5. Click **Resolve**.

   If one part of the text matched with a specific agent, this agent is automatically added to the **Filtered results** list. If there is any text that couldn't be matched with one agent, it will remain in the **Search** field. This is because the text either matches with more than one agent or that it doesn’t match with any agent.
6. Click **OK** to show the agents on the **Filtered results** list in the Schedule view.

Remove the filter

To remove the filter and show all agents you have opened again, follow the instruction below.

1. Click the **Agents** filter button.
2. Select the top-level check box on the **Business hierarchy** tab.

3. Click **OK** to show all agents again.

Related topics

- Sort schedules
- Find an agent

Find an agent

Find a specific agent in the Schedules module in the Windows client with the **Find** function.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Find an agent

1. Click the **Find** button.
2. Enter a text to search by in the text field.

   You can search by first name, last name, employment number or the note defined on the **General** tab in People.
3. Double-click the agent's name in the list of search results.

   The agent is shown as selected in the Schedule view.

Related topics

- Filter agents
- Sort schedules

Add schedule notes

Add internal notes to scheduled days to use as reminders for yourself and other schedulers. The internal notes are shown in the Schedules module in the client and in the Schedules tool.

Add public notes to schedule days to inform or remind an agent of something. The public notes are shown in the Schedules module in the client, in the Schedules tool, and in the schedule view in MyTime.

Internal and public notes are also possible to add and edit in the Schedules tool. See Make schedule changes (Schedules tool).

If there is a note on a day, this is indicated in the schedule views.

- In the Schedules module, a small blue arrow is shown in the top left corner of that agent and day.
- In the Schedules tool, a speech bubble is shown for that agent and day.
- In MyTime, an exclamation mark icon is shown for that agent and day if there is a public note.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Add a note

1. Select the agent and shift in the Schedule view.
2. Ensure that the **Editor** button is selected.
3. Select the **Note** tab in the editor.
4. Enter text in the **Internal** note or **Public** note field, depending on who you want the note to be visible to.

Delete a note

1. Select the agent and shift in the Schedule view.
2. Ensure that the **Editor** button is selected.
3. Select the **Note** tab in the editor.
4. Click the **Delete** button next to the note that you want to delete.

Related topics

- Tag schedule days
- Send messages to agents

Tag schedule days

Use schedule tags to mark days with a custom definition. Tags can be added manually, to days that are changed in the automatic scheduling or optimization and to days where manual changes are done.

The schedule tags can be used to lock all days with a certain tag, to prevent that it is changed by mistake.

> **EXAMPLE** The automatic tag is set to "Manual". All days where you perform manual changes, for example adding absences or moving lunches, are then automatically tagged with the tag "Manual". Lock the days tagged with “Manual”, to prevent those days from being changed by the optimization.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.

- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.
- Schedule tags are created. See Create schedule tags.

Page location

Client > Schedules > Open schedule

Procedures

Tag schedule days manually

1. Select the days to tag in the **Schedule** view.
2. Click the small arrow next to **Set tag** and select the schedule tag to use.

Automatically tag days where the schedule is changed manually

- Select the tag to use in the **Auto tag** menu. Days where you make manual changes are then automatically tagged with the selected tag.

Tag schedule days that are changed by automatic scheduling or optimization

1. Select the days to schedule or optimize.
2. Open the scheduling or optimization options.
3. Select the schedule tag you want to add in the **Tag changes with** menu.
4. Start scheduling or optimizing. All days that are scheduled, respective the days that are changed by the optimization are tagged with the selected tag.

Remove schedule tags

1. Select all days where you want to remove any set schedule tag.
2. Click the small arrow next to Set tag and select <None>. The previously set tags are removed from the selected days.

Related topics

- Edit scheduled shifts
- Run automatic scheduling
- Optimize schedule
- Schedule hourly employees

Lock schedule days

Lock days in the schedule to prevent them from being changed by the automatic scheduling, optimization or by manual changes. This is useful to temporarily block changes to certain days in the period that you are currently working on.

You can lock schedule items, like days off, a specific shift category or an absence type. It is also possible to lock any shifts you select. The lock always applies to the whole day.

Locked days are indicated with a pattern on small gray dots.

NOTE The locks are only applied in the ongoing session. They are not shown to other users and are not saved for your next session.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Lock selected days

1. Select the days you want to lock in the Schedule view.
2. Click **Lock**.

Lock all days with a selected schedule item

1. Click the small arrow next to **Lock**.
2. Select the item to lock.
3. Select to lock all days with that item scheduled or to lock a specific type of that item, for example one absence type.

   All days in the opened period where the selected item is scheduled are locked.

Lock all days with a selected schedule tag

1. Click the small arrow next to **Lock**.
2. Select **Lock tags**.
3. Select the schedule tag to lock.

   All days in the opened period that are tagged with the selected tag are locked.

Unlock selected days

1. Select the days to unlock in the Schedule view.
2. Click the small arrow next to **Unlock**.
3. Select **Unlock selection**.

Unlock all days

- Click **Unlock** to remove the lock from all days in the open period.

Related topics

- Tag schedule days
- Write-protect schedules

Write-protect schedules

Write-protect schedules to prevent users from making changes. This is mainly used to protect the schedule for past days from being changed retroactively.

Write-protection can be applied in two ways.

- Automatically to all days that are a defined number of days back from current date. This is configured on the agents' workflow control set. See Set up basic workflow control set rules for more information.
- Manually in the Schedules module, described in this topic.

When you select a date and apply write-protection manually, that day and all days prior to that day are write-protected. Write-protection can be applied for individual agents, if needed.

Write-protected days are indicated with a pattern of small red dots.

NOTE Users with the Global > Modify write-protected schedule permission can make schedule changes also for days where the schedule is write-protected.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Set write-protection permission.

Page location

Client > Schedules > Open schedule

Procedures

Apply write-protection

1. Select the agents and the date to add the write-protection for.
2. Click the small arrow next to **Lock** and select **Write-protect schedule**. The selected date and all days prior to that day are write-protected.

Remove write-protection

> **NOTE** Write-protection that is applied by the setting on the workflow control set cannot be removed in Schedules.

1. Select the agents to remove the write-protection from
2. Click the small arrow next to **Lock** and select **Remove write-protection**. The write protection is removed from the schedule for all selected agents.

Related topics

- Set up basic workflow control set rules
- Lock schedule days

Work with different time zones

The default time zone that is applied when you open the Schedules module is the time zone that is defined for your user. This is used in the Result view, the Schedule view and the Editor.

When you work with agents in other time zones than your own, you can select to change the viewpoint to their time zone. This is useful to get an overview of the schedule from their perspective.

> **NOTE** If you copy a shift from one agent and paste it to an agent in another time zone, the start and end times are adjusted. For example, if you copy an 8AM to 5PM shift for an agent in the Stockholm time zone and paste it to an agent in the London time zone, the pasted shift is still 8AM to 5PM in Stockholm time zone, but shows as 7AM - 4PM for the London agent.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Select which time zone to use

1. Click the time zone stated at the bottom of the window.
2. Select the time zone to use.

Switch to an agent's time zone

- Right-click an agent and select **Switch to viewpoint of selected agent**.

Related topics

- Select on what level to view schedules

View scheduled time

View scheduled time directly in the Schedules module to see how much time that is scheduled for a selected period.

Select one or more shifts in the Schedule view. The total time of the selected shifts is shown in the status row, in the bottom right corner. You can select to show the total contract time, paid time, work time or overtime of the selected shifts. When you open the Schedules module, contract time is always selected.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Follow up on scheduled time

1. Select shifts in the Schedule view.
2. See the total time in the bottom right corner of the window.

3. To change the type of time to view, click the shift time shown in the bottom right corner and select what type of time to view.

Related topics

- Review agent details

Select on what level to view schedules

The schedules in the Schedules module can be viewed on three different levels.

Day

Shows the schedule for all agents for one day, including detailed information about the start and end time of the shifts and the shift activities.

Week

Shows the schedules for all agents. Each day shows a small image of the shift with information on the shift category, start and end time of the shift, and the length of the shift. The Week level view shows additional information symbols not shown on the other levels to indicate the fulfillment of any restrictions, for example if preferences are fulfilled or not.

Period

An overview of the schedules for all agents for the opened period. An abbreviation indicates the shift category, type of full day absence or day off that has been scheduled for each day.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Select on what level to view schedules

- Select **Day**, **Week** or **Period** level in the top bar.

Related topics

- Schedules module (WFM client)
- Work with different time zones
- Sort schedules
- Filter agents
- Review optimization result

Schedule information symbol overview

The information symbols in the Schedule view help you easily see for example that overtime is scheduled, that the agent's preferences are not fulfilled or that there is a validation warning due to a violation of the work rules. See Follow up on validation warnings for more info on how to handle those.

Some of the schedule information symbols are visible in all levels of the Schedule view and some only on the Week level.

Symbols visible on all schedule view levels

The following information symbols are visible in all schedule views.

Schedule information symbols in all schedule views

Symbol	Description	Color	Meaning
	Arrow up left	Red	There is a validation warning for this day, indicating that a work rule is broken.
	Arrow up left	Blue	An internal or public note is added for this day.
	Arrow up right	Blue	A personal activity is scheduled on this day.
	Arrow down left	Blue	A part-day absence is scheduled on this day.
	Arrow down right	Black	A meeting is scheduled on this day.
	Square	Orange	Overtime is scheduled on this day.

Symbols only visible on week level

The information symbols indicating the fulfillment of restrictions are only visible in the week view.

These symbols are green if the restriction is fulfilled, red if it is not fulfilled and gray if the day is not yet scheduled.

Schedule information symbols in schedule week view

Symbol	Description	Color	Meaning
	Arrow down left	Green, gray or red	Preference fulfillment.
	Heart	Green, gray or red	Marked as a must have preference.
	Circle	Green, gray or red	Rotation fulfillment.
	Square	Green, gray or red	Availability fulfillment.
	Arrow up left	Green, gray or red	Hourly availability fulfillment.
	Square	Green and gray	Parts of the hourly availability used.

Schedule view patterns

In some situations, a pattern is added to the schedule days. The patterns are shown in all schedule views.

Schedule view patterns

Pattern	Description	Color	Meaning
	Grid	Black	No active person period. This means the agent has not yet started, or they have left their employment.
	Dots	Black	A lock is applied to the schedule day.
	Dots	Red	The schedule is write-protected.

Related topics

- Follow up on validation warnings
- Select on what level to view schedules
- Lock schedule days
- Write-protect schedules

Keyboard shortcuts in WFM

This topic lists the keyboard shortcuts used for WFM in the web tools and the WFM client.

NOTE When using the Schedules tool on macOS, use ⌥ instead of Alt.

Web tools

Keyboard shortcuts in Schedules

Schedules	
Enter	Open organization search or start search.
Tab	Move selection of for example button, check box, or menu.
Space	Select for example a site or team, to expand a site, or switch between AM and PM when using US culture settings.
Esc	Close menus.
Alt+T	Add activity.
Alt+P	Add personal activity.
Alt+Q	Add part-day absence.
Alt+A	Add full-day absence.
Alt+O	Add overtime activity.
Alt+D	Add day off.
Alt+I	Move overlapped activities which are not overwritable.
Alt+E	Move shift.
Alt+X	Remove activity.
Alt+R	Remove absence.
Alt+B	Remove day off.
Alt+H	Replace activity.
Alt+L	Replace absence.

Schedules	
Ctrl+Z	Undo. See Make schedule changes (Schedules tool) for more information on the requirements for the Undo function.

Keyboard shortcuts in Requests

Requests	
Enter	Open organization search or start search.
Tab	Move selection of button, check box or menu.
Space	Select, for example select a site or team or select to expand a site.
Esc	Close menus.

WFM client

Keyboard shortcuts in the WFM client

Commonly used shortcuts	
Ctrl+A	Select all.
Ctrl+C	Copy.
Ctrl+S	Save.
Ctrl+V	Paste.
Del	Delete.
Shift+End	Select all cells from the selected cell to the end of the row.
Shift+Home	Select all cells from the selected cell to the start of the row.
Shift+Down/Up/Left/Right	Select cells from the selected cell and one step in the chosen direction.
Shift+Ctrl+Down/Up/Left/Right	Select all cells from the selected cell to the end of the row or column in the chosen direction.

Keyboard shortcuts for navigation in the WFM client

Navigation	
Ctrl+1	Navigate to People.
Ctrl+2	Navigate to Forecasts.
Ctrl+3	Navigate to Shifts.
Ctrl+4	Navigate to Schedules.
Ctrl+5	Navigate to Intraday.
Ctrl+6	Navigate to Reports.
Ctrl+7	Navigate to Budgets.
Ctrl+8	Navigate to Performance Manager.
Ctrl+9	Navigate to Payroll Integration.

Keyboard shortcuts in the People module

People module	
Ctrl+F	Find.

Keyboard shortcuts in the Shifts module

Shifts module	
Ctrl+N	New.
Ctrl+R	Refresh.
F2	Rename.
F5	Update.

Keyboard shortcuts in the Schedules module

Schedules module	
F12	Schedule.
F11	Optimize.
Alt+A	Add absence.
Alt+F	Add day off.
Alt+T	Add activity.
Alt+O	Add overtime.
Alt+P	Add personal activity.
Alt+R	Add preference.
Alt+H	Add hourly availability.
Alt+G	Add overtime availability.
Alt+X	Cut special.
Alt+V	Paste special.
Alt+Del	Delete special.
Ctrl+X	Cut.
Ctrl+D	Paste personal shift.
Ctrl+F	Find.
Ctrl+H	Schedule history.
Ctrl+I	Agent info.
Ctrl+Z	Undo.
Ctrl+Y	Redo.

Keyboard shortcuts in the shift editor

The shift editor in the Schedules module	
Alt+Down	Move down.
Alt+Up	Move up.
Alt+M	Create meeting.
Ctrl+E	Edit meeting.
Ctrl+R	Remove selected participants from the meeting.

Related topics

- Make schedule changes (Schedules tool)
- Edit scheduled shifts

Review schedule history

Review all changes made to a day for a selected agent in the **Schedule history**. It shows a graphical presentation of the current schedule and all previous versions of the schedule, with shifts, absences or days off. For each change you can see who made the change and at what time.

It is possible to select a previous version of the schedule and restore that version to be used as the current version.

NOTE

- You can only review the schedule history for the default scenario.
- Meetings are not tracked in the schedule history. This means it is not possible to see if a meeting has previously been scheduled for an agent.
- If a schedule change is modified by "WFM System", this means that the schedule is changed by an automatic process. For example, this is shown when an agent's request has been automatically approved or when schedules are copied to or imported from another scenario.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.

Page location

Client > Schedules > Open schedule

Procedures

View schedule history and restore a shift

1. Select a day for an agent in the Schedule view.
2. Right-click in the Schedule view and select **View schedule history**.

   The previous versions of the schedule for that day are shown.
3. To restore a previous version, select it and click **Restore**.

Related topics

- Edit scheduled shifts

Customize the Quick access toolbar

The Quick access toolbar provides easy access to perform common actions, regardless of which view you are currently in. Customize the Quick access toolbar to include the buttons for the actions that you use the most.

The Quick access toolbar is placed either in the top left corner of the Schedules module window or just below the ribbon bar.

Prerequisites

- You have the Schedules permission.

Page location

Client > Schedules > Open schedule

Procedures

Move the Quick access toolbar

1. Click the small arrow button in the Quick access toolbar.
2. Select **Place Quick access toolbar above/below the ribbon**.

Customize the Quick access toolbar

1. Click the small arrow button in the Quick access toolbar.
2. Select **Customize Quick access toolbar**.
3. Select from which tab to add commands, **Home** tab or **Chart** tab.
4. Select commands in the left field and click **Add** to add them to the Quick access toolbar.
5. To change the order of the commands the toolbar, select a command in the Quick access toolbar field to the right and use the arrows to move the command up or down in the list.
6. Click **OK**.

Related topics

- Select on what level to view schedules
- Work with different time zones
- View scheduled time

Troubleshoot scheduling issues

In some cases, when generating schedules automatically in the Schedule module, there might not be any shifts scheduled or shifts are not scheduled for some agents. Enable the **include troubleshooting** check box when generating schedules to get clues as to what might be the issue.

Module	Things to check	Action
People	Check the agent time zone	Be aware of the agent time zone

Module	Things to check	Action
		while troubleshooting. Shifts, rotations, availabilities, and so on should be created and assigned based on the agent time zone.
People	Check the work week start day	The work week start day needs to be considered for the schedule period, rotation and availability tab. This also determines “day 1” when building rotations and availabilities.
People	Person Period tab	▪ Confirm that the following fields have correct values in the person period. ▪ Skills are assigned and at least one of the skills is marked as active. ▪ Contract and contract schedule are correctly assigned. ▪ Shift bag is correctly assigned. If the shift bag dictates the start time, ensure that it is assigned according to the agent’s local time zone.
People	Schedule Periods tab	Ensure that the correct dates are

Module	Things to check	Action
		selected. ■ If using a week type of schedule period, ensure that the date of the schedule period matches the work week start day in the General tab. For example, if your work week starts on a Monday, ensure that the date selected for the schedule period is Monday. ■ If using a month type of schedule period, ensure that the date of the schedule period starts on the first day of the month regardless of the day of the week.
People	Rotations tab	■ Ensure that the "from date" matches the work week start day in the General tab. For example, if your work week starts on a Monday, ensure that the date selected for the rotation is Monday. ■ If the rotation dictates the start time, ensure that it is assigned according to the agent’s local time zone.

Module	Things to check	Action
People	Person Availability tab	■ Ensure that the "from date" matches the work week start day in the General tab. For example, if your work week starts on a Monday, ensure that the date selected for the availability is Monday. ■ If the availability dictates the start time, ensure that it is assigned to the agent's local time zone.
Forecasts	Is a forecast created?	You can check the forecast creation in two places: ■ In Forecasts module, locate the skill, right-click the skill, and open the forecast for the dates that you are scheduling. ■ In the results view in the Schedule module, check the day and intraday level.
Forecasts	Is the skill connected to the correct activity?	Open the skill properties and check the main activity.
Forecasts	Are the open hours correct and the agent shift falls within the open hours?	Check the workload properties to ensure that the open hours are correct. Then, open the forecast to ensure that the open workload day templates applied also have the correctly applied open hours.

Module	Things to check	Action
Shifts	Are the rule sets and shift bags for each agent covering all combinations of contracts, contract schedules, and rotations?	Verify that the shift lengths match the contract length and cover any start times specified in the rotation or availability. The shifts should be configured to match the start time in the agent's local time zone.
Shifts	Are the shifts restricted for specific days or days of the week?	Check the Availability Date and Availability Day of Week tabs to ensure that the shift is not disabled for any particular date.
Options	Are agents working past midnight?	Go to **Options** > **Scheduling** > **Day off** and check the day off flexibility. The flexibility should be equal to the number of hours that the agent's shift runs into the next day.
Options	Do agents have pre-scheduled absences?	Go to **Options** > **Scheduling** > **Absences** and check the configuration of the absence. Any absence that is not configured as "in contract time" will prevent the contract time for being fulfilled for the week.
Options	Do agents have the correct employment type selected?	Go to **Options** > **Contract** > **Employment type** and review the contract settings. ▪ Fixed staff normal work time – This employment type is used for agents that

Module	Things to check	Action
		have fixed working schedules. ■ Fixed staff day work time – This employment type is used if agents need to work x number of hours per month or year, but can fluctuate. ■ Hourly staff – This employment type is only used when agent enter their availability in MyTime or if agents will be scheduled to fill the gaps of fixed staff.
Options	Check the average working hours.	Go to **Options** > **Contract** > **average time and tolerance** and check the contract settings:. ■ The target time for agent contracts is derived from multiplying the average work time per day in the contract, by the number of days selected in the contract schedule for the agent. ■ If you want to use this contract for an agent that works either more or less than 8 hours per day or 40 hours per week, you may

Module	Things to check	Action
		need to add some target tolerance. ■ The day off tolerance is determined by the assigned contract schedule for an agent. If the agent is assigned a 5 day contract schedule, you must add tolerance if there is any situation where an agent will work more or fewer than 5 days per week.
Options	Availabilities	You can use availabilities to indicate the possible hours that an agent can work, with guidelines for the earliest start and latest end time. You can also use the "available" check box to indicate which days of the week an agent should work. Day 1 is always aligned with the work week start day determined in the People module. Availability times should always be created and assigned in the agent's local time zone.
Options	Rotations	You can use rotations to assign a start time to agents or create a rotating schedule for agents that work different schedules from week to week. Rotations allow you to indicate more specific times and working days versus

Module	Things to check	Action
		days off. Day 1 is always aligned with the work week start as determined in the People module. Rotation times should always be created and assigned in the agent's local time zone.

Import schedules from another scenario

Import the schedule from a selected scenario to the default scenario.

The purpose is to prepare the schedule in a separate scenario and then import it to the default scenario when it’s ready. Therefore, all absences and meetings in the default scenario are kept when importing the schedule from the other scenario. The shifts, personal activities, and overtime in the default scenario are overwritten.

Any meetings scheduled in the scenario that you are importing from are not imported. Shifts, overtime, personal activities, and absences in the source scenario are imported.

All individual schedule changes made by the schedule import are listed in the Schedule audit trail report. The action of importing schedules is listed in the General audit trail report.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.
- Alternative scenarios are created.

Page location

Client > Schedules > Open schedule

Procedures

Import schedules from another scenario to the default scenario

1. Open the **File** menu and select **Import schedule**.
2. Select for which date period to import schedules. You can copy maximum two months at a time.
3. Select from which scenario to import schedules.
4. Select for which parts of the organization to import schedules, either by selecting sites or teams on the **Business hierarchy** tab or by selecting skills on the **Skills** tab.
5. Click **Import** to import schedules from the selected scenario to the default scenario.

Related topics

- Copy schedules to another scenario
- Create alternative scenarios

Copy schedules to another scenario

Copy the schedule from one scenario to another scenario for a selected period. This creates an exact copy of all shifts, absences, personal activities and overtime in the source scenario and saves it in the target scenario.

Any meetings in the source scenario are not copied.

The shifts, absences, personal activities, and overtime in the selected target scenario are overwritten. Meetings created directly in the target scenario using the WFM client are not overwritten.

The action of copying schedules is listed in the General audit trail report.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- You have the Global functions > View unpublished schedules permission.
- Alternative scenarios are created.

Page location

Client > Schedules > Open schedule

Procedures

Copy schedules from one scenario to another

NOTE Any schedule in the selected target scenario is overwritten.

1. Open the **File** menu and select **Copy schedule**.
2. Select for which date period to copy schedules. You can copy maximum two months at a time.
3. Select from which scenario to copy schedules.
4. Select to which scenario to copy schedules.
5. Select for which parts of the organization to copy schedules, either by selecting sites or teams on the **Business hierarchy** tab or by selecting skills on the **Skills** tab.
6. Click **Copy** to copy schedules.

Related topics

- Import schedules from another scenario
- Create alternative scenarios

Export schedules to PDF

Export schedules to PDF format directly from the Schedules module. There are three types of schedule exports available.

- **Export to PDF** shows schedule information such as shift category, shift length and start and end time for all selected agents. Choose to present the schedule by team or individually. You can also select to show all activities, just the breaks or no activities.
- **Export to PDF graphical** shows the full schedule graphically for all selected agents. Choose to present the schedule by team or individually.
- **Export to PDF shifts per day** shows the shift start and end times for the selected agents in a table, divided by day. Choose to show breaks in the export, or no activities at all.

NOTE You can only export schedules for a maximum of 1000 agents at a time.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- To view breaks in the exports, the break activities must be set as **Lunch** or **Short break** in Options.

Page location

Client > Schedules > Open schedule

Procedures

Export to PDF

1. Select the agents and days to export in the Schedule view.
2. Right-click, select **Export** and then select **Export to PDF**.
3. Select the **Type** of export.
    - **Team**—Present schedules for all selected agents, one week at the time.
    - **Individual**—Present schedules with one page for each agent. When exporting individual schedules, select if you want to create one file for all selected agents or one file per agent.
4. Select what to **Display**.
    - **No activities**—Includes the start and end time and the length of the shift.
    - **Breaks**—Includes the start and end time and the length of the shift, and the start and end times for all breaks.
    - **All activities**—Includes the start and end time and the length of the shift, and the start and end times for all activities.
5. Click **OK**.
6. Enter a name for the file. This is not needed if you have selected to create individual files for all agents.
7. Select where to place it and click **Save**.

Export to PDF graphical

1. Select the agents and days to export in the Schedule view.
2. Right-click, select **Export** and then select **Export to PDF graphical**.
3. Select the **Type** of export.
    - **Team**—Present schedules for all selected agents, one day at the time. Choose if you want to include any public notes entered for the selected days.
    - **Individual**—Present schedules with one page for each agent. When exporting individual schedules, select if you want to create one file for all selected agents or one file per agent.
4. Select the **Sort order**. This options is available when you export by team.
    - **Agent name**—Sorts the shifts in alphabetical order based on the names of the agents.
    - **Start time**—Sorts the shifts by start time, with the earliest start time first.
    - **End time**—Sorts the shifts by end time, with the earliest end time first.
5. Click **OK**.
6. Enter a name for the file. This is not needed if you have selected to create individual files for all agents.
7. Select where to place it and click **Save**.

Export to PDF shifts per day

1. Select the agents and days to export in the Schedule view.
2. Right-click, select **Export** and then select **Export to PDF shifts per day**.
3. No **Type** can be selected for this export.
4. Select what to **Display**.
    - **No activities**—Includes the start and end time of the shift.
    - **Breaks**—Includes the start and end time of the shift, and the start and end times for all breaks.
5. Select the check box to include any public notes entered for the selected days.
6. Click **OK**.

7. Enter a name for the file. This is not needed if you have selected to create individual files for all agents.
8. Select where to place it and click **Save**.

Handle scheduling issues

The **Scheduling result** window is shown if not all the selected agents could be scheduled for all selected days. It displays which agents that could not be scheduled and a message that explains why.

Review the list and investigate why these agents could not be scheduled. The information on the **Schedule period** tab, the **Restrictions** tab and the **Person period** tab in the agent **Info** panel can often help you figure out why the agent could not be scheduled. See Review agent details for more information on the agent **Info** panel.

Prerequisites

- You have the Schedules > Automatic scheduling permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- The **Include troubleshooting information** check box is selected when you run the automatic scheduling.

Page location

Client > Schedules > Open schedule

Procedures

Review scheduling issues

1. Review the list of scheduling issues and note which agents that were not scheduled.

   If the list is long, you can select the rows and paste them to for example a Word or Excel document to keep track of what you need to follow up on.

2. Click **Close**.

Related topics

- Run automatic scheduling
- Review agent details

Handle business rule conflicts

When you perform a schedule change that breaks a business rule defined for your organization, the **Business rule conflict** window is shown. It shows warnings for example if your change would break the nightly rest or cause the maximum weekly work time for an agent to be exceeded. See Follow up on validation warnings for a full list of situations that are flagged as a business rule conflict.

The **Business rule conflict** window contains a list of the agents that are affected and what the issue is. Go through the list and decide to either go through with the changes or cancel the changes.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.
- The **Validations** button is selected.

Page location

Client > Schedules > Open schedule

Procedures

Handle business rule conflicts

1. Review the list of warnings.
2. If the type of warning is not relevant for you, select the **Always override these errors** check box.

   This setting only applies to you and the ongoing session. The next time you open the Schedules module, all warnings are shown again.

3. Decide to click **OK** to apply your changes despite the warnings, or click **Cancel** to not apply the changes.

   If you decide to apply your changes, validation warnings are shown in the Schedule view for the days where the business rules are broken.

Related topics

- Follow up on validation warnings

Handle conflicts when saving schedules

When there are other users that make schedule changes for the same group of agents and the same schedule period, your changes might sometimes conflict with theirs.

A conflict occurs when you try to save a change for an agent's schedule on a date, and that schedule was recently changed by another user. A message is shown to inform you that there is a conflict and for which agents and days.

The recommended way to handle a conflict is to accept the other user's changes. If you choose to do so, the other user's changes are loaded to your schedule for you to review before you save again.

NOTE If you choose the accept the other user's changes, you only lose your changes for the days and agents that are listed in the conflict information window. All other changes are saved.

Prerequisites

- You have the Schedules permission.
- You have the Global functions > View schedules permission.
- You have the Global functions > Modify schedules permission and the underlying Modify assignment permission.

Page location

Client > Schedules > Open schedule

Procedures

Handle conflicts when saving schedules

- Click **OK** to accept the other user's changes.
- Click **Overwrite** to force your changes and remove the other user's changes.

Related topics

- Edit scheduled shifts
- Copy and paste schedule items
- Schedule activities manually
- Schedule time off manually
- Schedule days off manually
- Run automatic scheduling
- Optimize schedule

Manage dynamic scheduling

Dynamic Scheduling is an add-on app. This is a new feature that is not yet generally available. If you would like early access to this feature, contact your Cisco Account Manager.

Agents can use dynamic scheduling to select their availability. Dynamic scheduling uses a point system to encourage agents to choose shift times that are not popular, for example, early or late hours. An administrator creates an availability template. A scheduler uses the availability template to create an availability form. An agent uses the form to enter their availability.

In the **Schedules** tool in the WFM client, you must select the **Dynamic schedule availability** check box in the **Scheduling session options** window when scheduling and when optimizing schedules for agents. If you select several check boxes in the **Scheduling session options** window, this might cause conflicts in how the schedules are set up. For further information, view the Run automatic scheduling and Optimize schedule articles.

IMPORTANT If an error message appears after you click **Save** in the Dynamic Scheduling app, your settings failed to save. Therefore, ensure you fix all errors and click **Save** again before you navigate to another part of the app.

Prerequisites

- Your organization's Webex WFO administrator has coordinated with Cisco Professional Services, or a supported Cisco partner has implemented Dynamic Scheduling for your organization.
- You have a Webex WFO user account with a DynamicSchedulingAdmin, DynamicSchedulingScheduler, or DynamicSchedulingAgent role assigned in WFM.

IMPORTANT You must create these roles with these exact names in WFM.

- You have Schedules permissions.
- If you are an administrator, you have API access > Write schedule and API access > Read schedule permissions.

Page location

Add-Ons > Dynamic Scheduling > Open

Procedures

Log in to the Dynamic Scheduling app

1. Click **Dynamic Scheduling**.
2. Click **Open**.
3. If you belong to more than one business unit, select a business unit.
4. Click **Save**.

Administrators

General configuration

Enter a WFM API token for uploading data to WFM

You must generate a WFM API token, which is used to make the API calls to WFM to upload an agent's availability. For further information, see Generate access tokens for API access to WFM.

1. On the **WFM API** tab, in the **WFM API token** field, enter a token.
2. Click **Save**.

Configure colors for point ranges

You can configure the color of cell backgrounds that appear in the availability forms.

1. On the **Points** tab, in the **Start Number** and **End Number** fields, enter the points ranges.
2. Select a color for each points range.
3. Click the plus or minus icons to add or remove ranges.
4. Click **Save**.

Availability templates

You can create templates, which schedulers then use to create an availability form for agents. Click **Create new availability template** or click an existing template. You can also use the search box to find a template. Then, complete the below procedures for each tab in the availability template. To delete a template, click the trash can icon.

Configure settings

1. On the **Settings** tab, in the **Name** field, enter a name for the availability template.
2. In the **Description** field, enter a description for the template.
3. From the **Type** drop-down list, select **AdHoc** or **Recurring**. For example, you can use a **Recurring** template for the whole year and you can use an **AdHoc** template for a holiday week. If you select **Recurring**, select the frequency of the recurrence from the **Recurrence** drop-down list.
4. Select a day from the **Week start day** drop-down list.
5. Select a **Time zone**. This time zone is used to determine when data is sent to WFM.
6. Select a number of weeks from the **Submit at least this number of weeks in advance** drop-down list and the **Submit a maximum of this number of weeks in advance** drop-down list.
    - **Submit at least this number of weeks in advance** determines when an agent is required to submit their availability.

- **Submit a maximum of this number of weeks in advance** determines how far in advance an agent can submit their availability. If it is an **AdHoc** availability, the agent can only submit their availability for the weeks between the start and end weeks.

7. Enter **Tag(s)** to attach keywords to the template. You can use these tags to search for the template after it is saved to the template list.
8. In the **Hours of operation** section, select check boxes for any days that you want to include in the template. Then, select a time range for each day. The **Hours of operation** settings must fall within the open hours of the skills that you have in WFM.
9. Enter a **WFM publish day**, a **WFM publish time**, and then select a number of weeks for **WFM publish in advance** to configure when the data is sent to WFM.
10. Toggle the **Enabled** slider on to activate a process, where the system will automatically submit availability forms for agents who meet the required points. The scheduler must manually publish the availability form for agents who do not submit the required points. If you toggle the **Enabled** slider off, you must manually submit all availability through Agent Monitoring.
11. Click **Save**.

Configure validation

You can configure the amount of hours that an agent must make themselves available for.

1. On the **Validation** tab, select if you want to **Allow day(s) without availability**. This setting allows agents to enter no availability on some days. If the minimum hours is set to zero, this grants the agents a day off.
2. Select if you want **Min hours** or **Max hours** from the **Validate on** drop-down list. These options determine if the **Required points** calculation on the **Points** tab is based on the minimum or maximum hours. If you select **Min hours**, you can enter a number in the **Additional hours** field.

   EXAMPLE If you want to allow agents to take a day off on any given day, ensure that the minimum hours is zero for all days and enter the maximum working hours. Then, you can define the minimum hours required for agents to work per week in the **Additional hours** field.

3. (Optional) Expand **Day/hour requirements** and select a **Type** to configure granular validation requirements per day, hour, and so on.

4. Select check boxes for any days that you want to include in the template and then select a time range for each day.

5. Click **Save**.

Configure points

You can use a point system to encourage agents to choose shift times that are not popular, for example, early or late hours. There are 96 intervals per day, each worth 5 points. Intervals must always be in 15 minute increments, and points must always be whole numbers.

1. On the **Points** tab, enter the number of points that you want to assign to each interval. The **Required points** field shows how many points you must configure and is calculated from the minimum or maximum hours that you entered on the **Validation** tab.

   NOTE You can only enable intervals that fall within the hours of operation.

2. (Optional) If you want to import points from a CSV file, click **Import**. If you want to export points to a CSV file, click **Export**. See this example file for details: Dynamic scheduling example file.

3. Click **Save**.

Configure messages

You can write a message for the agents and add it to the availability form.

1. On the **Messages** tab, toggle the **Enabled** slider on to activate the message option in the template.

2. In the **Subject** field, enter a subject.

3. In the **Message** field, enter a message that you want to appear for agents.

4. Click **Save**.

Viewing the audit log

View the audit log

You can view an audit log of all the changes that occur in the system.

1. Select a **Time period**.

2. Click an audit entry to view further details about a change. You can also use the search box to find an audit entry.

Schedulers

Availabilities

Schedulers can use a template to create an availability form for agents. Click **Create new availability**, select a template, and click **Apply**. Alternatively, click an existing availability form. You can also use the search box to find an availability form. Then, complete the below procedures for each tab in the availability form. To delete an availability form, click the trash can icon.

Configure settings

1. On the **Settings** tab, in the **Name** field, enter a name for the availability form.
2. In the **Description** field, enter a description for the form.
3. Toggle the **Active** slider on if you want to automatically publish only the active availabilities. Agents can view inactive availabilities but they cannot submit them.
4. From the **Type** drop-down list, select **AdHoc** or **Recurring**. For example, you can use a **Recurring** template for the whole year, and you can use an **AdHoc** template for a holiday week. If you select **Recurring**, select the frequency of the recurrence from the **Recurrence** drop-down list.
5. Select a day from the **Week start day** drop-down list.

   NOTE This day must match the work week start in the WFM client.
6. Select a **Time zone**. This time zone is used to determine when data is sent to WFM.
7. Select a number of weeks from the **Submit at least this number of weeks in advance** drop-down list and the **Submit a maximum of this number of weeks in advance** drop-down list.
   - **Submit at least this number of weeks in advance** determines when an agent is required to submit their availability.
   - **Submit a maximum of this number of weeks in advance** determines how far in advance an agent can submit their availability. If it is an **AdHoc** availability, the agent can only submit their availability for the weeks between the start and end weeks.
8. Enter **Tag(s)** to attach keywords to the form. You can use these tags to search for the form after it is saved to the form list.

9. In the **Hours of operation** section, select check boxes for any days that you want to include in the form. Then, select a time range for each day. The **Hours of operation** settings must fall within the open hours of the skills that you have in WFM.
10. Enter a **WFM publish day**, a **WFM publish time**, and then select a number of weeks for **WFM publish in advance** to configure when the data is sent to WFM.
11. Toggle the **Enabled** slider on to activate a process, where the system will automatically submit availability forms for agents who meet the required points. The scheduler must manually publish the availability form for agents who do not submit the required points. If you toggle the **Enabled** slider off, you must manually submit all availability through Agent Monitoring.
12. Click **Save**.

Configure validation

You can configure the amount of hours that an agent must make themselves available for.

1. On the **Validation** tab, select if you want to **Allow day(s) without availability**. This setting allows agents to enter no availability on some days. If the minimum hours is set to zero, this grants the agents a day off.
2. Select if you want **Min hours** or **Max hours** from the **Validate on** drop-down list. These options determine if the **Required points** calculation on the **Points** tab is based on the minimum or maximum hours. If you select **Min hours**, you can enter a number in the **Additional hours** field.

   > **EXAMPLE** If you want to allow agents to take a day off on any given day, ensure that the minimum hours is zero for all days and enter the maximum working hours. Then, you can define the minimum hours required for agents to work per week in the **Additional hours** field.

3. (Optional) Expand **Day/hour requirements** and select a **Type** to configure granular validation requirements per day, hour, and so on.
4. Select check boxes for any days that you want to include in the form and then select a time range for each day.
5. Click **Save**.

Configure points

You can use a point system to encourage agents to choose shift times that are not popular, for example, early or late hours. There are 96 intervals per day, each worth 5 points. Intervals must always be in 15 minute increments, and points must always be whole numbers.

1. On the **Points** tab, enter the number of points that you want to assign to each interval. The **Required points** field shows how many points you must configure and is calculated from the minimum or maximum hours that you entered on the **Validation** tab.

   NOTE You can only enable intervals that fall within the hours of operation.

2. (Optional) If you want to import points from a CSV file, click **Import**. If you want to export points to a CSV file, click **Export**. See this example file for details: Dynamic scheduling example file.

3. Click **Save**.

Configure messages

You can write a message for the agents and add it to the availability form.

1. On the **Messages** tab, toggle the **Enabled** slider on to activate the message option in the template.

2. In the **Subject** field, enter a subject.

3. In the **Message** field, enter a message that you want to appear for agents.

4. Click **Save**.

Add or remove agents

1. On the **Agents** tab, To add an agent to the availability form, click **Add agents**, select a team, and then click **Fetch agents**.

2. Select one or more agents, select a **Start week** and an **End week**, click **Add selected**, and then click **Save**.

3. To remove an agent from the availability form, select an agent, click **Remove selected agents**, and then click **Save**.

Agent monitoring

Schedulers can view how many agents have submitted availability, what the points distribution is, and if the agent's availability selection breaks any rules. Schedulers have the option to submit availability for agents who have not yet submitted their availability. Schedulers can also publish an agent's availability to WFM.

Publish an availability form

1. Click an availability form and then click an agent. You can also use the search box to find an availability form.
2. To submit an agent's availability to WFM, ensure that no rules are broken, select a date for publishing, and then click **Publish** to schedule the publishing process for that date.
3. To view any broken rules in the availability form, click the agent's name. Then, adjust the points until no rules are broken.
4. Select a **Start date** and **Recurring** or **AdHoc** for **Recurrence**.
5. Click **Save**.

Reporting

Click **Create new report** or click an existing report. You can also use the search box to find a report. To delete a report, click the trash can icon.

Configure general settings

1. On the **General** tab, enter a **Report name** and a **Report description**.
2. Select a **Start week** and an **End week**.
3. Select or clear the filter check boxes.
4. Click **Save**.

Apply filters

1. On the **Details** tab, select or clear the filter check boxes.
2. Click **Save**.

Add or remove agents

1. To add an agent to a report, click **Add agents**.
2. Select a team and then click **Fetch agents**.
3. Select one or more agents and then click **Add selected**.
4. Click **Save**.
5. To remove an agent from a report, select an agent, click **Remove selected agents**, and then click **Save**.

Add or remove availabilities

1. To add availability forms to the report, click **Add availabilities**, select an availability form, and click **Add selected**.
2. To remove an availability form from the report, select an availability form and click **Remove selected availabilities**.
3. Click **Save**.

Preview the report

1. On the **Preview** tab, select a date, and then click **Preview**.
2. In the search box, search for a report.
3. To export a report as a CSV file, click **Export**.

Agents

Availabilities

Submit your availability

1. On the **Availabilities** tab, click an availability form. In the search box, search for a report.

   NOTE On the **Availabilities** tab, the **Next publish** date is the deadline for submission.

2. Select a **Start date**.

3. From the **Recurrence** drop-down list, select **AdHoc** or **Recurring**. For example, there might be a **Recurring** template that you use for the whole year and an **AdHoc** template that you use for a holiday week.
4. Ensure that you fix any broken rules that are highlighted in the **Requirements** section.
5. Click **Save**.

Intraday Analysts

Intraday analysts monitor and adjust schedules in real time.

About reviewing intraday data

The different views in the Intraday tool give you an overview of the current situation. This is a tool where you can view the forecast and schedule data together with the actual traffic data. The charts give you a good overview of today. Spot developing trends that might require you to reforecast or to do a last-minute optimization to solve staffing issues.

The views are continuously updated with any changes in the schedule and forecast, and with new actual traffic data from the ACD platform. The time stamp in the upper left corner shows the last time the view was updated.

The information is displayed in three chart tabs and one table view. The charts give you a good overview. A summary up to the latest actual interval is presented below the charts. The table view presents all the measures for the selected day in one table.

Today's values are shown by default, but you can select to show values for up to 7 days back and one day forward.

The information in the Intraday tool is presented in your time zone, regardless of the time zone of the skill and the time zone of the agents working on the skill.

Related topics

- Compare forecasted with actual volume
- Compare predicted with actual service level
- View staffing levels and actual need
- Review intraday data by interval
- Create skill groups

Compare forecasted with actual volume

Compare the forecasted volume and the average handling time with the corresponding actual values on the Incoming traffic tab in Intraday. This information helps you notice early if the actual traffic deviates a lot from the forecasted traffic. With this information you can act to increase or reduce the staffing levels

accordingly.

The chart shows the data interval by interval. The total volume and the average handling time based on the data for all intervals up until the latest updated interval are shown in a table below the chart. The calculated difference between the forecasted and actual values are also shown as a percentage in the table.

> **NOTE** The intraday information only populates when there is a forecast generated for the date that you want to view. Both the forecasted volume and the actual volume are calculated based on the workload settings for calculated volume. See Calculate workload volume for more information on how these numbers are calculated. If the purpose is to validate the data in Cisco WFM by comparing it to the raw data in for example the telephone or chat platform, use the Queue Statistics report.

Prerequisites

- You have the Web > Intraday permission.

Page location

WFM > Intraday > Incoming traffic tab

Procedures

Select skills

Click in the field at the top of the page and select the skill or skill group to view data for.

If a skill group is selected, you can expand to show the included skills above the tabs. Click a skill to see data for only that skill. Click **All** to go back to viewing data for all skills in the skill group.

Compare forecasted volume with actual volume

The vertical line indicates the time when the view last was updated with new data.

Hover the cursor over the any interval in the chart to view the values that specific interval.

Hover the cursor over a measure in the legend to highlight it. It is also possible to click a measure in the legend to hide it. This makes it easier to focus on the measures that are important to you. Click the measure again to show it.

Select which day to view

Today's values are shown by default. Show data up to 7 days back or 1 day forward.

- Click on a day in the day section in the top right corner. For example, -3 means three days back.

Export intraday data to an Excel file

Export the data presented in the Intraday charts to an Excel file for further custom reporting. The export shows the total values for each column. When exporting today's values, all columns which contains actual values only have values up until the latest interval. The same applies to forecasted volume and forecasted average handling time, to make it possible to compare the forecasted total to the corresponding actual total.

1. Select the day to export data for.
2. Select the skill or skill group to export data for.

   NOTE The data for all the skills in the selected skill group is exported, even if you have clicked to show only one of those skills in the view.

3. Click **Export to Excel**.

   The intraday data for the selected day is exported to an Excel file.

Related topics

- About reviewing intraday data
- Compare predicted with actual service level
- View staffing levels and actual need
- Review intraday data by interval
- Create skill groups

Compare predicted with actual service level

Compare the predicted service level (PSL) with the actual service level on the Performance tab in Intraday. The abandon rate and the average speed of answer are also presented. The abandon rate is only shown for Inbound telephony and Chat skills.

The chart shows the data interval by interval. The averages based on the actual call data are shown in a table below the chart. These averages are calculated based on the total volume for all intervals up until the latest updated interval, and not as an average of the values for each interval. Therefore, an interval with a high volume will have a larger impact on the average of the day than an interval with a low volume.

NOTE

- PSL is calculated based on the forecasted values up until the latest interval. When calculating the PSL in Intraday, the skill shrinkage and the agents' proficiency are not considered. The PSL for previous days is not updated if retroactive schedule changes are made for periods more than 24 hours back.
- The actual service level is calculated based on the workload settings for calculated volume. The abandon rate is calculated based on the offered volume.

Prerequisites

- You have the Web > Intraday permission.

Page location

WFM > Intraday > Performance tab

Procedures

Select skills

Click in the field at the top of the page and select the skill or skill group to view data for.

If a skill group is selected, you can expand to show the included skills above the tabs. Click a skill to see data for only that skill. Click All to go back to viewing data for all skills in the skill group.

Compare predicted service level with actual service level

The vertical line indicates the time when the view last was updated with new data. Hover the cursor over the any interval in the chart to view the values that specific interval.

Hover a measure in the legend to highlight it. It is also possible to click a measure in the legend to hide it. This makes it easier to focus on the measures that are important to you. Click the measure again to show it.

Select which day to view

Today's values are shown by default. Show data up to 7 days back or 1 day forward.

- Click on a day in the day section in the top right corner. For example, -3 means three days back.

Export intraday data to an Excel file

Export the data presented in the Intraday charts to an Excel file for further custom reporting. The export shows the total values for each column. When exporting today's values, all columns which contains actual values only have values up until the latest interval. The same applies to forecasted volume and forecasted

average handling time, to make it possible to compare the forecasted total to the corresponding actual total.

1. Select the day to export data for.
2. Select the skill or skill group to export data for.

   > **NOTE** The data for all the skills in the selected skill group is exported, even if you have clicked to show only one of those skills in the view.

3. Click **Export to Excel**.

   The intraday data for the selected day is exported to an Excel file.

Related topics

- About reviewing intraday data
- Compare forecasted with actual volume
- View staffing levels and actual need
- Review intraday data by interval
- Create skill groups

View staffing levels and actual need

Compare the number of **Forecasted agents** to the number of **Scheduled agents** on the Staffing tab in Intraday. View the forecasted and scheduled agents side by side with two additional measures that are based on the actual volume for the day; **Required agents** and **Reforecasted agents**.

The purpose of the **Required agents** measure is to present how many agents you needed according to the actual traffic data. This is calculated the same way as the **Forecasted agents** measure, but with the actual incoming volume and the actual handling time. This calculation considers the service level, efficiency and occupancy values defined for the skills. This makes it possible to compare it with the forecasted and scheduled number of agents. **Required agents** is only shown for past intervals.

For future intervals, the **Reforecasted agents** measure is shown. This is a suggested revised forecast for the day. It will help you predict what the rest of the day will be like. The **Reforecasted agents** measure is calculated by multiplying the forecasted number of agents for each future interval with a deviation factor. The deviation factor is based on the difference between the forecasted volume and the actual volume for the past intervals today. The most recent intervals have a bigger impact on the deviation factor.

An **Applied reforecasted agents** measure can also be shown. This represents a manually adjusted forecast applied to today's forecast data for future intervals. It is derived from the values of Forecasted agents and calculated as: Applied reforecasted agents = (Percentage applied × Forecasted agents) + Forecasted agents.

To use the revised data, you need to update this manually in the Forecasts module. The forecast is not updated automatically.

NOTE

- The staffing information is immediately updated by any changes to the forecast and by schedule changes made in the web scheduling tools or through requests. Changes made in the Schedules module in the WFM client are visible in the staffing view within an hour.
- The **Scheduled agents** value is not shown if any multisite skills are selected.

Prerequisites

- You have the Web > Intraday permission.

Page location

WFM > Intraday > Staffing tab

Procedures

Select skills

Click in the field at the top of the page and select the skill or skill group to view data for.

If a skill group is selected, you can expand to show the included skills above the tabs. Click a skill to see data for only that skill. Click All to go back to viewing data for all skills in the skill group.

Manually apply forecast

Enter a percentage to manually override the forecasted agents. The percentage range is -100% to +100%.

NOTE The Apply button is only visible in the Today tab. It is also restricted to voice and chat skill types. Skill groups are not supported.

Review staffing levels

The vertical line indicates the time when the view last was updated with new data.

Hover the cursor over the any interval in the chart to view the values that specific interval.

Hover the cursor over a measure in the legend to highlight it. It is also possible to click a measure in the legend to hide it. This makes it easier to focus on the measures that are important to you. Click the measure again to show it.

Select which day to view

Today's values are shown by default. Show data up to 7 days back or 1 day forward.

- Click on a day in the day section in the top right corner. For example, -3 means three days back.

Export intraday data to an Excel file

Export the data presented in the Intraday charts to an Excel file for further custom reporting. The export shows the total values for each column. When exporting today's values, all columns which contains actual values only have values up until the latest interval. The same applies to forecasted volume and forecasted average handling time, to make it possible to compare the forecasted total to the corresponding actual total.

1. Select the day to export data for.
2. Select the skill or skill group to export data for.

   > **NOTE** The data for all the skills in the selected skill group is exported, even if you have clicked to show only one of those skills in the view.

3. Click **Export to Excel**.

   The intraday data for the selected day is exported to an Excel file.

Related topics

- About reviewing intraday data
- Compare forecasted with actual volume
- Compare predicted with actual service level
- Review intraday data by interval
- Create skill groups

Review intraday data by interval

When you review today's intraday values, the columns that contain actual values only have values up until the latest interval.

All data in the Table view is also visualized in the charts on the Incoming traffic, Performance and Staffing tabs.

The data in the Table view can be exported to Excel if you want to do further reporting on this data.

Prerequisites

Review the intraday data for each interval in the Table view. The data is always presented in your time zone.

- You have the Intraday permission.

Page location

WFM > Intraday > Table view

Procedures

Select skills

Click in the field at the top of the page and select the skill or skill group to view data for.

If a skill group is selected, you can expand to show the included skills above the tabs. Click a skill to see data for only that skill. Click All to go back to viewing data for all skills in the skill group.

Select which day to view

Today's values are shown by default. Show data up to 7 days back or 1 day forward.

- Click on a day in the day section in the top right corner. For example, -3 means three days back.

Export intraday data to an Excel file

Export the data presented in the Intraday charts to an Excel file for further custom reporting. The export shows the total values for each column. When exporting today's values, all columns which contains actual values only have values up until the latest interval. The same applies to forecasted volume and forecasted average handling time, to make it possible to compare the forecasted total to the corresponding actual total.

1. Select the day to export data for.
2. Select the skill or skill group to export data for.

> **NOTE** The data for all the skills in the selected skill group is exported, even if you have clicked to show only one of those skills in the view.

3. Click **Export to Excel**.

   The intraday data for the selected day is exported to an Excel file.

Related topics

- About reviewing intraday data
- Compare forecasted with actual volume
- Compare predicted with actual service level
- View staffing levels and actual need
- Create skill groups

Send messages to agents

Send messages to the agents to inform them or ask them questions. These messages are shown in MyTime.

There are three types of messages.

- Standard messages—A message to which the agent can click **OK** to confirm that they have read the message.
- Yes or no messages—The agent can reply by clicking **Yes** or **No**.
- Custom messages—The agent can reply by clicking buttons with options defined by you.

For all three types of messages, you can allow the agents to reply with a written message in addition to clicking a button.

NOTE You can only follow up on messages that you send. You cannot follow up on messages that other users send.

Prerequisites

- You have the People > Send message (ASM) permission.
- The agents must have the MyTime > Agent Schedule Messenger permission.

Page location

Client > People

Procedures

Send a standard message

1. Select agents in the business hierarchy or in a group page. Press the **Ctrl** key and click to select multiple agents.
2. Click **Messages** in the **Actions** section.
3. Select the **Standard** tab.
4. Select the **Allow text reply** check box to make it possible for the agents to enter a text message in addition to the acknowledgment.
5. Enter a **Subject** and **Message**.
6. Click **Send**.

Send a yes or no message

1. Select agents in the business hierarchy or in a group page. Press the **Ctrl** key and click to select multiple agents.
2. Click **Messages** in the **Actions** section.
3. Select the **Yes/no** tab.
4. Select the **Allow text reply** check box to make it possible for the agents to enter a text message in addition to the yes or no.
5. Enter a **Subject** and **Message**.
6. Click **Send**.

Send a custom message

1. Select agents in the business hierarchy or in a group page. Press the **Ctrl** key and click to select multiple agents.
2. Click **Messages** in the **Actions** section.
3. Select the **Custom** tab.
4. Add options for the agents to choose between.

- Click **New reply option**, enter the option and click **Add**.
- Repeat until you have added all options.

5. Select the **Allow text reply** check box to make it possible for the agents to enter a text message in addition to the selected option.
6. Enter a **Subject** and **Message**.
7. Click **Send**.

Follow up on sent messages

Review your sent messages and the agents' replies.

1. Select any group of agents and click **Messages** in the **Actions** section.
2. Click a sent message to expand it and show details.
3. Click **Filter** next to a reply option to only see the recipients that selected that option.
4. Click the name of an agent in the list of recipients to send a text message to reply to that agent.

Delete sent messages

When deleting a message, all related conversations are also deleted.

1. If necessary, scroll to find the message to delete.
2. Click the **Delete** button with the red **X** in the upper right corner of the message.

Related topics

- Find, sort, and filter WFM agents and users

Create skill groups

Create a skill group to view data for all the included skills at the same time.

Skill groups are used in the Intraday, Adherence, and Staffing tools.

Prerequisites

- You have the Web > Modify skill group permission.

Page location

This page can be reached from different locations.

- WFM > Adherence
- WFM > Intraday
- WFM > Staffing

Procedures

Create a skill group from Adherence or Staffing

1. In Adherence or Staffing, click **Manage skill groups**.
2. Click **Add**.
3. Enter a **Name** for the skill group and click **Add**.
4. Select the skills to include in the **Available skills** list. All selected skills are shown in the **Included skills** field. The channel type for each selected skill is indicated with an icon.
5. Click **Save**.

NOTE The warning triangle next to the skill group name indicates that there are unsaved changes for the skill group.

Create a skill group from Intraday

1. In Intraday, click **Manage skill groups**.
2. Click **New group**.
3. Enter a **Name** for the skill group and click **Save**.
4. Select the skills to include in the list to the left. The channel type for each skill is indicated with an icon.
5. Click the arrow to move the selected skills to the list to the right.
6. Click **Save**.

Delete a skill group from Adherence or Staffing

1. In Adherence or Staffing, click **Manage skill groups**.
2. Hover the name of the skill group you want to delete and click **Delete**.
3. Click **Delete** to confirm.

Delete a skill group from Intraday

1. In Intraday, click **Manage skill groups**.
2. Select the skill group you want to delete in the menu.
3. Click **Delete**.
4. Click **OK** to confirm.

Related topics

- Monitor adherence on team level
- Monitor agent adherence
- Compare forecasted with actual volume
- Compare predicted with actual service level
- View staffing levels and actual need
- Review intraday data by interval
- Review staffing levels

Monitor adherence on team level

Monitor the current adherence situation by site and team. The adherence information is updated automatically.

Use the site and team adherence overview to drill down to the sites or teams where agents are not adhering well and monitor adherence on agent level.

> **NOTE** A site or team is only shown in the Adherence tool if it contains agents who are connected to an external logon.

Prerequisites

- You have the Web > Adherence permission.
- State groups are created.
- Rules are created.

- Rules are defined for each activity and state group combination.
- The agents are connected to an external logon.

Page location

WFM > Adherence > Monitor organization

Procedures

Monitor adherence on team and site level

Monitor the adherence levels for the sites and teams that you have permission to see. Use the skill or skill group filter at the top of the page to monitor adherence for agents working on selected skills.

The total number of agents in alarm is displayed at the top of the dashboard.

- If no skill selection is made, this shows the total number of agents in alarm for the teams you have permission to see.
- If a skill or skill group is selected, this shows the number of agents in alarm for that skill selection and who you have permission to see.

Click a site to expand it and show adherence levels for each team on the site. The number of agents in alarm is displayed for each site and team.

The color for each site or team indicates the percentage of agents who are in alarm, out of the total number of agents who belong to the site or team.

- **Green**—less than 33% are in alarm.
- **Orange**—33-66% are in alarm.
- **Red**—more than 66% are in alarm

NOTE To save your filter settings for future use, add the filtered page as a bookmark in your browser. You cannot save the free-text **Filter agent names / sites / teams / rules / states / current activities** field.

Related topics

- Monitor agent adherence
- Review historical adherence for a team

- Review detailed historical adherence
- Adjust adherence to neutral
- Group adherence states
- Create adherence rules
- Configure when adherence rules apply
- Track when agents are late
- Monitor agents in real time—Listen to calls and view agents' screens live

Monitor agent adherence

Monitor the current adherence situation to see if there are agents who are not adhering to their schedule. From this view you can take action, for example to modify the agent's schedule or review their historical adherence.

The default view shows the agents who are in a state and activity combination that causes an alarm. The agents are sorted on the time they have been in alarm, with the agents who have been in alarm the longest at the top.

Switch off the **In alarm** toggle to show all agents in the selection . The agents are then sorted alphabetically by default, but it's possible to sort based on any column.

This view has a display limitation of 50 agents. If your selection of agents includes more than 50 agents, you cannot switch to show agents who are not in alarm. If the number of agents in alarm is higher than 50, the 50 agents with the longest alarm time are shown.

On an agent row, click the blue **Snooze** button to hide an agent. In the **Snoozed for** fields, you can configure the snooze duration in intervals of 15 minutes for a maximum of 23 hours and 45 minutes. The default snooze duration is 4 hours. To manually show the agent again, click the **Snoozed agents** button and then click **Unsnooze**.

> **NOTE** The adherence in the Adherence tool is calculated on a very detailed level. It will not completely match the ready-time adherence shown in the Ready-time adherence reports, as the ready-time adherence is calculated on interval level.

Prerequisites

- You have the Web > Adherence permission.
- State groups are created.
- Adherence rules are created.
- Adherence rules are set for each activity and state group combination.
- The agents are connected to an external logon.

Page location

WFM > Adherence > Monitor agents

Procedures

Select agents to monitor

Select agents to monitor based on their site or team, or select to show agents that have certain skills or are in a certain state. It is possible to combine selections, for example to select both a site and a skill to monitor agents who belong to that site and have that skill.

- Click **Select sites / teams** and select one or more sites or teams to monitor the agents who belong to those teams.
- Click **Select a skill** or **Select skill group** and select a skill or skill group to monitor the agents who have the selected skill or at least one of the skills included in the selected skill group.

  To create a skill group, see Create skill groups.
- Click **Select states** and select the check boxes for the states that you want to follow up on to monitor agents who are in those states.

> **NOTE** To save your filter settings for future use, add the filtered page as a bookmark in your browser. You cannot save the free-text **Filter agent names / sites / teams / rules / states / current activities** field.

Sort agents

When the **In alarm** toggle is turned on, the agents are always sorted by their time in alarm. When the **In alarm** toggle is turned off, the agents are sorted alphabetically by default, but it's possible to sort based on any column.

- Click a column header once to sort ascending on the values in that column.
- Click twice to sort descending.

Monitor agents using the information in the adherence view

Use the information in this view to monitor the agents to see how well they are adhering to their schedule.

- A part of the agents' shifts is shown, 1 hour back and 3 hours forward. Hover any activity in a shift to show a tooltip with information on the activities and their start and end time.
- A dark horizontal line through the shift indicates that the agent has been out of adherence for that time. Hover the shift to show the start and end time for the out of adherence period. This line is not updated if the shift is changed retroactively or if the out of adherence is approved.
- The **Rule** column shows the current rule that is applied, based on the combination of the scheduled activity and the state that the agent is in.
- The **Time OOA** column displays for how long the agent currently has been in an activity and state combination that is set as out of adherence.

  > **NOTE** The activity and the state might have changed during this time. If the new combination is also defined as out of adherence, the **Time OOA** does not reset. It keeps increasing.

- The **Time in alarm** column displays for how long the agent currently has been in an activity and state combination that is causing an alarm.

  > **NOTE** The activity and the state might have changed during the alarm time. If the new combination also gives an alarm, the **Time in alarm** does not reset. It keeps increasing.

- The **Time in state** column displays for how long the agent has been in the current state.
- The **State** column displays the agent's current state.

Modify an agent's schedule

The Monitor agents view provides easy access to make changes to an agent’s schedule.

- Click **Modify schedule** next to the agent's shift to make changes to their schedule, for example add activities or absences. The Schedules tool opens for that agent.

See Make schedule changes (Schedules tool) for more information.

Review historical adherence for an agent

Drill deeper and review the detailed historical adherence for an agent.

- Click **Historical adherence** next to the agent's shift to open the detailed historical adherence view for this agent.

See Review detailed historical adherence for more information.

Pause adherence updates

You can pause the adherence updates temporarily to look more closely at the current situation without being disturbed by constant updates.

NOTE Pausing the updates only affects the display of adherence information on your screen.

- Click the **Pause** button at the top left. The view now shows as it was when you clicked the pause button.
- To resume the updates, click the **Play** button. Within a few seconds, the view will be updated with the current states and alarms.

Related topics

- About historical adherence
- Review historical adherence for a team
- Review detailed historical adherence
- Adjust adherence to neutral
- Group adherence states
- Create adherence rules
- Configure when adherence rules apply
- Track when agents are late
- Configure WFM with Real-Time Desktop Adherence
- Monitor agents in real time—Listen to calls and view agents' screens live
- Configure Analytics—Set thresholds for idle time and productive or unproductive apps and websites.

Review historical adherence for a team

Review the agents' historical adherence for today, for the last 7 days, or for 30 days back.

The color of the days or intervals in the historical overview indicates the adherence value. The lower the adherence value, the darker the color. This makes it easier to find the low adherence days and intervals which might require you to act. To have a closer look at a day, click that day for that agent to open the detailed adherence view. To have a closer look at an interval in the **Today** view, click the **Historical adherence** button for that agent.

The historical overview for 7 and 30 days back highlights any occurrences where agents have been late for work. It states the number of days that the agent has been late and the total number of minutes that they have been late.

NOTE

- The adherence in the historical overview is calculated on a very detailed level. It will not completely match the ready-time adherence shown in the Ready-time adherence reports, as the ready-time adherence is calculated on interval level.
- The Historical overview is not automatically updated. Refresh the page in your browser to show the latest information.

Prerequisites

- You have the Web > Adherence > Historical overview permission.
- State groups are created.
- Rules are created.
- Rules are selected for each activity and state group combination.
- The agents are connected to an external logon.
- To follow up on when agents are late for work, you have defined for which activities to track when agents are late.

Page location

WFM > Adherence > Historical overview

Procedures

Select sites or teams to review adherence for

1. Click **Select sites/teams** and select the check boxes for the sites and teams to review.
2. Click **Close** to show the selected teams.
3. Click a team to expand it and show the agents' adherence values.

Review agent adherence for past days

The historical overview shows the adherence information for the last 7 days by default. Select **30 days** to extend the period and review adherence values for the last 30 days.

The adherence percentage is the percentage of the agent's shift that they were adhering to their schedule. It is shown when the shift for that day has ended. See About historical adherence for more details on how the adherence percentage is calculated. The adherence percentage shown for each day is based on the agent's time zone. For overnight shifts, the adherence percentage for the full shift is displayed on the day the shift starts. Click the adherence percentage for any agent and day to open the detailed adherence view for that day and agent.

The adherence percentage displayed in the **Adherence** column is the calculated adherence value for the selected period; 7 or 30 days. It is calculated based on the adherence for all scheduled time during that period. This mean that the adherence percentage for a day with a long shift has a larger impact on the period adherence than the adherence percentage for a day with a shorter shift.

NOTE

- If an agent was originally out of adherence for a period, but that time was later either approved as in adherence or adjusted to neutral, this will cause a recalculation of the adherence percentage.
- Any retroactive change to an agent's schedule causes a recalculation of the adherence percentage for that day. This happens for schedule changes up to 30 days back. If any occurrence where the agent was out of adherence has previously been manually approved, this approval is taken into consideration in the recalculated adherence percentage. If an agent's late arrival is no longer relevant when their schedule has been changed, the *Late for work* occurrence is removed.

Review when agents have been late for work

If an agent has been late for work this is highlighted in the **Late for work** column. The information states the number of days that the agent has been late during the selected period and the total number of minutes that the agent has been late.

> **EXAMPLE** The agent was 10 minutes late one day and 5 minutes late another day. The number of days is 2 and the total number of minutes is 15.

The days that the agent was late are highlighted in the overview. Click the day that they were late to open the detailed adherence view for more information.

Review agent adherence for today

- Select **Today** in the Historical overview to view the teams' calculated adherence percentages for each interval today. The adherence percentages are shown up until the latest interval.
- Click **Show agents** for a team to expand and show the agents' individual adherence percentages for each interval.
- Click **Historical adherence** next to an agent's name to open the detailed historical adherence view for this agent.

> **NOTE** The adherence values in the **Today** view are updated if the schedule is changed retroactively, if an occurrence of out of adherence is approved, and if the adherence is adjusted to neutral.

Related topics

- About historical adherence
- Monitor agent adherence
- Monitor agent adherence
- Review detailed historical adherence
- Adjust adherence to neutral
- Group adherence states
- Create adherence rules

- Configure when adherence rules apply
- Track when agents are late

Review detailed historical adherence

Review the detailed historical adherence for an agent. This view provides a view of the full shift, with information on all periods when the agent was out of adherence. The calculated adherence percentage for the day is shown in the top left corner. If there are retroactive schedule changes, the adherence percentage is updated. This is done for schedule changes up to 30 days back.

The detailed adherence view displays the shift including one hour before the shift start and one hour after the shift end. Any states that are registered before or after the shift do not affect the agent's adherence score.

A dark red horizontal line through the shift indicates that the agent has been out of adherence for that time. If the agent is considered out of adherence or not is based on the settings for the rule which is connected to the state and activity combination that the agent is in.

Approving out of adherence

The adherence percentage is updated if the schedule is updated retroactively. But, there might be situations where the agent was out of adherence and had valid reasons to be. In these situations, you can approve this occurrence as in adherence. This triggers a recalculation of the adherence percentage and adjusts the out of adherence line.

Similarly, if there are technical issues that cause the adherence values to be unreliable, neutral adherence can be set for all agents for this time period. The adherence percentage is then recalculated in relation to that, and the dark red out of adherence line is replaced with a dark blue line to indicate that adherence values have been adjusted to be neutral. See Adjust adherence to neutral for more information.

Late for work

The detailed adherence view shows if the agent was late for work. If the agent logged in to the ACD platform after the shift started, this is highlighted with a vertical line through the shift. The number of minutes that the agent was late is displayed.

The late for work functionality only applies to the start of the shift and for selected activities. The calculation is done from the start of the first activity for which tracking of late for work is turned on to the moment the agent enters a logged-in state.

There is a one-minute threshold for registering late for work. This means an agent will not be shown as late for work if they log in 30 seconds late.

Prerequisites

- You have the Web > Adherence permission.
- To approve periods when the agent was out of adherence as in adherence, you must have the Web > Adherence > Approve permission.
- State groups are created.
- Adherence rules are created.
- Adherence rules are set for each activity and state group combination.
- The agents are connected to an external logon.

Page location

WFM > Adherence

Procedures

Access detailed historical adherence for an agent

There are two ways to access the detailed historical adherence.

- In the **Monitor agents** view, click the **Historical adherence** button for the agent whose adherence you want to have a closer look at.
- In the **Historical overview**, click the adherence percentage for the day and agent you want to see more details for.

Review an agent's historical adherence

The detailed historical adherence view displays the agent's whole shift. A dark red, horizontal line indicates the periods when the agent was out of adherence. The total adherence percentage for the day is shown in the top left corner. If you are looking at an ongoing shift, the adherence percentage shows the adherence value up until now.

If the agent was late for work, the arrival time is indicated by a vertical orange line in the shift. The number of minutes that the agent was late is displayed.

To review the adherence information, expand the activity that you want to explore in the list of activities. When expanding an activity, you'll see a row for each state change during that activity. It displays the exact time for the state change, the duration, the rule that applies for this activity and state combination, and if the agent was in or out of adherence.

NOTE The list of activities only contains activities during which either the state or the rule changed at least once.

You can use the diamonds below the shift to further explore the adherence information. The diamonds represent all rule changes. Click a diamond to highlight the row for that rule change in the activity table and review the details.

The detailed historical adherence is available for today and 30 days back. Use the arrows in the top right corner to navigate between days.

Approve an occurrence where the agent was out of adherence as in adherence

1. In the **Recorded adherence** row below the shift, click the out of adherence section that you want to approve.

   A list of all recorded out of adherence occurrences for today is shown in the **Recorded adherence** table below, with their start and end time. The start and end time of the currently selected occurrence is shown to the right.

2. If needed, adjust the start and end time to define the time period that you want to approve.

   The green section in the **Approved as in adherence** row below the shift is adjusted to match the new start and end time.

3. Click **Approve as in adherence**.

   - The green section in the approved as in adherence row turns a darker green to indicate that it is approved.
   - The out of adherence line in the shift is removed for the approved time period.
   - The adherence percentage is recalculated.
   - The time period is added in the **Approved as in adherence** table.

NOTE The adherence percentage in the Historical overview is adjusted when you approve an occurrence of out of adherence as in adherence, and this is reflected in the Adherence per Agent report. The ready-time adherence reports are not affected as they are based on ready-time adherence. See About ready-time adherence for more information.

Remove a previous approval of an out of adherence occurrence

1. Click to show the list of occurrences that are **Approved as in adherence**, below the shift.
2. Click **Remove** for the period for which you want to remove the approval. The adherence percentage is once again recalculated and the out of adherence line re-added to the shift.

Related topics

- About historical adherence
- Monitor agent adherence
- Review historical adherence for a team
- Adjust adherence to neutral
- Group adherence states
- Create adherence rules
- Configure when adherence rules apply
- Track when agents are late
- Monitor agents' focus and activity—View the apps and websites an agent used on a specific date

Adjust adherence to neutral

Adjust the logged adherence to neutral for periods when the it is unreliable, for example because of technical issues. Neutral adherence means this time period is not considered when calculating the adherence percentage.

EXAMPLE Agents are scheduled from 08:00 to 17:00. There are technical issues during 08:00 to 10:00 causing agents to show as out of adherence. Managers choose to adjust adherence to neutral for this time period. The agents' adherence for the day is calculated based on their work during the rest of the shift, from 10:00 to 17:00.

NOTE When you adjust the logged adherence to neutral, this is done for all agents across all business units.

There is also a possibility to approve any logged out of adherence as in adherence for an individual agent. See Review detailed historical adherence for more information.

Prerequisites

- You have the Web > Adherence permission and the underlying permissions Adjust to neutral and Historical overview.

Page location

WFM > Adherence > Historical overview > Adjust adherence

Procedures

Adjust adherence to neutral for all agents

1. Click **Add period**.
2. Select a start day and start time and an end date and end time.
3. Confirm that the time period, written in bold above the calendars, is correct.
4. Click **Adjust to neutral**. The adjusted period is listed below the calendar with information on when it was done and by which user.

NOTE In the detailed historical adherence for an agent, any adherence that has been adjusted to neutral is shown in dark blue in the shift.

Remove an adjusted adherence period

- In the list of adjusted periods, click **Remove** for the period you want to remove the adjustment for.

  The adjusted adherence is removed, and the affected adherence percentages are changed back to what they were before adding the neutral period.

Related topics

- Monitor agent adherence
- Monitor adherence on team level
- Review historical adherence for a team
- Review detailed historical adherence
- Group adherence states

- Create adherence rules
- Configure when adherence rules apply
- Track when agents are late

About historical adherence

Historical adherence indicates how well agents have adhered to their schedule and is based on the stored real-time adherence data. Therefore, the calculation of historical adherence depends on the configuration of state groups, rules and rule mappings in WFM client > Options > Real-time adherence.

The historical adherence is available in the Adherence tool and in the Adherence per Agent report.

> **NOTE** The historical adherence is tracked on a detailed level, and therefore the calculated historical adherence percentage is very accurate. This percentage will not completely match the ready-time adherence percentage which is calculated based on ready time and on interval level. See About ready-time adherence for more information.

If an agent is considered to be in adherence, out of adherence or in a neutral state is based on:

- The state that the agent is in.
- The activity on which they are scheduled at that time.
- The rule that is defined for that combination of state and activity.
- The adherence setting which is selected for that rule.

Calculation of historical adherence

The formula for calculating the historical adherence percentage is:

Adherence % = (Total time in adherence ÷ (Total work time - Total neutral periods)) × 100

> **EXAMPLE**
> An agent has worked a 6-hour shift.
>
> - 3 hours were in a state and activity combination connected to a rule defined as in adherence.
> - 1 hour was in a state and activity combination connected to a rule defined as out of adherence.
> - 2 hours were in a state and activity combination connected to a rule defined as neutral.
>
> The agent's adherence is 75%, because the 2 neutral hours are disregarded.

The adherence percentage is always for the full shift, even if the shift crosses midnight.

In the Historical adherence overview and the Adherence per agent report, the adherence percentage for an agent is shown when the shift has ended. In the Historical adherence day view you can see the current adherence percentage for an ongoing shift, based on the adherence from the start of the shift until now.

In the Historical adherence day view for an agent, the full shift is displayed including one hour before shift start and one hour after shift end. Any states that come in before or after the scheduled shift do not affect the adherence score.

The adherence for absences is controlled by the rule defined for time with no scheduled activity. Use that rule to if you want to consider absence time as neutral, to not affect the adherence percentage on day or period level.

NOTE

- If an agent was originally out of adherence for a period, but that time was later either approved as in adherence or adjusted to neutral, this causes a recalculation of the adherence percentage.
- Any retroactive change to an agent's schedule causes a recalculation of the adherence percentage for that day. This happens for schedule changes up to 30 days back. If any occurrence where the agent was out of adherence has previously been manually approved, this approval is taken into consideration in the recalculated adherence percentage. If an agent's late arrival is no longer relevant when their schedule has been changed, the *Late for work* occurrence is removed.

Related topics

- Configure when adherence rules apply
- Review detailed historical adherence
- Review historical adherence for a team
- Adjust adherence to neutral
- Adherence per Agent report

About ready-time adherence

Ready-time adherence indicates how well agents have adhered to their schedule. It compares the agent's total scheduled ready time to the total actual ready time for each interval. The calculation can consider the scheduled not-ready time, depending on the selected ready-time adherence calculation.

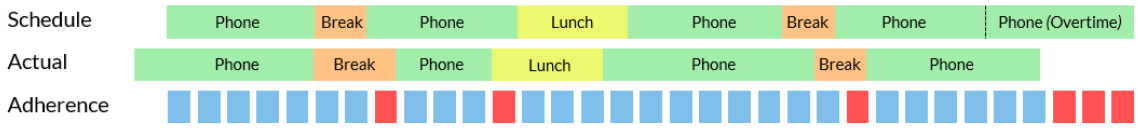
> **NOTE** The ready-time adherence percentage is calculated on interval level and will not completely match the more detailed historical adherence shown in the Adherence tool and the Adherence per agent report. See About historical adherence for more information.

There are three methods to calculate ready-time adherence, described below. In the reports that include ready-time adherence, you can select which method to use. The adherence calculation method selected in Options > System settings is used in MyReport in MyTime and for badge calculation.

Ready time vs. scheduled ready time

When this calculation is selected, the ready-time adherence is only affected if the agents are not ready when they are scheduled to be ready. If an agent is ready when they are scheduled on a break, the ready-time adherence is not affected.

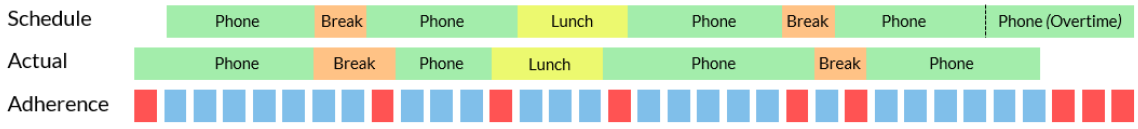
Adherence = (Scheduled ready-time - Deviation) ÷ Scheduled ready-time



Ready time vs. scheduled time (incl. time before and after shift start)

When this calculation is selected, the ready-time adherence is affected if the agents are not ready when they are scheduled to be ready. It is also affected if they are ready when they are scheduled to do something else, or if they are ready before or after their shift. By default, two hours before and after the scheduled shift are included.

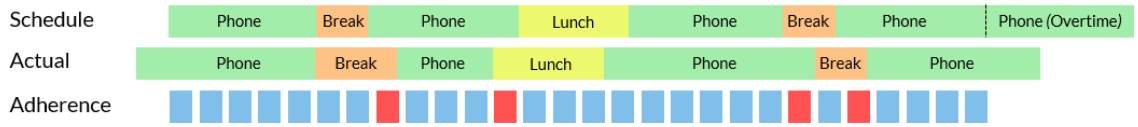
Adherence = (Schedule time - Deviation) ÷ Scheduled time



Ready time vs. scheduled contract time

When this calculation is selected, the ready-time adherence is affected if the agents are not ready when they are scheduled to be ready. It is also affected when they are ready when they are scheduled to do something else. Only contract time is considered. That means lunch is usually excluded and overtime is always excluded.

Adherence = (Scheduled contract time - Deviation) ÷ Scheduled contract time



Deviation

The ready-time adherence calculation is based on the number of minutes that the agent has deviated from their schedule. The deviation is shown per agent and interval in the ready-time adherence reports.

If the actual ready time is less or equal to the scheduled ready time, the deviation is the actual difference between scheduled ready time and actual ready time.

Deviation = Scheduled ready time - Ready time

If an agent over-performs and has more minutes of actual ready time than scheduled ready time, the calculated deviation is not the actual deviation. It is only used to calculate a correct adherence percentage. The formula used in these cases is:

Deviation = (Ready time - Scheduled ready time) × (Scheduled ready time ÷ Ready time)

Related topics

- Ready-Time Adherence per Agent report
- Ready-Time Adherence per Day report
- Agent Metrics report
- Team Metrics report
- Improve report

There is missing or inaccurate historical data

Problem	Things to check

I cannot see data in Intraday.
 	
The data does not matching source data..
	■ Check to see if the data is present in **WFM standard reports** > **Queue Stats report**
	■ Ensure that there is a forecast created for the skill(s) and dates that you are viewing in Intraday.
	■ Ensure that the open hours are defined in the forecast.
	■ Go to **Client** > **Workload** > **Properties** > **Calculations** and review the configured settings.
	■ Other important points to note are:
	  ■ Intraday is always displayed in the time zone of the user who is viewing the data. The time zone is set in the People module in the Client.
	  ■ There must be a forecast in place for Intraday data to populate.
	  ■ Intraday data can be viewed for today, seven days ago, and one day in advance.
	  ■ Intraday is updated at the speed that the ACD platform sends the information.
	  ■ Data can update for past intervals as additional information is received from the ACD.
	  ■ Intraday continuously updates with changes to the schedule and forecast.
	  ■ On the Performance tab, the predicted service level is not updated if retroactive schedule changes are made for periods more than 24 hours ago.

Evaluators

Evaluators assess contacts by agents with customers. They might also write evaluation questions or ensure consistency among other evaluators.

Access contacts assigned to you (classic page)

NOTE The information on this page covers the classic version of the Contact Queue page. For information on the new version, go to Access contacts assigned to you.

How do I know which version I have?

If you see the **Interactions** and **Goals** buttons at the top of the page, you have the new page. If you don't see these buttons, you have the classic page.

The Contact Queue page displays any contacts that have been assigned to you for calibration, evaluation, or review. Contacts can be assigned to you through *contact goal tasks* or *ad-hoc tasks*.

Task type	Definition
Contact goal task	If your administrator has created a contact goal for you, Webex WFO automatically assigns you a number of contacts to complete each day, week, or month. You can also be assigned a contact goal for a specific date.
Ad-hoc task	Contacts that a team leader or administrator has specifically assigned to you.

NOTE Contacts must be less than a year old for them to appear in your contact queue. If an administrator assigns you an ad-hoc task for contacts more than a year old, they do not appear in your queue.

Prerequisites

- Your organization uses Cisco Quality Management.
- You have these permissions:

- View Contacts
- View Contact Goal
- Evaluate Contact (needed to complete evaluation goals)
- Calibrate Contact (needed to complete calibration goals)

- A team leader has assigned contacts for you to in an ad-hoc task, or an administrator has created a contact goal and assigned it to you.

Page location

Contact Queue

Procedures

Work with contacts assigned to you

1. Read the information in the **Action**, **Due Date**, and **Instructions** columns. You might need to scroll sideways to see these columns. These are the types of Actions:

Action	What you need to do
Calibration	Evaluate the contact. Your evaluation is compared with other evaluators' submissions to ensure consistency among evaluators.
Evaluation	Evaluate the contact for quality.
Review	Play the recording or part of the recording as instructed by the person who created the task.

2. Double-click the task. The contact opens in a new tab.
3. Play and evaluate the contact as needed and close the tab.
4. Go back to the Contact Queue page and click **Refresh**  . If you have finished the task, it disappears from the page.

> **NOTE** Contact goals can contain more than one contact. The Contact Queue page shows one contact at a time for each goal assigned to you. Once you finish working with the first contact from the goal, Webex WFO assigns you another contact until you have finished all the tasks for that contact goal.

Add or remove columns on the Contact Queue page

1. Click **Settings**  . The **Configure Fields** window opens.
2. To add a column, select its check box. To remove a column, clear its check box.
3. Click **Apply**. The **Configure Fields** window closes.

The contact queue contains the same columns as the Interactions page (see Customize the columns on the Interactions page) plus the following fields:

Column name	Description
Action	The type of task
Ad Hoc Task ID	The ID of the ad hoc task for this contact
Due Date	The date by which you must complete this task
Task Name	The name of the task or contact goal
Instructions	Any specific instructions for the task provided by the person who created the task

Related topics

- —Information about completing and submitting evaluations and calibrations.
- Customize the columns on the Interactions page—Definitions for the other columns that appear in the Contact Queue.
- Assign review, evaluations, and calibrations manually—Instructions for team leaders to create an ad-hoc task.
- Assign evaluations, calibrations, and reviews automatically—Instructions for administrators to create a contact goal.
- Assign reviews, evaluations, and calibrations automatically (classic page)—Instructions for administrators to create a contact goal.
- Access contacts assigned to you

Access contacts assigned to you

The Contact Queue page displays any contacts that have been assigned to you for calibration, evaluation, or review. A supervisor might assign these contacts to you, or Webex WFO might automatically assign you a number of contacts to complete each day, week, or month.

Prerequisites

- You have these permissions:
  - View Contacts
  - View Contact Goal
  - Evaluate Contact (needed to complete evaluation goals)
  - Calibrate Contact (needed to complete calibration goals)
- A supervisor has assigned contacts for you with an ad-hoc task (see Assign review, evaluations, and calibrations manually), or an administrator has created a contact goal and assigned it to you (see Assign evaluations, calibrations, and reviews automatically).
- The contacts assigned to you are less than a year old. If someone assigns you an ad-hoc task for contacts more than a year old, they do not appear in your queue.

Page location

Contact Queue

Procedures

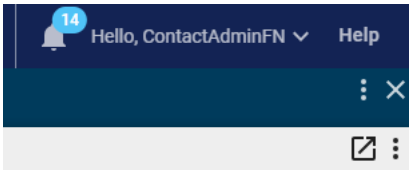
Work with contacts assigned to you

1. Click **Interactions**.
2. Read the information in the **Action**, **Due Date**, and **Instructions** columns. You might need to scroll sideways to see these columns. You might also need to open the contact to see all the instructions. These are the types of Actions:

Action	What you need to do
Calibrate	Evaluate the contact. Your evaluation is compared with other

Action	What you need to do
	evaluators' scores to ensure consistency among evaluators.
Evaluate	Evaluate the contact for quality.
Review	Open the contact. If the contact includes a recording, play the recording or part of the recording as instructed by the person who created the task. **BEST PRACTICE** To make sure the assignment gets marked as complete for an audio contact, play the recording all the way to the end.

3. Double-click the contact. The contact opens in the Media Player.
4. Play and evaluate the contact as needed.
5. Click **X** (upper-right corner of the page) to close the contact. The contact disappears from the Contact Queue page.



View your progress on contact goals

Contact goals can contain more than one contact.

- Click **Goals** (upper-left corner of the page). The Goals section shows progress you have made on your goals, when the goals are due, and how many contacts each goal contains.

View the interactions for a specific goal

1. Click **Interactions**.
2. Select the goal from the **Filter by goal name** drop-down list. Interactions that are not part of that goal disappear from the page.

   To view the interactions for all goals again, refresh the page.

Add or remove columns on the Contact Queue page

1. Click **Interactions**.
2. Click the settings icon (, upper-right corner of the page). The **Show/Hide columns** window opens.
3. To add a column, select its check box. To remove a column, clear its check box.
4. Click **Save**. The **Show/Hide columns** window closes.

The table below describes the columns on the Contact Queue page.

Column name	Description
Date	The date on which the contact was captured. The format varies based on the language you select on either the login screen or the settings drop-down list.
Time	The start time of the contact in HH:MM. By default, Webex WFO displays this time in the time zone of the capture source (for example, the Record Server or the PC with Smart Desktop). If the Display Contacts in User Time Zone check box is selected on the QM Global Settings page, Webex WFO displays this time in your display time zone. See Configure QM global settings.
Time Zone	The time zone for the Date and Time fields. By default, Webex WFO displays this time in the time zone of the capture source (for example, the Record Server or the PC with Smart Desktop). If the Display Contacts in User Time Zone check box is selected on the QM Global Settings page, Webex WFO displays this time in your display time zone. See Configure QM global settings.
Contact ID	The conversation’s unique ID.
Contact Type	Possible values for this column are:

Column name	Description
	■ Call—A contact with a call recording. ■ Chat—A written contact that happened within your organization's chat program. This can be with a human agent or with a chat bot. ■ E-mail—An email contact without call recording. This contact type appears only when your organization uses both Quality Management and Analytics. ■ Non-Call—A contact without a call recording that someone created by clicking Create Contact on the Interactions page. ■ Screen Only—A screen recording contact without call recording. ■ SMS—A written contact that happened within your organization's text-messaging program. ■ Text—Depending on how your organization imports written contacts into Webex WFO, this could include emails, chat messages, or other text contacts.
Channel	The channel where the contact occurred. This column appears if your organization uses a supported integration for social media contacts. The possible values for this field vary based on the types of social media platforms your organization uses.
Contact Duration	The length of time between the call being answered and the call ending, including ring time and extended screen time (if any) in HH:MM:SS. This field applies only to calls. The call duration shown on the Contact Queue page might not be the same as the duration shown in the Media Player because "event duration" (the time between events) and "recording duration" (the duration within the actual recorded file) can be different. These scenarios cause the call duration to be different: ■ If you use the Recording Controls API to pause, resume, or restart recording, the recording duration is shorter than the actual call

Column name	Description
	duration. For example, if recording is paused for one minute, the recording duration is one minute shorter than the call duration. ■ If you archive or clean a call with a long ring time, the Contact Queue page shows the event duration, and the Media Player shows the recording duration.
First Name	The agent's first name.
Last Name	The agent's last name.
Score	The evaluation score given to the contact. **NOTE** Calibration scores do not appear in this field. For calibration scores, use the Evaluation Calibration.
Evaluator Name	The evaluator or calibrator. This information appears if you are the evaluator or if you have the View Evaluator Details permission.
Date Evaluated	The date when the contact was evaluated. This information appears if you are the evaluator or if you have the View Evaluator Details permission.
Evaluation Form	The evaluation or calibration form used to score the conversation.
Action	The type of task: Evaluate, Calibrate, or Review.
Goal name	The name of the contact goal.
Goal ID	The ID of the contact goal.
Instructions	Any specific instructions for the goal provided by the person who created the goal.
Due Date	The date by which you must complete this goal.
[custom data]	Varies. This information is unique to your organization. An administrator sets up this information on the Metadata Manager page. These columns

Column name	Description
	appear if you have the View Custom Metadata permission. See Manage custom metadata fields

Related topics

- —Information about completing and submitting evaluations and calibrations.
- Assign review, evaluations, and calibrations manually—Instructions for team leaders to create an ad-hoc task.
- Assign evaluations, calibrations, and reviews automatically—Instructions for administrators to create a contact goal.
- Access contacts assigned to you (classic page)

Download contacts on demand

Some call contact data (audio and/or screen recordings) might be initially unavailable when you double-click to play back a call due to the data storage state.

If any or all of a call recording is unavailable, you are prompted to choose whether to play the portion that is immediately available or to download the portion that is unavailable. A dialog box containing information about Audio Storage and Screen Storage indicates the state of each component:

- N/A—There is no audio or screen data associated with this contact.
- Cold Storage—The data is in cold storage. There might be a delay for retrieving the data.
- Immediate Storage—The data is available for immediate playback.

If you choose to download the portions that are unavailable, you are notified when the recording is available.

Skip forward and back in a recording

The Timeline panel allows you to control the playback of an audio or screen recording.

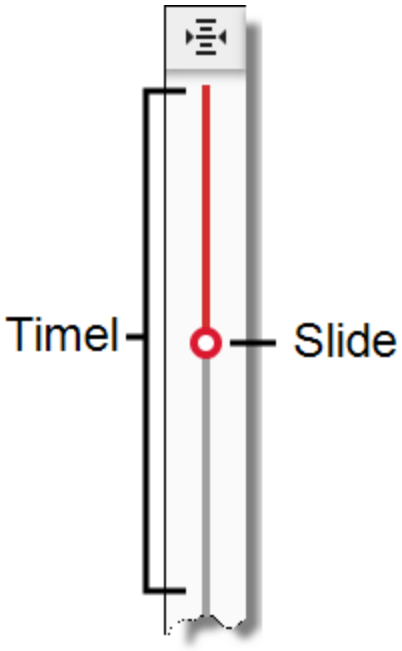
Contact Type: Call, Screen Only

Contact Content: Has Voice, Has Screen

Licenses Required: CR, QM, Webex WFO Access

Permissions: View Contacts

Drag the slider in the timeline to move forward or backward to specific points in the recording.

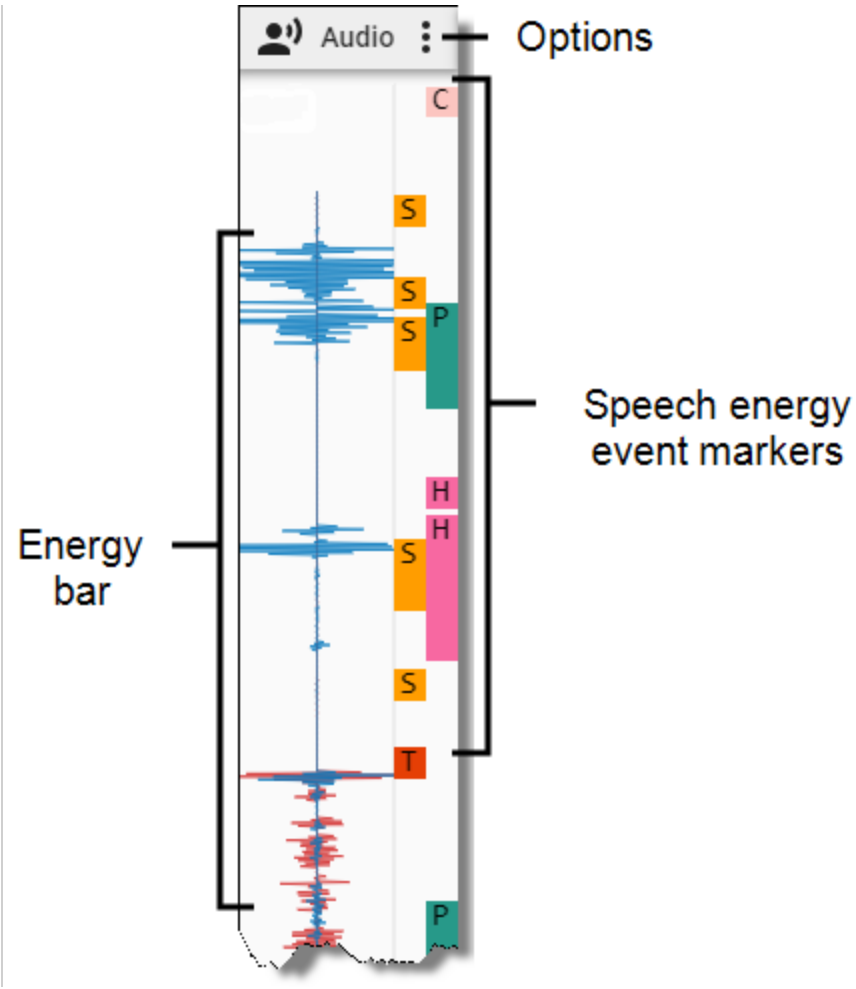


A red progress line in the energy bar lines up with the slider as the recording plays. This allows you to see how the recording matches the data in any of the following panels that are available to you:

- Audio
- AI Sentiment Trend
- Phrase Hits
- Desktop

Listen to an audio contact

The Audio panel in the Media Player visualizes the audio recording.



Prerequisites

- Your organization has the QM, CR, and Webex WFO Access licenses.
- You have the View Contacts permission.
- The contact's Contact Type is "Call," and its Contact Content includes "Has Voice."

Page location

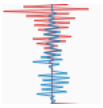
Interactions > Double-click a contact > Audio panel

View speech activity

The energy bar shows where audio activity (the agent and customer speaking) occurred throughout the contact. You can drag the timeline slider to a place where the energy interests you and listen to that portion of the audio.

> **NOTE** If an agent's screen activity was recorded before a call started or after a call ended (for example, because of a Screen Recording Extension configuration), the energy bar is blank during that portion of the recording.

The color of the audio streams depends on the type of recording.

Energy Bar	Recording Type	Description
	Stereo	The inbound audio stream is blue. The outbound stream is red.
	Mono	The audio stream is red.

View events

Speech energy event markers label where Webex WFO detects significant audio events, such as where both the agent and the customer spoke at the same time.

Click an event marker to move the timeline slider to it, or hover over an event marker to see further details.

The following table describes all event markers.

Icon	Type	Description
	Comment	Someone commented on the evaluation while playing the contact. **NOTE** Comments left on evaluation forms that are in calibration mode do not appear as event markers.
	Hold	The agent placed the call on hold.

Icon	Type	Description
P	Pause	The recording was paused because the agent did something that told Webex WFO to stop recording (see Identify websites and apps to be tracked by Analytics).
S	Silence	Neither the agent nor the customer was speaking (see About silence and talk over events). **NOTE** Brief background noises might appear as audio energy, but Webex WFO still considers those silence.
T	Talk over	Both the agent and the customer were speaking at the same time (see About silence and talk over events).

Filter events

Click the Options icon to select the types of events that appear.

Related topics

- About silence and talk over events—Learn more about how Webex WFO identifies silence and talk over.
- Identify websites and apps to be tracked by Analytics—Specify agent actions that tell Webex WFO to pause and resume recording.
- Configure QM global settings—Establish how long silence or talk over must happen for Webex WFO to mark it as an event.

About silence and talk over events

A recorded call contains two streams of audio that represent the two sides of a call. In the Media Player, the Audio panel displays the inbound stream in blue and the outbound stream in red. In a normal conversation, the energy alternates between the outbound call and the inbound call.

When the inbound call and the outbound call spike simultaneously, that is a talk over event. The Audio panel displays a talk over icon in the energy bar where a talk over event occurs. When both parties are silent during a call, that is a silence event. During a silence event, the line in the energy bar is flat. The Audio panel displays a Silence icon in the energy bar where a Silence event occurs.

Normally, each stream contains the voice of a single person: either the agent or the customer. Occasionally, a stream includes multiple voices. For example, a conference call contains the agent stream where you hear the agent's voice and a second stream where you hear the voices of all other parties in the conference call.

Calls can include non-speech noises (for example, wind, typing, background conversions, or barking dogs). Webex WFO processes these noises in addition to speech when searching for silence and talk over events in a call. Brief background noises might display as audio energy, but Webex WFO still considers those silence.

Webex WFO uses a Voice Activity Detection (VAD) module to classify audio as silence or speech. VAD is designed to analyze phone calls where you expect to hear two or more people talking to each other. VAD analyzes separate blocks of audio data and calculates an average sound volume for each block. The blocks are called frames. (A frame size is measured in milliseconds of audio. VAD uses the same frame size when processing all audio in a file.) VAD uses its decision threshold to determine if each frame indicates silence or speech. If the average volume for the frame falls below the VAD decision threshold, it marks the frame as mutual silence. VAD processes each frame of each stream, compares the frames from stream 1 and stream 2, and assigns an audio type to each pair of frames. The audio types are as follows:

- Mutual Silence (MS)—Both frames are silent.
- Normal (N)—One frame contains speech, and the other frame is silent. This indicates normal conversation.
- Talk Over (TO)—Both frames contain speech.

VAD uses a heuristic algorithm that adapts based on the quality of the audio data. In a noisy environment, the VAD decision threshold rises to mark only the loudest noises as speech. Otherwise, the entire phone conversation would be marked as constant speech, even if the noise is caused by a car engine or another form of non-speech background noise. In a quiet environment where the person is not speaking loudly, the VAD decision threshold falls so that it can correctly identify speech at a low volume. This allows the entire call to be marked as normal speech instead of silence.

This adaptability allows VAD to be more accurate when detecting speech or silence, but it is not always 100% accurate. Because VAD uses average sound volume to tell the difference between speech and silence, there will always be instances where it incorrectly identifies normal speech or mutual silence in a frame of audio. When background noise levels change, VAD needs a few seconds to adapt. During this time, it might mark audio as normal speech when no one is speaking, or it might mark mutual silence when someone is speaking. During mutual silence, for example, a sudden noise like typing on the keyboard or coughing might be loud enough to cause VAD to identify a frame as talking even though no one is speaking. Essentially, VAD does not know the difference between human speech and the sound of a car engine.

It is also possible that VAD might not identify a talk over or silence event. For example, it might miss a talk over event even when two people are clearly talking to each other on a call at the same time. If one of the speakers during the talk over event pauses to think or take a breath for at least a quarter of a second, VAD could mark the frame as an instance of silence. From the speaker's perspective, they were constantly talking; you would expect VAD to indicate a talk over event. From VAD's perspective, however, there was a period of silence during the conversation, so it cannot be considered a talk over event.

On the Application Management > QM > QM Configuration > Global Settings page, you can establish the minimum duration of silence or talk over to be considered an event. For each event, Webex WFO saves the type (silence or talk over), the duration of the event in milliseconds, and the start of the event as an offset from the beginning of the audio.

Watch the screen capture of a contact

The Screen Capture panel provides a comprehensive view of the agent's actions throughout a contact. You can replay programs the agent opened, buttons the agent clicked, and text the agent typed.

Contact Type: Call, Screen Only

Contact Content: Has Screen

Licenses Required: QM, Webex WFO Access

Permissions Required: View Contacts

The Screen Capture panel can display recordings of both single- and multiple-monitor setups. With recordings of multiple-monitor setups, the panel displays one monitor at a time. To display a different monitor, hover over the panel and click the monitor you want.

You can display the Screen Capture panel in the Media Player or in a separate browser window.

- To open the panel in a separate browser window, click the Undock icon.
- To return the panel to the Media Player, click the Dock icon or close the browser window.

NOTE You cannot undock panels if you are using a pop-up blocker. To undock panels, disable your pop-up blocker.

The screen size for screen recording playback is 1920 × 1088. If the total screen size for the screen recording is larger than 1920 × 1088, it will be reduced to appear in the Screen Capture panel. If you undock the panel and resize the browser window, the screen recording resizes accordingly. Multi-monitor recordings are at least twice the size of single-monitor recordings.

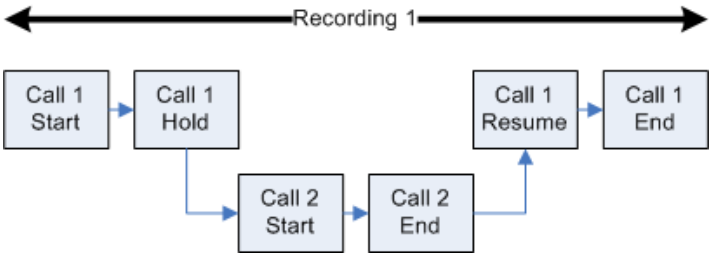
Examples of contact scenarios

The following topics describes how agents handle two call simultaneously, blind call transfers, and conference calls.

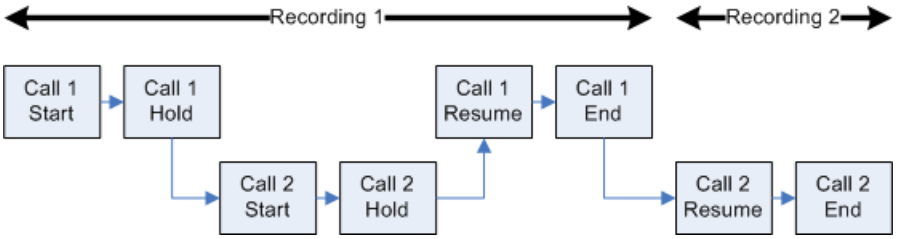
Bracketed and interleaved call recordings

When an agent or knowledge worker handles two calls simultaneously by putting one on hold and switching between them, the result can be one or two recordings, depending on whether the calls are bracketed or interleaved.

In the following figure, Recording 1 is created for Call 1. It also contains the entire audio from Call 2. Call 2 is bracketed within Call 1.



In the following figure, Recording 1 is created for Call 1. It also contains the portion of audio from Call 2 during the time in which both calls are active. Recording 2 is created for Call 2 after Call 1 ends. Recording 2 only contains the portion of audio from Call 2 beginning after Call 1 ends. Call 1 is interleaved with Call 2. The duration reported for Call 2 is from the time that Call 2 starts until the time that Call 2 ends. However, the actual duration of Recording 2 is from the time Call 1 ends until the time Call 2 ends.



Using the Associated Contacts tab on the Media Player pane, you can play any segment of a call between the time that it enters the contact center and when it is terminated. Clicking Associated Contacts enables you to see every call segment associated with a call. See Playing All Segments of a Call for more information on associated contacts.

Blind transfer

A blind transfer occurs in the following circumstances:

- A call is routed to a third party
- The original call is ended, and no check is made to determine whether the transferred call is answered
- The third party phone number is busy

> **EXAMPLE** The recording for the first agent stops when the agent transfers the call. The recording continues when the second agent answers the transferred call. If the second agent does not answer the call, the recording ends when the first agent transfers the call.

Conference calls

Conference calls are handled differently than solo calls in the Media Recorder. This topic describes conference calls.

Supervised conference

A supervised conference call occurs when an agent adds a third party to the call. The agent can choose to add the third party to the call without first speaking to the third party or to speak to the third party before actually completing the conference call.

> **EXAMPLE** The caller is placed on hold when the first agent initiates a conference call to the second agent. While the caller is on hold, the discussion between the two agents is recorded. When the caller is added to the conference, the call continues to be recorded. The recording for the first agent stops when the agent hangs up, and the call between the second agent and the caller continues recording.

Hold with call on second line

A hold with a call on a second line occurs when an agent places the caller on hold while talking to a third party on a second line.

> **EXAMPLE** The QM8 user places the caller on hold. A flat line represents the hold in the energy bar for Contact ID 1344. While on hold, the QM8 user picks up a second line and calls QM1 user at 2471827118. The call on the second line does not appear in the associated contacts for Contact ID 1344 because it is a separate call.

View agent actions for a contact

The Desktop panel summarizes the actions that agents took on their phones and computers. This allows you to identify and analyze decisions that affected their handling of the contact.

> **NOTE** Because of the way desktop data is processed, this panel does not show information if your organization integrates with Cisco Webex Contact Center.

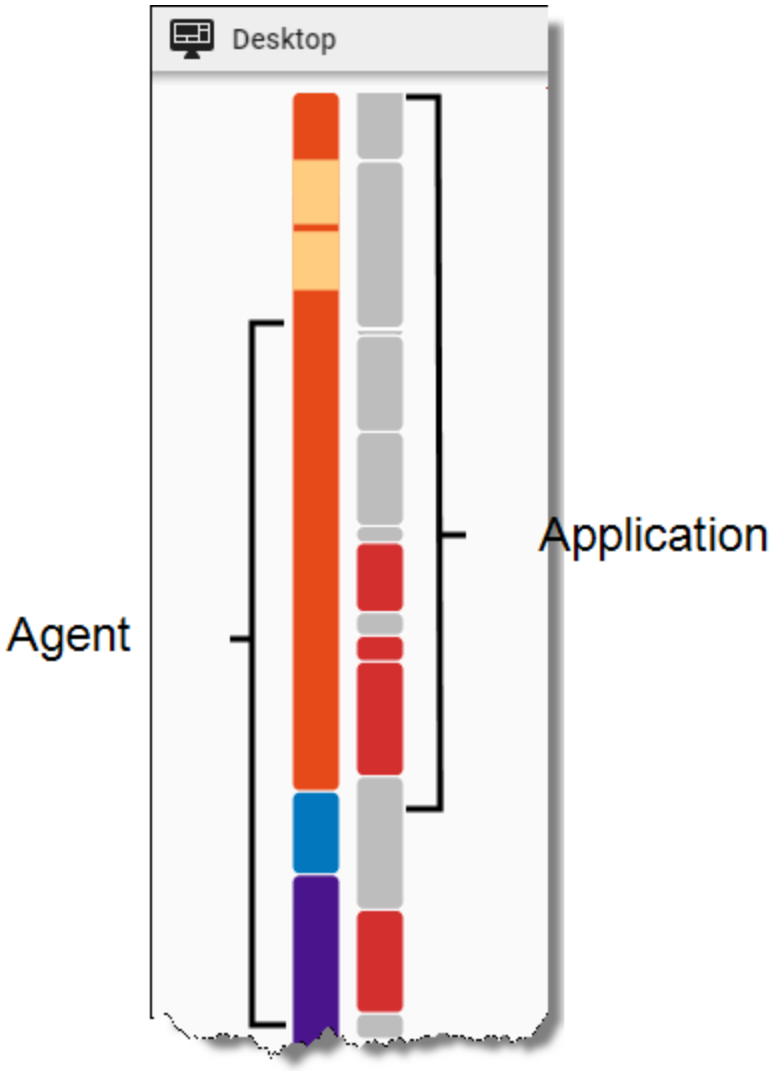
Contact Type: Call, Screen Only

Contact Content: Has Voice, Has Screen

Licenses Required: Webex WFO Access

Permissions Required: View Contacts, View Desktop Analytics

The panel contains the agent contact bar and the application usage bar.



Agent contact bar

The agent contact bar divides the contact into color-coded segments by the duration of each agent contact. Yellow bands indicate the duration of any desktop events that occurred during each state.

You can click an event or state to move the timeline slider to it, or you can hover over an event or state to see a tooltip that contains further details.

The following table describes the colors of the segments in the agent contact bar.

Color	State Type	Description
	Active	The agent was talking with the customer.
	On Hold	The agent put the customer on hold.
	After Call Work	The agent was disconnected from the customer, but completing work related to the contact.
	Event	The agent triggered a desktop event. Desktop events are moments where Webex WFO intervenes in a recording when an agent performs a predefined task in an application or website. For example, an administrator can configure Webex WFO to pause recording when an agent clicks a specific field (see Configure desktop item events).

Application usage bar

The application usage bar divides the contact into segments by the applications and websites that the agent accessed throughout.

NOTE The application usage bar shows only applications and websites that were active and in focus during the contact.

You can click an application segment to move the timeline slider to it, or hover over an application to see a tooltip that contains further details. If you click the Zoom In icon on the Media Player toolbar, the panel also displays the name of each application or website.

Applications are color-coded by their approval status (see Add a New Desktop Item).

Color	Status	Description
	Approved, Ignore, or New	The agent used an application that they are allowed to, that does not yet have an approval status, or that is ignored.
	Not Approved	The agent used an application that they are not allowed to.

Related topics

- Monitor agents' focus and activity—View the apps and websites an agent used on a specific date, including when they were not on a call

View data associated with a contact

The Details panel in the Media Player enables you to explore several categories of data associated with the contact. The sections available depend on your role, the contact type and contents, and the features enabled in Webex WFO.

Prerequisites

- Your organization has a QM or CR license
- You have the View Contacts permission

Page location

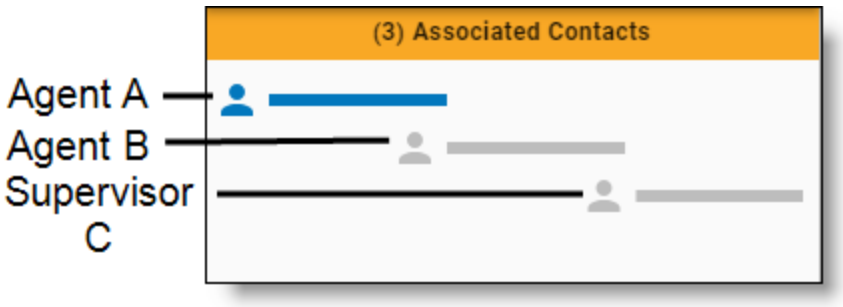
Interactions > Double-click a contact > Details panel

Associated Contacts

When multiple agents handle the same customer call (for example, when one agent transfers the call to another agent), Webex WFO creates a separate contact for each agent involved and gives these contacts the same associated contact ID. The Associated Contacts section displays such contacts, allowing you to see all segments of a call, from when it enters the contact center to when it ends.

EXAMPLE

A customer calls Agent A. Agent A transfers the customer to Agent B, and Agent B transfers the customer to Supervisor C. Webex WFO creates three separate contacts and gives them the same associated contact ID.



For further examples, see Watch the screen capture of a contact.

Webex WFO orders associated contacts chronologically and highlights the currently-loaded contact in blue. To load an associated contact, do either of the following:

- Click the associated contact that you want to load.
- Click the Previous or Next button in the Media Player (see).

You can also hover over an associated contact to see a tooltip that contains further details.

NOTE Associated contacts might not align correctly. For example, the system clock time on each PC with Smart Desktop can vary if the desktops are not syncing to the same time server. The system clock time can also vary on each PC between syncs to the same time server.

NOTE

You might not be able to play back some associated contacts. This is due to various reasons:

- They were deleted.
- They did not meet workflow criteria.
- They were under the minimum length.

With this type of contact, the energy bar associated with the contact is empty, and the recording is unavailable. You cannot listen to those segments of the call, but you can view them so you can follow how the call moved through the contact center. When you use the Next and Previous buttons to move through the list of contacts, the Media Player automatically skips contacts you cannot listen to.

NOTE You can only play back associated contacts that are within your scope. An error message appears for calls that are out of your scope.

Contact Information

The Contact Information section displays contact data. The data shown depends on the type of contact. Information for calls is different than information for emails, for example.

The following tables describe all possible contact data that can appear in the Contact Information section of the Details panel. Each table orders contact data alphabetically.

Contact

Contact Data	Description
Audio File Upload State	The status of the contact's audio file. Possible values for this field are as follows: ■ Null/blank—There is no recording for this contact. ■ File pending upload—Audio has been recorded but has not yet been uploaded. ■ File is uploaded—Audio has been uploaded and can be played back. ■ File is removed—Audio has been recorded, but the recording has been removed. ■ File is invalid—The recording file is invalid and cannot be played back. ■ File is recycled—The audio file is marked to be removed but is still recoverable.
Called Number	The direct inward dialing (DID) or Dialed Number Identification Service (DNIS) number of the phone that received the call. Displays "unknown" if the called number is unlisted or blocked. This field applies only to calls.
Calling Number	The caller ID or Automatic Number Identification (ANI) of the calling party. Displays "unknown" if the calling number is unlisted or blocked. This field applies only to calls.
Channel	The channel where the interaction occurred. This field appears if your

Contact Data	Description
	organization uses a supported integration for social media contacts. The possible values for this field vary based on the types of social media your organization uses.
Contact Direction	The direction of the contact: inbound or outbound.
Contact Duration	The length of time between the call being answered and the call being dropped, including ring time and extended screen time (if any) in HH:MM:SS. The call duration is received from the signaling service. The call duration shown in the contacts table and the Media Player might not be the same due to the difference in "event duration" (the time between events) and "recording duration" (the duration within the actual recorded file). In these scenarios, the call duration would be different: ■ When you use the Recording Controls API to pause, resume, or restart recording, the recording duration would be shorter than the actual call duration. For example, if a recording is restarted one minute into the call, the call duration would be one minute longer than the recording duration. ■ When you archive or clean a call with a long ring time, the contacts table shows the event duration in the call duration field, while the Media Player shows the recording duration in the call duration field. This field applies only to calls.
Contact ID	The conversation's unique ID.
Contact Type	The contact type. The possible values for this field are: ■ Call—A contact with a call recording. ■ Chat—A written contact that happened within your organization's

Contact Data	Description
	chat program. This can be with a human agent or with a chat bot. ■ E-mail—An email contact without call recording. This contact type appears only when your organization uses both Quality Management and Analytics. ■ Non-Call—A contact without a call recording that someone created by clicking Create Contact on the Interactions page. ■ Screen Only—A screen recording contact without call recording. ■ SMS—A written contact that happened within your organization's text-messaging program. ■ Text—Depending on how your organization imports written contacts into Webex WFO, this could include emails, chat messages, or other text contacts.
Daily Workflow	The name of the Daily Workflow associated with this contact (see Automate QM workflows).
End of Interaction Workflow	The name of the End of Interaction workflow associated with this contact.
External Parties	(Chat and SMS contacts only) The phone number, email address, or other identifier of the person who interacted with the agent.
From Address	(Email contacts only) The email addresses in the From field. This option is available only when Analytics is enabled.
HR	Indicates if the contact has been marked as an HR contact.
Reason	The reason the conversation was recorded. This reason is set in the recording rule (see View data associated with a contact).
Recording Type	The recording type associated with this device.
State	The current evaluation state of the contact. The possible values for this field are:

Contact Data	Description
	■ Scored—Contacts that are claimed by an evaluator, fully scored, and approved (if approval is required). ■ Unscored—Contacts that are unclaimed by an evaluator and unscored. ■ In Progress—Contacts that are claimed by an evaluator but which are not yet completely scored. ■ Cannot Score—Contacts that are claimed by an evaluator but cannot be scored. Evaluations with this state are not included in reporting or performance metrics. ■ Needs Approval—Contacts that are claimed by an evaluator, are fully scored, and are awaiting approval. ■ Needs Cannot Score Approval—Contacts that are claimed by an evaluator, cannot be scored, and are awaiting approval for the evaluator's inability to score.
Subject	Filters email associated with non-call contacts based on the email addresses in the To field. This option is available only when Analytics is enabled.
Survey Name	The name of a survey.
Survey Score	The score of a completed survey.
To Address	Filters email associated with non-call contacts based on the email addresses in the To field. This option is available only when Analytics is enabled.
Training	Indicates if the contact has been marked as a training contact.
Video File Upload State	The status of the video or audio file. Possible values for this field are: ■ Null/blank—There is no recording for this contact. ■ File pending upload—Video has been recorded but has not yet

Contact Data	Description
	been uploaded. ■ File is uploaded—Video has been uploaded and can be played back. ■ File is removed—Video has been recorded, but the recording has been removed. ■ File is invalid—The recording file is invalid and cannot be played back. ■ File is recycled—The video file is marked to be removed but is still recoverable.

Organization

Contact Data	Description
Agent ACD ID	The ID of the agent in the ACD.
First Name	The agent's first name. **NOTE** If the First Name, Last Name, Group and Team fields are blank, the recording is a root call. A root call is an unreconciled contact that appears as an QM archive contact. Once reconciled, the call is assigned a user (see How root calls and reconciliation work).
Group	The name of the group.
Last Name	The agent's last name.
Team	The name of the team the agent belonged to at the time the contact was recorded.

Evaluation

Contact Data	Description
Approved By	The name of the person who approved the evaluation. You can see this information if one of these is true: ■ You are the evaluator. ■ You have the View Evaluator Details permission. ■ You have the Edit Any Evaluation permission.
Calibrated	Indicates if the contact has been marked for calibration.
Date Evaluated	The date when the contact was evaluated. This value appears if you are the evaluator or when the View Evaluator Details permission is enabled. If this permission is not enabled, the value ##### is displayed. **NOTE** The date and time used to calculate the Date Evaluated value is calculated using the Universal Time Coordinated (UTC) time plus or minus an offset value associated with your time zone. For example, 09/22/2019 2:00 AM UTC converts to 09/21/2019 9:00 PM Central Daylight Time (CDT). The Date Evaluated filter uses the UTC time of when the call is evaluated. That means, depending on your time zone, a call recorded on late in the evening in the CDT time zone on 09/21/2019 is filtered as a call that was recorded on 09/22/2019. If you search the recordings that occurred on 09/21/2019 using the Date Evaluated filter, you may also need to search the recordings for the previous or next day, depending on your time zone.
Date Responded	Date the agent responded to the evaluation.
Evaluation Form	The name of the evaluation or calibration form used to score the customer conversation.
Evaluation Response	Indicates the response status for the contact: ■ Pending—The agent's response to the scored evaluation is required but has not yet been made.

Contact Data	Description
	■ Acknowledged—The agent has acknowledged the scored response. ■ Appealed—The agent has appealed the scored evaluation.
Evaluator Name	The name of the evaluator or calibrator. You can see this information if one of these is true: ■ You are the evaluator or calibrator. ■ You have the View Evaluator Details permission. ■ You have the Edit Any Evaluation permission.
Score	The evaluation score given to the contact. **NOTE** Calibration scores do not appear in this field. For calibration scores, use the Evaluation Calibration.

Speech, Speech Fields (Contacts Table)

Contact Data	Description
% Hold	The percentage of the call spent in a hold state.
% Pause	The percentage of the call spent in a pause state.
% Silence	The percentage of the call spent in a silence state (during which neither the caller or the agent are speaking).
% Talk Over	The percentage of the call spent in a talkover state (during which both the caller and the agent are speaking).
Hold Events	Number of detected hold events.
Pause Events	Number of detected pause events.
Silence Events	The number of detected silence events.
Talk Over Events	The number of detected talkover events.

Contact Data	Description
Total Hold Duration	The total duration of hold time. Format = HH:MM:SS.
Total Pause Duration	The total duration of pause time. Format = HH:MM:SS.
Total Silence Duration	The total duration of silence time. Format = HH:MM:SS.
Total Talk Over Duration	The total duration of talkover time. Format = HH:MM:SS.

Analytics

Contact Data	Description
Predictive Evaluation Score	The predicted evaluation score of an unscored contact. Webex WFO bases this predicted score on Analytics data and previous evaluation scores. Webex WFO uses the following pieces of Analytics data: call and agent attributes, speech hits, and desktop activity.
Predictive Net Promoter Score	The predictive net promoter score for the contact.

Metadata, Custom Metadata (Contacts Table)

Contact Data	Description
Variable text	The custom metadata available in Webex WFO varies by the configuration of your ACD and the Metadata Manager page. You can edit the values in custom metadata fields. See Edit custom metadata associated with a contact.

Post-Call Survey

The Post-Call Survey section displays the results of a survey completed by the customer after the contact ends. Post-call survey data appears only when your system is configured to deliver surveys and the customer has submitted a response.

Related topics

-
-

Edit custom metadata associated with a contact

If there is custom metadata associated with the contact, you can edit that metadata unless it is encrypted. In that case, the custom metadata fields are disabled.

Maximum character length varies by type.

Metadata Type	Maximum Character Length
Data	2056 characters
Date	Based on the standard date format
Hyperlink	2056 characters
Number	—

Edit the custom metadata associated with a contact

1. Click the contact whose metadata you want to edit. The Media Player opens.
2. In the Contact Information section of the Details panel, click the **Metadata** category. The Metadata category opens.
3. Enter the desired values in the metadata fields.
4. Click **Save Metadata**.

Related topics

- Delete or update multiple contacts at once—Edit custom metadata for multiple contacts at once.

Read an email contact

In the Email panel, you can review the emails that your agents received from customers.

Contact Type: Email

Contact Content: N/A

Licenses Required: QM, CR, Webex WFO Access.

Permissions Required: View Contacts

Contacts displayed in this panel have a contact type of email. Phrase hits from Text Analytics tasks are highlighted in yellow.

Read a text contact

In the Text panel, you can review text-based contacts that your agents handled.

Contact Type: Text

Contact Content: N/A

Licenses Required: CR, QM, Webex WFO Access.

Permissions Required: View Contacts

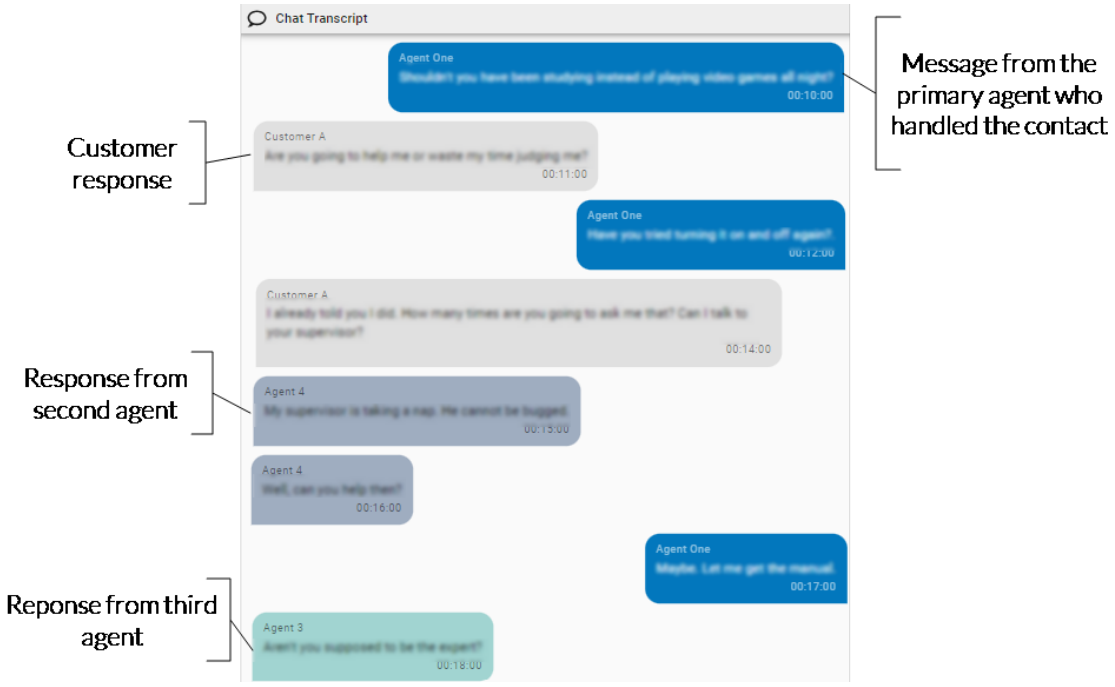
Contacts displayed in this panel have a contact type of text. Phrase hits from Text Analytics tasks are highlighted in yellow.

Read a chat contact

The Chat Transcript panel contains chat conversations. The responses from the agent who handled the contact are on the right, and responses from the customer and any other agents involved in the conversation are on the left. The messages from each person in the conversation are a different color for up to four different participants. (If a conversation has five or more participants, the colors repeat.)

You might see “System User” as a participant. These messages are automatically generated by the chat program your organization uses and usually say things like, “Agent Jane Doe has joined the chat” or “Chat session closed at 10:36 AM.”

If you click a message, the corresponding icon in the Text Map panel is highlighted.



Prerequisites

- Your organization imports chat contacts into Webex WFO via a supported integration.
- You have the View Contacts permission.

Page location

Interactions > Double-click a contact > Chat Transcript panel

Procedures

Search for words in a chat conversation

1. Click the options icon ⋮ in the upper-right corner of the panel.
2. Select **Find**.
3. Enter your search in the **Find** field. Text that matches your search is highlighted.

Print a chat conversation

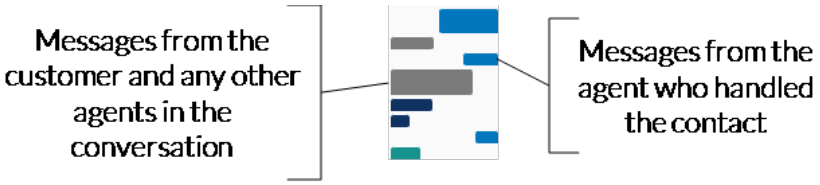
1. Click the options icon ⋮ in the upper-right corner of the panel.
2. Select **Print**. Your browser's print window opens. From here, you can also save the conversation as a PDF.

Related topics

-
- View the overview of a chat contact

View the overview of a chat contact

The Text Map panel contains colored rectangles that represent the messages in a chat contact. This panel gives you a high-level picture of the conversation without needing to scroll. The responses from the agent who handled the contact are on the right, and responses from the customer and any other agents involved in the conversation are on the left. The messages from each person in the conversation are a different color for up to four different participants. (If a conversation has five or more participants, the colors repeat.).



Prerequisites

- Your organization imports chat contacts into Webex WFO via a supported integration, not via the Generic Text Import API.
- You have the View Contacts permission.

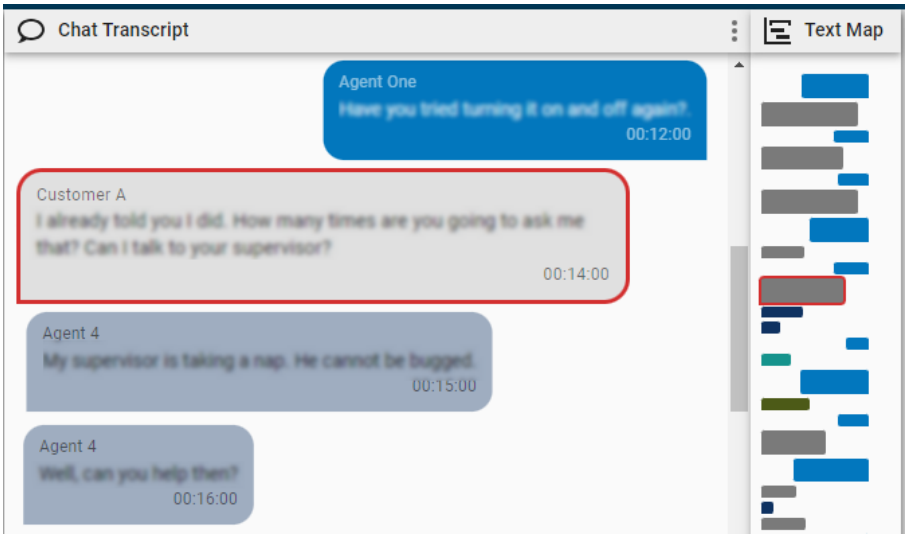
Page location

Interactions > Double-click a contact > Text Map panel

Procedure

Skip to a specific spot in the conversation

- Click a rectangle to move to the corresponding message in the conversation. The message is outlined in red in the Chat Transcript panel.



Related topics

-

- Read a chat contact

View AI insights for a contact

The Data Insights panel in the Media Player contains AI-generated information about the contact. The information you see here varies depending on how your organization uses Cisco Analytics.

Prerequisites

- You have recordings within your scope.
- The contact has a transcript.

- To see the AI interaction summary, both of the following are needed:
  - An administrator has created an ongoing Analytics speech-to-text task with AI Interaction Summary enabled (see Turn on Interaction Summary or Create Analytics tasks).
  - You have the View Contacts and View Speech to Text Analytics permissions.
- To see the AI sentiment analysis, all of the following are needed:
  - An administrator has created a Sentiment Analysis task (see Turn on Advanced Sentiment or Create Analytics tasks).
  - The contact is an audio call.
  - You have the View Contacts and View Sentiment permissions.
- To see the Auto Evaluation Score, all of the following are needed:
  - Your organization has the Analytics Enterprise or Analytics Enterprise Plus license.
  - An administrator has created an Auto QM task (see Create Analytics tasks).
  - The contact is an audio call.
  - You have the View Auto QM permission.
- To see the Topic, all of the following are needed:
  - Your organization has the Analytics Enterprise or Analytics Enterprise Plus license.
  - An administrator has created a Trending Topics task (see Create Analytics tasks).
  - The contact is an audio call.
  - The contact's audio is stereo (not mono), with separate audio feeds for both parties on the call.
  - You have the View Trending Topics permission.
- To see the AI Tags, all of the following are needed:
  - Your organization has the Analytics Enterprise Plus license.
  - An administrator has created an AI Tags task (see Create Analytics tasks).
  - The contact is an audio call.
  - You have the View AI Tags permission.

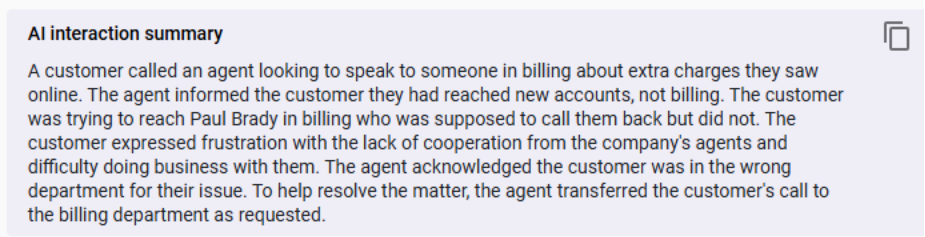
Page location

Interactions > Double-click a contact > Data Insights panel

Procedures

Read the summary of a contact

- Click the **Interaction insights overview** tab. The **AI interaction summary** section summarizes the call. Most summaries are approximately 150 words, but some summaries might be longer or shorter depending on the length of the call's transcript.

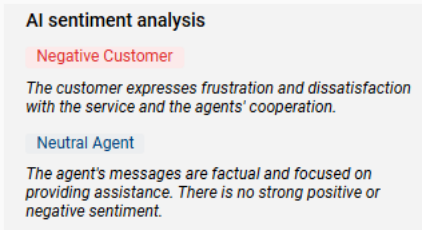


Copy a summary

- Click the **Copy** icon. 

View the customer and agent sentiment for a contact

- Click the **Interaction insights overview** tab. The **AI sentiment analysis** section shows the sentiment (emotions) expressed by both the customer and the agent. It indicates positive, negative, or neutral sentiment for both parties and explains why Webex WFO assigned this sentiment.

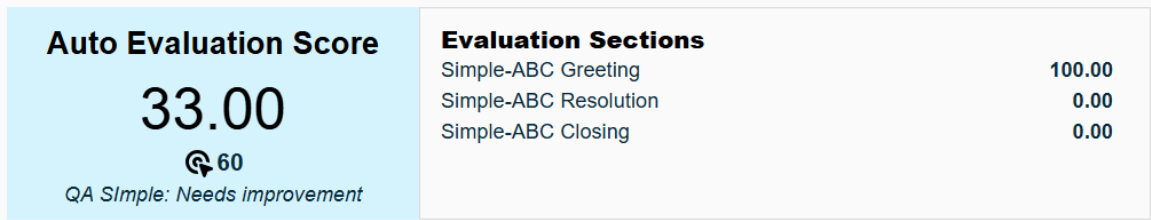


NOTE If your organization uses mono recording (audio from the agent and the customer combined in a single feed), AI sentiment analysis shows sentiment for the customer only.

View the automated evaluation score for a contact

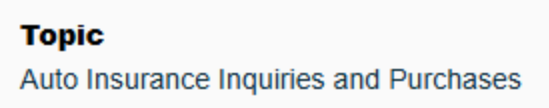
- Click the **AI conversation overview** tab. The **Auto Evaluation Score** sections shows the overall score that Webex WFO gave to the contact. The **Evaluation Sections** section shows the score that Webex WFO gave to each section within the evaluation form that it used to score the contact. Depending on how the form was configured, you might also see the target score for the form and the

name for the scoring band that the score falls into (see Manage forms for AI evaluation).



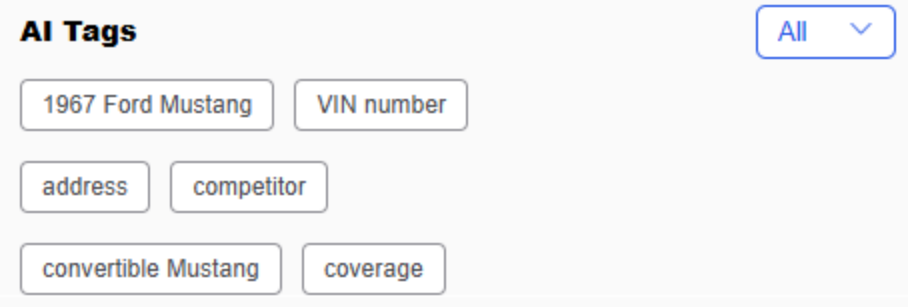
View the topic for a contact

- Click the **AI conversation overview** tab. The **Topic** section shows the main contact reason that Webex WFO identified for the contact.

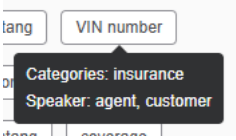


View the content tags for a contact

1. Click the **AI conversation overview** tab. The **AI Tags** section shows the tags that Webex WFO applied to the contact.



2. (Optional) Hover over a tag to see the category that the tag belongs to and the speaker (agent or customer) whose contribution to the conversation prompted Webex WFO to apply the tag.



Filter the content tags by speaker

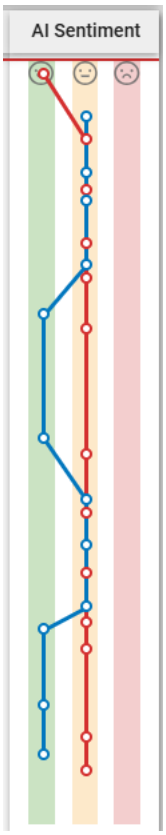
- In the **AI Tags** section, select **Agent** or **Customer** from the **All** drop-down list. The list of tags updates automatically.

Related topics

- Turn on Interaction Summary
- Turn on Advanced Sentiment
- View changes in sentiment for a contact
- Read the transcription of an audio recording
- Create Analytics tasks—Create an ongoing task with AI Interaction Summary, Sentiment Analysis, Auto QM, Trending Topics, or AI Tags enabled.

View changes in sentiment for a contact

The AI Sentiment panel in the Media Player illustrates how agent and customer sentiment (emotion) changed over the course of a contact. The agent's sentiment is red, and the customer's sentiment is blue. Positive sentiment appears in the green stripe on the left. Neutral sentiment appears in the yellow stripe in the middle. Negative sentiment appears in the red stripe on the right.



Prerequisites

- Your organization has the Analytics Enterprise or the Analytics Enterprise Plus license.
- Your organization uses stereo recording (separate audio feeds from the agent and the customer). If your organization does not use stereo audio, Webex WFO assigns all the sentiment markers to the customer.
- An administrator has created a Sentiment Analysis task (see Turn on Advanced Sentiment or Create Analytics tasks).
- The contact is an audio contact.
- The contact has a transcript.
- You have the View Contacts and View Sentiment permissions.

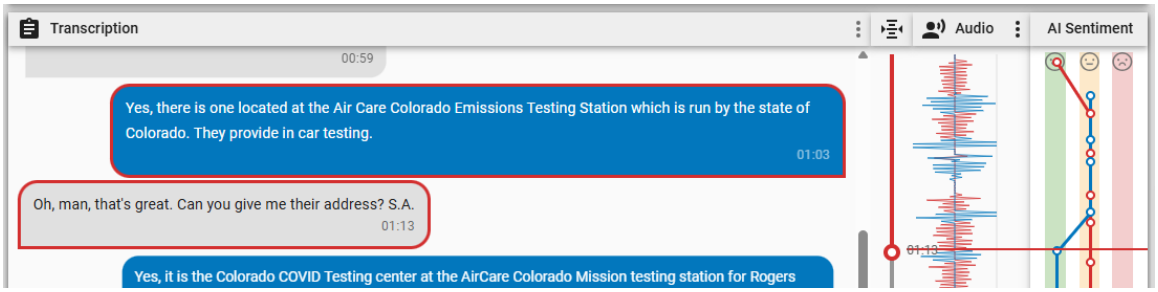
Page location

Interactions > Double-click a contact > AI Sentiment panel

Procedures

View a sentiment marker in the contact

- Click a circle in the **AI Sentiment** panel. The **AI Transcription** panel, audio scrubber, **Audio** panel, and audio timestamp (next to the Play button) move to the corresponding part of the contact.



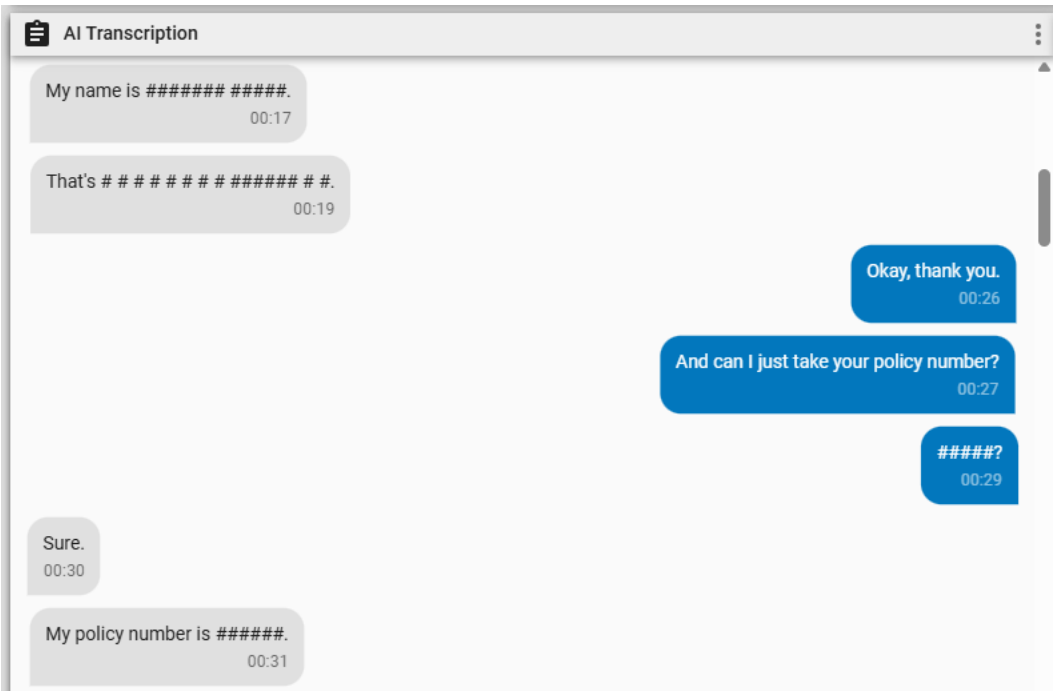
Related topics

- Turn on Advanced Sentiment
- View AI insights for a contact
- Create Analytics tasks

Read the transcription of an audio recording

In the AI Transcription panel, you can review the transcription of an audio recording. The panel displays this transcription as text bubbles. When you play back a recording, Webex WFO highlights the text bubble of the current speaker.

If your organization removes sensitive information from transcripts with the Transcription Redaction feature, redacted text appears as **#####.**



Phrase hits from Speech-to-Text Analytics tasks are highlighted in yellow. The color and position of the text bubbles vary based on the type of recording.

Color	Recording Type	Description
Oh of cours supervisor supervisor v	Stereo	Text bubbles for the inbound audio stream are blue and right-aligned, and text bubbles for the outbound stream are gray and left-aligned.
Oh of cours supervisor	Mono	Text bubbles for the audio stream are blue and left-aligned.

Prerequisites

- Your organization has the Analytics Essentials, Analytics Enterprise, or Analytics Enterprise Plus license.

- The contact is an audio call that has been processed with a Speech-to-Text (Transcription) task. See Create Analytics tasks.
- You have the View Contacts and View Speech to Text Analytics permissions.

Page location

Interactions > Double-click a contact > AI Transcription panel

Procedures

Skip to a specific spot in the contact

- Click a text bubble to move to it. The audio scrubber, **Audio** panel, **Phrase Hits** panel, **AI Sentiment** panel, and audio timestamp (next to the Play button) move to the corresponding part of the contact.

Search for words in the transcript

1. Click the options icon ⋮ in the upper-right corner of the panel.
2. Select **Find**.
3. Enter your search in the **Find** field. Text that matches your search is highlighted.

Print a transcript

1. Click the options icon ⋮ in the upper-right corner of the panel.
2. Select **Print**. Your browser's print window opens. From here, you can also save the conversation as a PDF.

Related topics

- Create Analytics tasks—Configure Webex WFO to transcribe contacts

View phrase analytics for a contact

The Phrase Hits panel shows where in the contact the customer or agent mentions words or phrases that matter to your contact center. These words or phrases are found by Analytics tasks, and they are called "phrase hits."

NOTE Phrase hits are also highlighted in yellow in the transcription, if there is one.

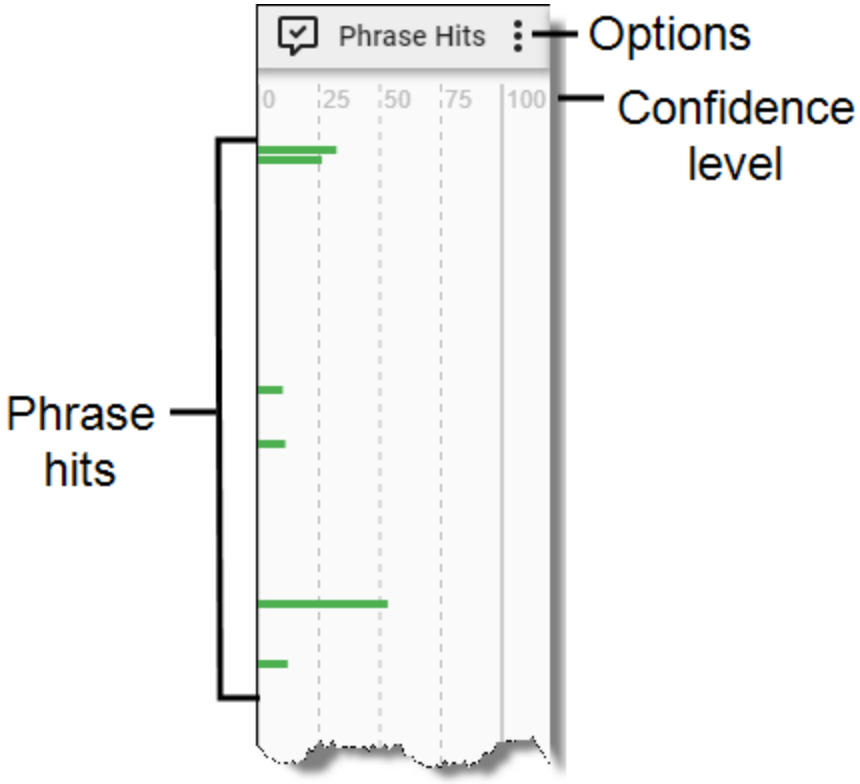
Contact Type: Call

Contact Content: Has Transcription

Licenses Required: Analytics or Webex WFO Access

Permissions Required: View Contacts, View Speech Analytics

Webex WFO assigns a confidence level to each phrase hit. This confidence level shows, on a scale 0–100, how certain Webex WFO is the task accurately detected the phrase. Phrase hits with higher confidence levels appear longer than phrase hits with lower confidence levels.



You can click a phrase hit to move the Timeline slider to it, or you can hover over a phrase hit to see a tooltip that contains further details. If you click the Zoom In icon on the Media Player toolbar, each phrase hit displays the word or phrase that Webex WFO detected.

Use the Options icon to select which categories of phrase hits appear.

Detecting phrase hits

Phrases are configured and categorized on the Business Signal > Phrases page (see Create and manage phrases and phrase categories), and they are searched for by tasks scheduled on the Task Manager page (see Create Analytics tasks).

Each phrase has a text value. It can also have a phonetic value, if one is configured.

- Speech-to-Text tasks transcribe audio recordings and search the resulting transcription for text values.
- Phonetics Analytics tasks search audio recordings for phonetic values.

The results of both tasks appear in the Phrase Hits panel.

> **NOTE** The panel does not show hits whose confidence level is lower than the minimum confidence level assigned to the phrase during configuration. For example, if you assigned a confidence level of 20 to the phrase "bad customer service," the panel displays phrase hits for "bad customer service" only where the confidence level is 20 or greater.

Each phrase hit starts two seconds before the phrase hit and ends two seconds after it. The confidence level is based on probability, so the exact hit might not line up exactly with the highlighted area. Webex WFO can resolve multiple phrase hits. If two similar phrases are detected within 200 milliseconds of each other, the phrase hit with the highest confidence level becomes the primary hit and all other hits become secondary hits, and they are indexed differently.

The tooltip's header contains the phrase that the task detected. The following table describes the tooltip's other fields.

Field	Description
Category	The category to which the phrase belongs, as assigned on the Business Signal > Phrases page.
Source	The type of Analytics task that detected the phrase hit. The possible values are as follows: ■ Phonetics—The phrase was found in an audio recording. ■ Speech-to-Text—The phrase was found in the transcription of an audio recording.
Start	The offset from the beginning of the audio to the moment the phrase was found. The format is HH:MM.

Field	Description
Duration	The duration of the phrase. The format is HH:MM:SS. **NOTE** This field does not display values in milliseconds. If the duration is less than one second, the field displays 00:00:00.
Confidence	The confidence level of the phrase hit.
Channel	The audio stream where the phrase hit was detected. For stereo recordings, the following values are possible: ■ 1—The outbound stream. ■ 2—The inbound stream.

Related topics

- Create and manage phrases and phrase categories—Configure the phrases to look for in contacts
- Create Analytics tasks—Configure Webex WFO to analyze contacts for phrase hits

Tag a contact

The Webex WFO administrator controls how long contacts are available on the Interactions page. However, if you want to keep a contact for longer than your organization's standard retention period, you can tag it. Tagging a contact applies a new retention time to that recording. Depending on how your organization uses tagging, Webex WFO retains tagged contacts for a longer or shorter time than non-tagged contacts (see Manage data retention policies for QM and Analytics).

NOTE Tagging a contact overrides some QM workflow rules. If you apply a tag before a QM workflow runs, then Webex WFO keeps that contact and all of its associated media such as audio and screen recordings, regardless of the workflow's retention policies. If you apply a tag after a QM workflow runs, then that tag only affects the audio of that contact, not the screen recording. This means the QM workflow policy applies to the screen recording for that contact, but tagging overrides the workflow policy for the audio. If Webex WFO has recycled the audio recording because a QM workflow has run, that audio is restored. See Automate QM workflowsfor more information about QM workflows.

Prerequisites

- You have the Tag Contact permission and/or the Untag Contact permission.
- Your role and scope allow you to view recordings.

Page location

Interactions

Procedures

Tag a contact

1. Select the contact (don't open it).
2. Click **Tag Contact** ( upper right of the page). The icon changes to the Untag Contact icon.

Untag a contact

Untagging a contact applies your organization's standard retention period to the contact.

1. Select the contact (don't open it).
2. Click **Untag Contact** ( upper right of the page). The icon changes to the Tag Contact icon.

Related topics

- Manage data retention policies for QM and Analytics—Establish your organization's retention periods for tagged and untagged contacts.
- Automate QM workflows—Create rules for Webex WFO to automatically manage recordings.

Mark contacts for training or HR

Marking contacts for training or HR allows you to easily find these contacts later to use as training examples or to escalate to human resources.

NOTE Marking contacts does not automatically send contacts to a training or HR system. What happens with these contacts depends on how your organization uses Webex WFO.

Prerequisites

- You have the View Contacts permission.
- You have the Mark for Training permission and/or the Mark for HR permission.
- You have recordings within your scope.

Page location

Interactions > Double-click a contact

You can also open the Media Player by clicking a contact in one of these locations:

- The Agent Explorer page
- In the Details pane of an Analytics widget
- In Data Explorer

Procedures

Mark a contact for training

1. Double-click the contact to open it.
2. Click the Options icon (upper right corner of the page).
3. Select **Mark for Training**.

Mark a contact for HR

1. Double-click the contact to open it.
2. Click the Options icon (upper right corner of the page).
3. Select **Mark for HR**.

Related topics

- —Find marked contacts later using the Recording Flags filter.
- Tag a contact—Tagging contacts is another way to set aside contacts that you want to find later.

Mark a contact for calibration

When you mark a contact for calibration, any user whose role includes the Calibrate Contact permission and who has scope over the contact can evaluate the contact in the calibration mode.

The scores from an evaluation completed in the calibration mode are included in the Evaluation Calibration report, where you can compare and contrast the scores that all evaluators gave the contact. This allows you to see whether your evaluators give consistent scores.

For more information about calibration, see Calibrate evaluators.

Mark a contact for calibration

1. On the Interactions page, select a contact in the contacts table.
2. Click the **Mark for Calibration** icon.
3. Select the desired evaluation form.
4. Click **OK**.

Export a contact

You can download a contact to play it outside of the Webex WFO media player. Webex WFO exports recordings in WebM format. These recordings might play automatically on your device, or you might need to download an open-source media player like VLC Media Player (available from videolan.com).

Page location

Interactions

Prerequisites

- You have the Export Recordings permission.
- You are subscribed to the Recording Export notification.
- Your device can play WebM files.

Procedures

Export a recording

1. Select a recording.
2. Click **Export Contact** . The **Export Contact** window opens.

3. Select the format to export the media files.
4. Click **Export**.
5. Click **OK**. You receive a notification when the contact export has finished.

   NOTE The time needed to export a contact depends on the length of the recording and whether it includes a screen recording.

6. Open the Alerts list (the bell icon) at the top of your window and select the **Export of Contact <ID> is ready for download** notification. The **Alert Notification** window opens.
7. Follow the prompts to download the recording.

Related topics

- Manage roles and permissions for QM, Analytics, and Insights—More information about permissions.
- Configure notifications—More information about notifications.

Assign reviews, evaluations, and calibrations automatically (classic page)

A contact goal is a list of contacts assigned to evaluators for review, evaluation, or calibration. When you create a goal, you specify the criteria for the contacts and the due date. Goals appear on evaluators' Contact Queue page.

NOTE The information here covers the classic version of the Contact Queue Administration page. For information on the new version, go to Assign evaluations, calibrations, and reviews automatically.

How do I know which version I have?

If you see a table with a list of goals, you have the new page. If you see **What Do You Want To Do?** with a list of options, you have the classic page.

Prerequisites

- Your organization uses Cisco Quality Management
- Some contact criteria require Cisco Analytics (see Step 10 below)

- You have the Administer Contact Goals permissions and at least one of these permissions:
  - Create Evaluation Goal (needed to create evaluation goals)
  - Create Calibration Goal (needed to create calibration goals)
  - Create Review Goal (needed to create review goals)
- People who are assigned the goals have these permissions:
  - View Contacts
  - View Contact Goal
  - Evaluate Contact (needed to complete evaluation goals)
  - Calibrate Contact (needed to complete calibration goals)

Page location

Application Management > QM > QM Contact Flows > Contact Queue Administration

Procedures

View all goals

- Select **View Contact Goals**. Goals are sorted by goal ID.

Create a goal

1. Select **Create a new goal**.
2. Enter the goal's name in the **Name** field.
3. Select the type of task from the **Action** drop-down list.
4. Enter the number of contacts included in the goal in the **Number of Contacts** field.
5. Select the contact type from the **Contact Type** drop-down list.
6. From the **Contact Level** drop-down list, select whether the number of contacts in the goal is per agent or per team.

   EXAMPLE The goal is to evaluate 10 contacts per team. You select Team from the Contact Level drop-down list.

7. Select the goal's due date from the **Goal Frequency** drop-down list. These are your options:

- Day, Week, or Month—Webex WFO assigns the goal every day, week, or month.
- Specific Date—Evaluators must meet the goal by a specific date and time. After this date, the goal becomes inactive. Date and time fields appear if you select this option.
- Date Range—Evaluators must meet the goal between a specific date range. After the end date, the goal becomes inactive. Effective Start Date and Effective End Date fields appear if you select this option.

8. (Optional) To limit the goal to contacts received within a specific time frame, select **Only assign a contact between these dates** and select the start date and end date.
9. (Optional) Enter instructions for the evaluators in the **Instructions** field.
10. From the **Classifier** drop-down list, select the first criterion for Webex WFO to use when selecting contacts for the goal. Additional fields appear based on your selection. These are your options:
    - Calls Less Than—(Call only) Calls that are shorter than a specific duration. Enter the duration or click the clock icon to select it.
    - Calls Greater Than—(Call only) Calls that are longer than a specific duration. Enter the duration or click the clock icon to select it.
    - Has Metadata Field—Contacts that have a particular metadata field, no matter what value is in that field. Select the metadata field.
    - Has Metadata Field With Value—Contacts that have a particular metadata field with a specific value. Select the metadata field and enter the value.
    - To—(Text and Email only) Contacts sent to a specific recipient. Enter the recipient.
    - From—(Text and Email only) Contacts received from a specific sender. Enter the sender.
    - Subject—(Email only) Contacts with a specific keyword in the subject line. Enter the keyword.
    - Random Call/Text/Email—Any contacts that are within the evaluator's scope.
    - Reason—(Call only) Contacts with a particular value in the Reason field. Select the reason.
    - Predictive Net Promoter Score Less Than—Contacts with a predicted net promoter score less than a specific number. Enter the score. (Requires Cisco Analytics)
    - Predictive Net Promoter Score Greater Than—Contacts with a predicted net promoter score greater than a specific number. Enter the score. (Requires Cisco Analytics)

- Predictive Evaluation Score Less Than—Contacts with a predicted evaluation score less than a specific number. Enter the score. (Requires Cisco Analytics)
- Predictive Evaluation Score Greater Than—Contacts with a predicted evaluation score less than a specific number. Enter the score. (Requires Cisco Analytics)
- Channel—(Email, Chat, and SMS only) Contacts that happened in a specific channel. Select the channel. This option appears if your organization uses a supported integration for social media contacts. The channel options vary based on the types of social media your organization uses.

11. Click **Add**.
12. (Optional) Select additional criteria from the **Classifier** drop-down list, and click **Add**. If Webex WFO doesn't find any contacts that meet the first classifier you selected, it will look for contacts that meet the second classifier, and so on, until it finds at least one contact. If it finds at least one contact that meets a classifier, it stops looking for contacts that meet other classifiers that are lower on the list.

    NOTE If Webex WFO finds no contacts that meet any of the classifiers for a goal, it does not assign the goal to evaluators. If a contact that meets a goal classifier becomes available later, then Webex WFO assigns the goal to evaluators. This delay in assigning goals could prevent evaluators from meeting that goal for a particular time period.

13. (Optional) To reorder the classifiers, select a classifier and click the up or down arrows. To delete a classifier, select it and click **Remove**.
14. In the **Users** section, move the evaluators who must complete the goal from **Available** to **Assigned**.
15. Select **Active** in the **Goal Status** section.

    IMPORTANT Activate a goal only when you are completely finished creating it. You cannot edit an active goal.

16. Click **Save**.

Copy a goal

If you need to create a new goal that is similar to an existing goal, copying the goal is easier than creating the goal from scratch.

1. Select **Copy an existing goal**.
2. Select the original goal from the **Pick an existing goal to copy** drop-down list.
3. Edit the copy if needed.

4. Select **Active** in the **Goal Status** section.

   IMPORTANT Activate a goal only when you are completely finished creating it. You cannot edit an active goal.

5. Click **Save**.

Change the people assigned to an active goal

The only thing you can change about an active goal is the people who are assigned to it.

1. Select **Edit an existing goal**.
2. Select the goal from the **Pick an existing goal to edit** drop-down list.
3. In the **Users** section, move people to or from the **Assigned** column.
4. Click **Save**.

Edit a goal

You can only edit goals with Editable status.

1. Select **Edit an existing goal**.
2. Select the goal from the **Pick an existing goal to edit** drop-down list.
3. Edit the goal and click **Save**.

Delete a goal

You can't delete a goal, but you can deactivate it. Deactivated goals no longer send contacts to evaluators' contact queues.

IMPORTANT Deactivating a goal is permanent. You cannot reactivate or edit an inactive goal, but you can copy it. See Copy a goal.

1. Select **Edit an existing goal**.
2. Select the goal from the **Pick an existing goal to edit** drop-down list.
3. In the **Goal Status** section, select **Inactive**.
4. Click **Save**.

Related topics

- Access contacts assigned to you (classic page)—Information about contact goals from the evaluator's perspective

- Access contacts assigned to you—Information about contact goals from the evaluator's perspective
- Assign evaluations, calibrations, and reviews automatically

Assign evaluations, calibrations, and reviews automatically

Use the Contact Queue Administration page to create contact goals. A contact goal is a list of contacts assigned to evaluators for review, evaluation, or calibration. When you create a goal, you specify the criteria for the contacts and the due date. Goals appear on evaluators' Contact Queue page. See Access contacts assigned to you to learn what goals look like on the evaluator's side.

Prerequisites

- Your organization uses Cisco Quality Management.
- Some contact criteria require Cisco Analytics (see Step 11 below).
- You have the Administer Contact Goals permissions and at least one of these permissions:
  - Create Evaluation Goal (needed to create evaluation goals)
  - Create Calibration Goal (needed to create calibration goals)
  - Create Review Goal (needed to create review goals)
- People who are assigned the goals have these permissions:
  - View Contacts
  - View Contact Goal
  - Evaluate Contact (needed to complete evaluation goals)
  - Calibrate Contact (needed to complete calibration goals)
- People who are assigned the goals have scope over the teams and agents whose contacts are included in the goals.

Page location

Application Management > QM > QM Contact Flows > Contact Queue Administration

Procedures

Create a goal

1. Click **New Goal**.
2. Enter the goal's name in the **Name** field.
3. Select the type of task from the **Action** drop-down list. These are your options:
    - **Evaluate**—Evaluators score the contact based on questions in an evaluation form.
    - **Calibrate**—Evaluators score the contact, but their scores are not official. Calibration goals let you compare the scores that different evaluators assign to the same contact in order to keep scores consistent across your contact center.
    - **Review**—Evaluators listen to the call or read the written contact without needing to score it.
4. Select the contact type from the **Contact Type** drop-down list.
5. Enter the number of contacts included in the goal in the **Number of Contacts** field.

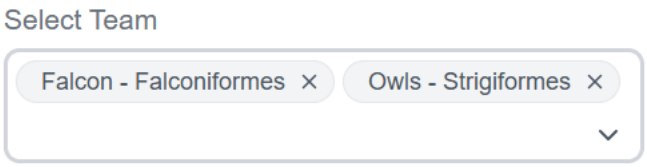
    EXAMPLE You want the person who is assigned to the goal to evaluate ten contacts. You enter **10** in the **Number of contacts** field.

6. From the **Goal Level** drop-down list, select whether the number of contacts in the goal is per agent or per team.

    EXAMPLE You want the person assigned to the goal to evaluate ten contacts that were handled by a specific agent. You select **Agent** from the **Goal Level** drop-down list.

    EXAMPLE You want the person assigned to the goal to evaluate ten contacts that were handled by a specific team. You select **Team** from the **Goal Level** drop-down list.

7. In the **Users** section, select the person who will be assigned the goal from the **Select Assignee** drop-down list.
8. From the **Select** drop-down list, select the agents or teams whose contacts will be included in the goal. To add more agents or teams, start typing their names, or click the downward-pointing arrow in the **Select** field.



9. (Optional) To assign the goal to more people, click **Add**, and repeat Steps 7 and 8.
10. Select how often the goal will be assigned from the **Goal frequency** drop-down list. These are your options:
    - **Day**, **Week**, or **Month**—Webex WFO reassigns the goal to the evaluators every day, week, or month.
        - **Day**—Webex WFO reassigns the goal to the evaluators each day at 12:00 AM.
        - **Week**—Webex WFO reassigns the goal to the evaluators each Monday at 12:00 AM.
        - **Month**—Webex WFO reassigns the goal to the evaluators on the first day of each month at 12:00 AM.

      > **NOTE** If you assign a recurring goal after the start of its frequency range, Webex WFO does not adjust the number of contacts included in the goal to match the shortened turnaround time for the goal. For example, if you create a goal to evaluate ten contacts each week and activate it on a Wednesday, evaluators must still evaluate all ten contacts before the end of the week to complete this goal. Because this is how recurring goals work, we recommend that you activate goals at the beginning of their frequency range. Instead of activating a weekly goal on a Wednesday, activate it on a Monday.

    - **Specific Date**—Evaluators must complete the goal once by a specific date and time. After this date, the goal becomes inactive. The **Select Date** field appears if you select this option.
    - **Date Range**—Evaluators must complete the goal once within a specific date range. After the end date, the goal becomes inactive. **Effective Start Date** and **Effective End Date** fields appear if you select this option.
11. In the **Classifiers** section, select the first rule for Webex WFO to use when selecting contacts for the goal. Additional fields appear based on your selection. These are your options:

Classifier	Available for these types of contacts	Definition	How to use it
Calls Less Than	Call	Calls that are shorter than a specific duration.	Enter the duration in the **hours**, **minutes**, or **seconds** fields.
Calls Greater Than	Call	Calls that are longer than a specific duration.	Enter the duration in the **hours**, **minutes**, or **seconds** fields.
Has Metadata Field	All	Contacts that have a particular metadata field populated, no matter what value is in that field.	Select the field from the **Metadata Field** drop-down list.
Has Metadata Field With Value	All	Contacts that have a particular metadata field with a specific value.	Select the field from the **Metadata Field** drop-down list and enter the value in the **Metadata Value** field.
To	Text, Email, Chat, SMS	Contacts sent to a specific recipient.	Enter the recipient in the **To** field.
From	Text, Email	Contacts received from a specific sender.	Enter the sender in the **From** field.
Subject	Email	Emails with a specific keyword in the subject line.	Enter the keyword in the **Subject** field.
Random	Call, Text, Email, Chat, SMS	Any contacts that are within the evaluator's scope.	No additional steps are needed.

Classifier	Available for these types of contacts	Definition	How to use it
Reason	Call, Chat, SMS	Contacts with a particular value in the Reason field.	Select the reason from the **Reason** drop-down list.
Predictive Net Promoter Score Less Than	Call, Text, Email	Contacts with a predicted net promoter score less than a specific number.	Enter the score in the **Predictive Net Promoter Score Less Than** field. (Requires Cisco Analytics)
Predictive Net Promoter Score Greater Than	Call, Text, Email	Contacts with a predicted net promoter score greater than a specific number.	Enter the score in the **Predictive Net Promoter Score Greater Than** field. (Requires Cisco Analytics)
Predictive Evaluation Score Less Than	Call, Text, Email	Contacts with a predicted evaluation score less than a specific number.	Enter the score in the **Predictive Evaluation Score Less Than** field. (Requires Cisco Analytics)
Predictive Evaluation Score Greater Than	Call, Text, Email	Contacts with a predicted evaluation score less than a specific number.	Enter the score in the **Predictive Evaluation Score Greater Than** field. (Requires Cisco Analytics)

Classifier	Available for these types of contacts	Definition	How to use it
Agent Sentiment	Call	Contacts in which the agent displays a specific sentiment.	Select the sentiment from the **Agent Sentiment** drop-down list. (Requires Cisco Analytics)
Customer Sentiment	Call	Contacts in which the customer displays a specific sentiment.	Select the sentiment from the **Customer Sentiment** drop-down list. (Requires Cisco Analytics)
Channel	Email, Chat, SMS This option appears if your organization uses a supported integration for social media contacts.	Contacts that happened in a specific channel.	Select the channel from the **Channel** drop-down list. The channel options vary based on the types of social media your organization uses.

12. Click **Add**.
13. (Optional) Repeat Steps 11 and 12 until you are done adding classifiers.
14. (Optional) To reorder the classifiers, select a classifier and click the up or down arrows.
15. Select whether a contact can **Match any of the classifiers** or must **Match all of the classifiers** to be included in the goal.

> **NOTE** If you select **Match any**, the order of the classifiers determines Webex WFO's priority in looking for contacts. Webex WFO first looks for contacts that meet the first classifier, then contacts that meet the second classifier, and so on. If you select **Match all**, Webex WFO looks only for contacts that meet all of the classifiers.

> **NOTE** If Webex WFO finds no contacts that meet any of the classifiers for a goal, it does not assign the goal to evaluators. If a contact that meets a goal classifier becomes available later, then Webex WFO assigns the goal to evaluators. This delay in assigning goals could prevent evaluators from meeting that goal for a particular time period.

16. (Optional) To limit the goal to contacts received on specific dates, select **Assign only contacts that occurred in this date range** and select the start date and end date.
17. (Optional) Enter instructions for the evaluators in the **Instructions** field.
18. Scroll up to the **Goal Status** section and select **Active**.

    > **IMPORTANT** Activate a goal only when you are completely finished creating it. You cannot edit an active goal.

19. Click **Save**.

Filter goals

You can search for goals based on the goal name or ID.

1. Click the three lines in the **Goal ID** or **Name** column. A filter opens.
2. (Optional) Select an option from the **Contains** drop-down list.
3. Enter your search in the **Filter** field. The list of goals updates automatically, and additional filters appear that you can use if needed.

   To go back to the full list of goals, delete all the text from the **Filter** field.

Edit a goal

You can only edit goals that have **Editable** in the **Status** column. You cannot edit active or inactive goals.

1. In the list of goals, click **Edit**.
2. Make changes to the goal as needed.
3. Click **Save**.

Clone a goal

1. In the list of goals, click **Clone**. The clone opens in edit mode.
2. (Optional) Edit the clone if needed.
3. Click **Clone**. The goal appears on the Contact Queue Administration page with **(Copy)** at the end of its name.

Delete a goal

You can't delete a goal, but you can deactivate it. Deactivated goals no longer send contacts to evaluators' contact queues.

IMPORTANT Deactivating a goal is permanent. You cannot reactivate or edit an inactive goal, but you can copy it. See Clone a goal.

1. In the list of goals, click **Edit**.
2. In the **Goal Status** section, select **Inactive**.
3. Click **Save**.

View expired goals

- In the list of goals, toggle **Show Inactive Goals** on. Expired goals appear in the list of goals with **Inactive** in the **Status** column.

Related topics

- Access contacts assigned to you—Information about contact goals from the evaluator's perspective

Assign review, evaluations, and calibrations manually

You can create a task in which one or more users can calibrate, evaluate, or review one or more contacts. Webex WFO adds the contacts assigned by this task to the contact queue for those users (see Access contacts assigned to you (classic page) or Access contacts assigned to you).

NOTE The contacts you use to create tasks must be less than a year old. Contacts more than a year old do not appear in the contact queue. To share a contact that is more than a year old, see Create hyperlinks to recordings.

Create an ad hoc task

1. Select one or more contacts.
2. Click **Create Task**. The Ad Hoc Task Configuration page appears.
3. Enter a name for your ad hoc task.
4. Select the task type. The task you select determines which users are available in the **Assign To** field. Webex WFO displays only users who have the permissions to perform the specified task.

- **Calibrate**—Multiple users can be assigned the task of calibrating the selected contacts. The **Evaluation Form** field appears when you select **Calibrate**. Select the form that you want to use to calibrate the contact.

  NOTE If you select this option, any contacts not already marked for calibration will be marked for calibration after you create the task.

- **Evaluate**—Only one user can be assigned to evaluate the selected contacts. The **Evaluation Form** field appears when you select **Evaluate**. Select the form that you want to use to evaluate the contact.

- **Review**—Multiple users can be assigned to review (listen to) the call. The **Playback Duration Configuration** slider appears when you select **Review**. The slider determines the percentage of the call (from the beginning) the assignee must review to complete the task. The default is 100%. You can select the percentage in increments of 10%.

5. Select the users to whom you are assigning the task. If you are assigning a Calibration or Review, click **Select All** to add all users in the group to the task.
6. Enter a completion date for the task, or click the calendar icon and select a completion date.
7. (Optional) Select the **Notify on Complete** check box if you want to receive a notification when each assignee completes the task.

   NOTE To be notified, you must also be assigned to the Contact Goal Completed notification.

8. (Optional) Enter any specific instructions for the assignees.
9. Click **Create Task**.

Calibrate evaluators

A calibration is a special type of evaluation that allows multiple users to evaluate a single contact. Calibration helps ensure consistency among evaluators by allowing you to compare how different evaluators completed the same evaluation.

If a contact is marked for calibration, an evaluator can complete the evaluation form as a calibration as well as a standard quality evaluation. Make sure to select the appropriate mode when you evaluate a contact.

Only the Evaluation Calibration report includes the calibration score. Neither team nor agent results in Dashboard or Reports include the calibration score.

NOTE When a contact is scored as a standard quality evaluation, it appears as scored when you search for All Evaluations or My Evaluations. When it is scored as a calibration, it appears as scored when you search for My Pending Calibrations.

Find contacts marked for calibration

1. On the Interactions page, click the **Filter list** icon. The Filters panel opens.
2. Configure a filter set that includes the **Search Scope** filter, with the criteria of **My Pending Calibrations**.
3. Click **Apply**. The filter results display all contacts within your scope that are marked for calibration.

Evaluation calibration report

The Evaluation report displays calibrated evaluation score results. It reports only scored evaluations marked for calibration. It does not display standard evaluation scores. Use this report to evaluate your evaluators.

NOTE You must have the View Evaluator Details permission enabled in order to have access to this report.

NOTE This report might take several minutes to generate.

Advice for evaluation forms

Guidelines for effective evaluations

An evaluation is the end result you receive from a Quality Management recording solution. The “Quality” in Quality Management comes from evaluating the methods and language the agents use while working with customers. Evaluations call out the elements you want the agents to use in a call.

EXAMPLE The agent answers a call by saying “Good morning, this is Bob at XYZ Company, how can I help you today?” The evaluation form has three introductory questions: Did the agent use a greeting? Did the agent identify him or herself and the company? Did the agent ask an open-ended question? The evaluator answers each of these questions with “yes.”

The evaluation indicates excellent agent behavior and the areas where agents need improvement or training.

When you are implementing evaluations, consider the following best practices:

- Prioritize your initiatives—Start with the highest value or highest priority.
- Establish what success looks like—This is the desired behavior.

- Create a log of measurements and compare scores over time—Pick an evaluation form and stay with it for at least a quarter so that you can measure improvement over time and verify if your training and coaching are improving performance.
- Review agent evaluations and play back calls to determine the root causes of problems—Find out where you are having problems and improve training through root cause analysis.
- Make agent, team, and organizational comparisons—Measure progress at all levels.
- Move on when you have established success—When you no longer have problems in one section of the evaluation (for example, agent greetings), you can remove it from the evaluation. As your contact center's business goals change, you can add new sections to the form to continually improve the performance of your agents.

Guidelines for evaluation form questions

Consider the following tips when writing evaluation form questions.

Use simple questions. Simple questions allow managers and supervisors to investigate the root cause of an agent's low score.

- Make each question a single question (don't use questions within questions).
- Limit the scope of a question to a single measurable event.

> **EXAMPLE** "Did the agent go the extra mile?" is a bad question. What does it mean to go the extra mile? Does going the extra mile look the same for every contact? Probably not. Instead, identify specific actions that agents who go the extra mile could do. For example, did the agent offer to follow up with the caller to make sure the issue was resolved? This questions asks about a specific action, and everyone will know what a "yes" or "no" answer means.

- Write the question so that both the evaluator and the agent will clearly understand how the agent performed.

Use questions that require a **yes or no answer** whenever possible. Yes or no questions provide clear and concise answers. They also require less documentation and collaboration efforts to get consistent evaluation measurements. These types of answers are more objective. By contrast, numerical ranges require you to establish criteria for each number in the range. This makes collaboration efforts between multiple evaluators difficult.

Organize your questions by placing them into **distinct sections**. Categorizing questions allows you to produce detailed reports about agent and team performance in each category.

- Match questions and sections to the flow of a typical call to make it easier for evaluators to score agent performance.

  EXAMPLE You create three sections named Greeting, Order Entry, and Closing.

- When using percentage-based scoring, assign higher weights to the most important questions and sections.
- Use no more than ten sections in an evaluation form.
- Use no more than ten questions in a section.

Decide whether there are any **key points of failure**. Mark questions that address critical behavior (such as courtesy) as Key Performance Indicators (KPIs). If such a question is scored negatively, the entire evaluation fails.

If you are using **predictive evaluation scores**, write questions that relate to the kind of data that Webex WFO pulls and analyzes. See Configure predictions for more information.

EXAMPLE You use QM to measure the amount of silence in each contact. The evaluation form asks, “Did the agent give prompt attention to the customer?”

EXAMPLE You have an Analytics phrase category called “Greeting” with phrases like “thank you for calling,” “my name is, “ and “how may I help you today.” The evaluation form asks, “Did the agent properly greet the caller?”

Key performance indicator (KPI) questions

To use KPI questions, you first need to identify the business goals for the contact center. When you break down the business goals, you need to identify the challenging areas and how you can measure success in meeting those goals. For example, you can break the business goals into the following:

- First contact resolution (FCR)
- Sales process and skills
- Product knowledge—You can use contact evaluations to identify agents who do not have sufficient product knowledge and then provide training to improve their product knowledge. For example, you might want to consider the following questions when evaluating an agent:
  - Does the agent have deep product knowledge?
  - Is this a critical indicator or a challenge area?
- Agent proficiency with tools—Agents sometimes have to deal with a wide variety of tools when they deal with a customer (for example, order entry tools, agent productivity tools, database tools, or

custom software tools designed for the organization). You can use the evaluation to monitor agent proficiency with your contact center's tools and then provide training to improve their tool proficiency.

- Average call duration—Some calls are longer than others. You can use the evaluation to understand what factors result in longer calls and then provide solutions that result in fewer long calls and improve the average call duration.

When you know what your business goals are, you can incorporate those goals as answers to questions in the evaluation form and assign KPIs to those questions. This allows you to align your agents' goals with your business goals for the contact center. You can then use the evaluation forms to measure your agents' performance against your contact center's business goals.

A KPI can have a positive or negative impact on your contact center's business goals. The value assigned to the KPI answer reflects that impact.

> **EXAMPLE** Your contact center's business goals are to increase revenue, improve customer satisfaction, and reduce overall cost. An agent who turns an unhappy customer into a happy customer has a positive impact on your contact center's business goals. An agent who loses a potential sale has a negative impact on your contact center's business goals.

How KPI questions are scored

A question with one or more KPI answers is labeled with "KPI" in the **Type** field. A KPI overrides the final evaluation score. If you have multiple KPI answers, prioritize the KPI answers when creating the form to determine which KPI answer determines the final score.

When a KPI question appears in a section, QM scores the KPI question like any other question. The total value for that section appears in the section score, including the KPI question. QM retains the scores you assign to all questions and sections. These scores are available for review.

You must continue to score the entire evaluation when a KPI answer triggers a final score.

Percentage-based scoring

When you create an evaluation form, you must choose either percentage-based scoring or Point-based scoring. Percentage-based scoring is based on a range of whole numbers from 0 to 100. As the evaluator scores a section on a percentage-based evaluation form, a rolling total and percent appear on that section.

About percentage-based sections

Each percentage-based section has its own weight that determines how much it influences the total score for the evaluation form. Each section tab displays its section weight. The sum of all of the section weights must be 100. These weights are applied after all sections are scored to arrive at the overall score, as a percentage,

for the evaluation. The overall score is calculated as follows:

```
Section score as a percentage × section weight = weighted section score

Sum of all weighted section scores = total score as a percentage
```

EXAMPLE

The form has two sections called Greet and Assess. The Greet section has a possible total of 15 points and is worth 40% of the overall score. The agent has earned 8 out of the possible 15 points, or 60%, for this section. The Assess section has a possible total of 10 points and is worth 60%. The agent has earned 8 points, or 80%, for this section. The overall score is calculated as follows:

```
Greeting section = 60% × 0.4 = 24%

Assess section = 80% × 0.6 = 48%

24% + 48% = 72% overall score
```

About percentage-based questions

Each percentage-based question has its own weight that determines how much it influences the total score for the section. The weight is converted into points. The maximum score for a section is 100% (or 100 points), no matter how many questions it contains. Webex WFO uses this formula used to calculate the weighted score for a single percentage-based question:

```
(actual score ÷ maximum score) × weight = weighted score
```

EXAMPLE In a section with three questions, Question 1 has a weight of 50%. Questions 2 and 3 each have a weight of 25%. This means Question 1 is worth a maximum of 50 points and Questions 2 and 3 are each worth a maximum of 25 points.

The following table shows the potential points that a question with a 0–5 answer scale could earn if it has a weight of 25% or 50%. If an evaluator answers N/A, Webex WFO treats the section score as if the question does not exist.

Scale Answer	Points Earned (Question Weight of 25%)	Points Earned (Question Weight of 50%)
N/A	—	—
0	0	0
1	5	10

Scale Answer	Points Earned (Question Weight of 25%)	Points Earned (Question Weight of 50%)
2	10	20
3	15	30
4	20	40
5	25	50

The following table shows the potential points that a Yes/No question could earn if it has a weight of 25% or 50%.

Answer	Points Earned (Question Weight of 25%)	Points Earned (Question Weight of 50%)
Yes	25	50
No	0	0
N/A	—	—

The following tables show the results for several sections in a sample evaluation form.

Scored example for a three-question section

Question	Weight	Type	Score	Weighted Score
1	50%	0–5 scale	4	40
2	25%	0–5 scale	3	15
3	25%	Yes or No	Yes	25
Section Score				**80%**

Scored example for a four-question section

Question	Weight	Type	Score	Weighted Score
1	60%	0–5 scale	3	36

Question	Weight	Type	Score	Weighted Score
2	15%	0–5 scale	4	12
3	20%	Yes or No	No	0
4	5%	Yes or No	Yes	5
Section Score				**53%**

Scored example with "not applicable" (N/A) as an answer

Question	Weight	Type	Score	Weighted Score
1	60%	0–5 scale	NA	—
2	15%	0–5 scale	4	12
3	20%	Yes or No	No	0
4	5%	Yes or No	Yes	5
Section Score				**42.5%**

NOTE An answer of N/A removes that question from the total possible score. So for this example, the score of 43% is based on a score of 17 out of a total of 40 instead of a total of 100.

How percentage-based evaluations are scored

When you save an evaluation form, the form calculates the Possible Points, Points Earned, and Percentage (or score). These formulas are based on the number of sections in an evaluation form.

Possible points

The total possible number of points for a scored evaluation form is the sum of each section's possible points multiplied by the total number of points:

```
Form Possible Points =
Section 1 weight × Section 1 Possible Points
+ Section 2 weight × Section 2 Possible Points
+ Section 3 weight × Section 3 Possible Points
+ Section 4 weight × Section 4 Possible Points
```

The following example shows how Webex WFO calculates the total possible number of points for a scored evaluation form with four sections:

Section	Weight	Possible Points for the Section	Points the Section Contributes to the Form
1	25%	100	25
2	25%	75	18.75
3	25%	80	20
4	25%	100	25
Total Possible Points			**88.75**

Points earned

The total number of points earned on a scored evaluation is calculated using the following formula:

```
Form Total Points Earned =
Section 1 weight × Section 1 Total Points Earned
+ Section 2 weight × Section 2 Total Points Earned
+ Section 3 weight × Section 3 Total Points Earned
+ Section 3 weight × Section 3 Total Points Earned
```

The following example shows how Webex WFO calculates the number of points earned on an evaluation form with four sections:

Section	Weight	Points Earned	Points the Section Contributes to the Total Score
1	25%	85	21.25
2	25%	60	15
3	25%	65	16.25
4	25%	90	22.5
Total Points Earned			**75**

Percentage score

The percentage for a scored evaluation form is calculated using the following formula:

```
Form Percentage =
Form Points Earned ÷ Form Possible Points
```

The following example shows how Webex WFO calculates the percentage score from the previous two tables:

```
75 ÷ 88.75 = 84.51%
```

Point-based scoring

When you create an evaluation form, you must choose either point-based scoring or Percentage-based scoring. Point-based scoring is based on a range of whole numbers. The minimum number can be less than zero.

> **EXAMPLE** The minimum number of points on a form is −50, and the maximum number of points is 150. A score of 0 is considered adequate or average. Positive points are awarded for exceptional service when the agent performs beyond the normal expected outcome. Negative points are subtracted for poor service and indicate the agent needs additional coaching.

The minimum score for a points-based evaluation form is the total of all minimum scores that are assigned to questions.

The maximum score for a points-based evaluation form is the total of all maximum scores that are assigned to questions.

Configure KPIs

The **Key Performance Indicators (KPIs)** page is used to establish goals for the KPIs you want to make available for monitoring in a Data Explorer report or dashboard.

Prerequisites

- You have the Administer Tenant permission.

Page location

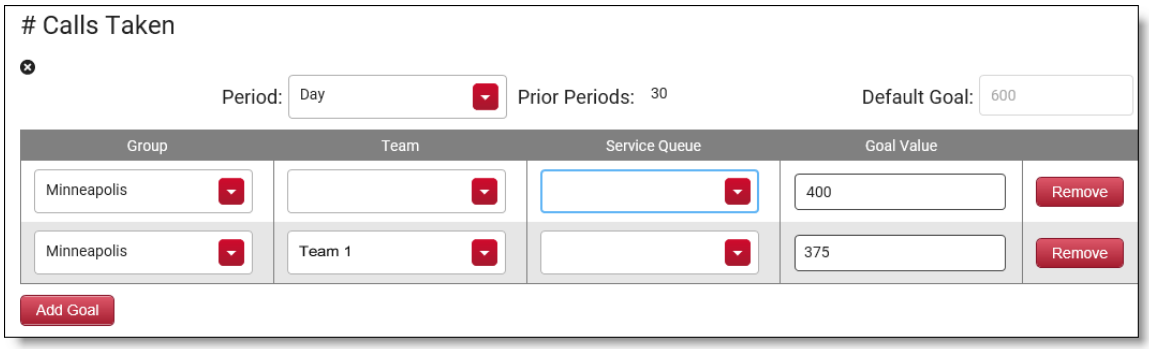
Application Management > Global > Administration > Key Performance Indicators (KPIs)

All KPIs have a default goal, but that goal can be very broad, so it might not add value in reporting without refining it by adding specific goals more appropriate for your contact center. When you add a goal to a KPI, you can further refine the goals for specific areas of your contact center, such as a group or team. For example, the Adherence % goal for Team A might be different from that for Team B, since they handle very different types of contacts. A KPI can have multiple goals, based on your unique requirements.

A KPI is hierarchical in nature. That is, when you set a goal and do not specify a group or team, the goal applies to all groups and teams in your entire contact center. If you specify a group, the goal applies only to that group and all teams that belong to it. If you specify both a group and a team, then that goal applies only to that team. A more specific goal overrides a less specific goal.

EXAMPLE

Group Minneapolis is comprised of Teams 1, 2, and 3. As shown in the graphic below, a goal of 400 calls taken per day has been set for the group and all its teams. However, Team 1 handles more complex issues, so a goal of 375 calls taken per day is set for Team 1 only. This goal overrides the goal set at the group level. Since no goals have been set specifically for Teams 2 and 3, they inherit the group's goal of 400 calls taken per day.



The KPIs available for configuration are built into Data Explorer as a type of measure. See Create a Data Explorer report and Configure enterprise KPIsfor more information.

Configure a KPI goal

1. Select the KPI you want to configure from the **Add KPI** drop-down list, and then click **Add KPI**. The KPI is added to the page in alphabetical order with one blank row.
2. Complete the fields to configure the KPI goal. The only field required is **Goal Value**. All others are optional. Not all fields are available for every KPI.

Field	Description
Period	(Optional) Select the unit of time (“period”) for the KPI.
Prior Periods	(Optional) Enter the number of prior periods for the KPI. For example, if the period selected is “Day” and the prior periods entered is “30,” then the trend comparison of the KPI is for the prior 30 days.
Default Goal	(Read only) The default goal of the KPI. This value is set with the KPI in Data Explorer. The default goal can be very broad, so it might not add value in reporting without refining it by adding specific goals.
Group	(Optional) Select the group for the goal. The available groups are those configured on the Groups page (see Manage groups for QM and Analytics.
Team	(Optional) Select the team for the goal. The available teams are those configured on the Teams page (see Manage teams for QM and Analytics).
Form	(Optional) Select the evaluation form for the goal. The available forms are those configured on the Evaluation Form Manager page (see).
Goal Value	(Required) Enter the goal for the KPI.

3. If you want to add another goal for the KPI, click **Add Goal**. If you need to remove a goal row from the KPI, click **Remove** next to that row.
4. When you have finished adding goals, click **Save**.

Remove a KPI from the page

- Click the **X** icon beneath the KPI name to remove the KPI from the page. When you remove the KPI, it reverts to using its default goal in reporting.

NOTE If you remove every goal row from a KPI, the KPI is automatically removed from the page. A KPI must have at least one goal row to remain on the page.

Related topics

- Set WFM KPI targets for agents—Configure KPIs for New WFM

Data Analysts

Data analysts help process and report on contact center data. There are six places within Webex WFO where you can analyze data:

- Standard QM reports
- Standard WFM reports
- Insights
- Cisco Analytics
- Data Explorer
- WFM Performance Manager

See Overview of reporting in Webex WFO for more information about each option and which ones best meet your needs.

Overview of reporting in Webex WFO

Webex WFO has a number of tools that help you visualize data about your organization. The visualizations can be in the form of reports and charts, dashboards, and widgets. It's important that you understand where these tools get the data that goes into these visualizations and what each tool can do to help you manage your organization.

Webex WFO stores data in two different databases: The WFM Database and the QM & Analytics Database. All the reporting options that Webex WFO offers pull data from these sources when you create reports or dashboards.

The table below summarizes the reporting tools available in Webex WFO.

Reporting tool	Data source	Description
Insights	WFM Database QM & Analytics Database	With Insights, you can create analyses and dashboards and share them with other people in your organization. The data that is available to you

Reporting tool	Data source	Description
		depends on which Cisco products you are licensed to access. A variety of analyses and dashboards come pre-built for you when your organization purchases Webex WFO. Learn more about Insights here: Data Analysts.
Data Explorer	WFM Database QM & Analytics Database	With Data Explorer, you can create reports and dashboards for yourself and share them with others. The data that is available to you depends on which Cisco products you are licensed to access. Data Explorer reports on the last two years of data. A variety of reports and dashboards come pre-built for you when your organization purchases Webex WFO. Learn more about Data Explorer here: Data Analysts.
WFM standard reports	WFM Database	The WFM standard reports are located in the WFM menu (WFM > Reports). You can define which teams, agents, time frames, and other variables to show in these reports. Learn about each of the available reports here: WFM standard reports.
Performance Manager reporting	WFM Database	Performance Manager is an optional add-on tool available to WFM on-premises users—a Performance Manager license is required for access. With Performance Manager, you can create your own reports. Learn more about Performance Manager here: Performance Manager tool.
QM standard reports	QM & Analytics Database	The QM standard reports are located on the Reporting page on the Webex WFO menu bar. You can define groups, teams, agents, contacts, evaluations, time frames, and other variables to

Reporting tool	Data source	Description
		appear in these reports. Learn about each of the available reports here: QM standard reports.
Analytics dashboards and widgets	QM & Analytics Database	The Analytics dashboards and widgets display data about the speech and text content of contacts and about programs agents use while handling contacts. **IMPORTANT** This data does not exist by default in the database: you must define data sets using the tools on the Analytics page in order to process speech, text, and desktop analytics data into the database. Learn more about how to create dashboards and widgets here: Analytics dashboards overview and Create and manage an Analytics widget.

QM standard reports

Quality Management provides evaluation, system, and survey reports.

NOTE Scores are rounded up for individual sections in evaluation and survey forms. However, in reports that show section averages for agents, teams, and groups, the section scores are first added and averaged before being rounded up. As a result, the average displayed in reports will vary slightly from the number calculated by adding up section scores as displayed in an evaluation or survey form and then averaging them.

Quality Management displays time in two different ways, depending on where it appears. In all Quality Management reports, except for system status and user recording status, the time associated with a contact is the time the contact occurred at the agent's location. The time appears in a format appropriate to the locale with an abbreviation for the local time zone. . For example, if the agent is located in Chicago, USA, the time associated with any contacts made by that agent is Central Standard Time (CST). If Webex WFO does not know the time zone associated with the contact, then the time is displayed in Greenwich Mean Time (GMT).

In system status and user recording status reports, the time associated with a contact is in a format appropriate to the locale plus the GMT offset. For example, the time for a contact made by a Chicago agent at 3:42 PM CST appears as 9:42 PM GMT −06:00.

BEST PRACTICE Before you run a standard report, know what data you need to access and how best to filter it. Use the smallest possible date range, and use many targeted searches as opposed to a single large search. You can also use group, team, and agent filters to get specific data without running a report for all groups or teams in your system. Let the report finish running before requesting a new report.

Prerequisites

The proper permissions for the report you want to run. The permissions you need can vary depending on the report. See Manage roles and permissions for QM, Analytics, and Insights for the full list of Reporting permissions.

Page location

Reporting

Procedures

Run a report

1. Click **QM** or **Saved** from the Reporting toolbar.
2. Click the report name to display the report's setup page.
3. Complete the report setup information. Choose the date, criteria, format, and fields to be included in the report.

   NOTE For all standard QM reports, the date filter searches based on the date the contact was recorded, not the date the contact was evaluated.

   NOTE If the report allows you to choose the fields that appear in the report and their order, when you click **Run Report** or **Save As**, the selected fields become the default fields for the report for you. Other users do not see your choices when they run the report.

4. (Optional) Choose whether to enable recurrence for the report.

   (Optional) Choose whether to email recurring reports to email addresses you enter in the **Destination** section. At least one email address is required. Email addresses are separated by semicolons. If Webex WFO is configured to email reports, you can set a report to run automatically at specified intervals for a specified length of time or indefinitely.

   EXAMPLE john.smith@example.com;mary.jones@example.com

> **NOTE** There is a 10 MB attachment size limit for reports that are emailed. The size of the generated report depends on the amount of data included (the number of agents or service queues, for example). To check the size of the report, generate it manually as a PDF or CSV first. If the report is large, break it into smaller reports to ensure it meets the size limitation.

The email includes your email address in the From field (as the user who scheduled the report). If your email address is not available, the email address will be <your first name>.<your last name>@automated.report.

> **NOTE** To use Recurrence, you must save the report for future use.

5. Click **Run Report** to run the report immediately.

Save a report

1. Set up the report as desired (see the procedure "Run a report").
2. Click **Save As** to save the report for future use.
3. Enter a name for the report in the Save As text field then click **Save**.
4. When you save a report's configuration, you can access it by clicking **Saved** in the Reporting toolbar and then clicking the report name.

Available reports

Evaluation Reports	
Scores All Data	Displays average evaluation scores by group, team, or agent per form. This can include one evaluation form or all point-based or percentage-based forms.
Evaluation Scores	Displays average detailed evaluation scores per agent, team, and/or group, based on form.
Section Scores	Displays the average score for each section of an evaluation form over a specified period. This can be run by agent, team, and/or group.
Question Scores	Displays the scores for each question on an evaluation form. This can include one evaluation form or all point-based or percentage-

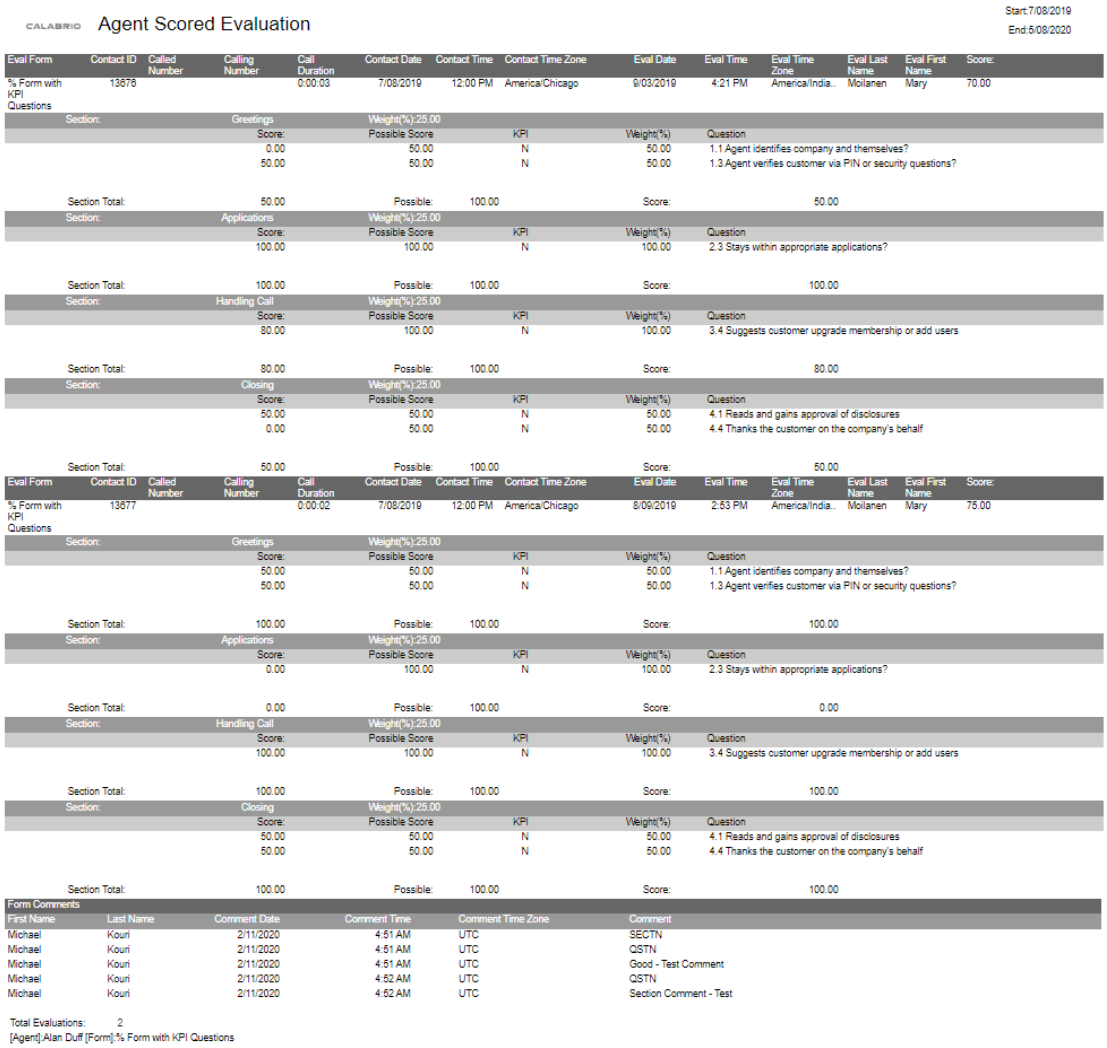
Evaluation Reports	
	based forms for an individual agent, group, or team.
Evaluator Performance	Provides a summary of how many evaluations an evaluator has completed and the average evaluation score based on a time period. This can include one evaluation form or all point-based or percentage-based forms.
Quality Averages Graph	Displays quality averages over time for an agent, team, and/or group. This can include one evaluation form or all point-based or percentage-based forms.
Evaluation Totals Graph	Displays the evaluation totals by month for an individual agent, group, or team.
Contact Totals Graph	Displays the total number of recordings and evaluations per month for a specified group.
Agent Trend Graph	Displays a specific user's average score for each evaluation made over a specified time period, along with trend line and the detailed information below that makes up the graph.
Agent Scored Evaluation	Displays the details of all evaluations scored for a specific user during a defined time period, including the scores given on each evaluation question, the score for each section, the overall score, and any added comments. The report can be run for one form or for all percentage-based or point-based forms.
Contact Detail	Displays average evaluation scores, ranges, and contact total dates for a specific agent and whether the score exceeded, met, or was below expectation based on what was defined in the form. For the agent-level detail, you see a row per form. On the team- and group-level detail, you see some additional information for total number of evaluations, team, and agent averages.

Evaluation Reports	
Evaluation Calibration	Shows the results of a calibration session based on the Contact ID.
Contact Goal Progress	If you are using the Contact Goal feature, this report shows the progress of completed evaluations compared to their goals. The goals are by evaluator.
System Reports	
Interaction Access by User	Displays users who accessed the recordings over a specified period.
Interaction Access by Contact	Displays a list of archived recordings for a specific agent that were accessed over a specified period. It enables you to determine if a significant number of recordings concerning a particular contact, called number, or calling number were reviewed.
User Recording Status	Displays user and recording events associated with the agents configured for recording. You can choose to view messages generated by the service at the INFO, WARN, or ERROR level, or at all levels. Information is available for the past seven days, including the current day.
System Status	Displays system and administrative events associated with agents configured for recording. You can choose to view messages generated by the service at the INFO, WARN, or ERROR level, or at all levels. Information is available for the past seven days, including the current day.
Survey Reports	
Surveys All Data	Displays collective post-call survey scores.
Survey Form Scores	Displays the average scores for post-call surveys.

Agent Scored Evaluation

The Agent Scored Evaluation report displays the details of all evaluations scored for a specific user during a defined time period, including the scores given on each evaluation question, the score for each section, the overall score, and any added comments. The report can be run for one form or for all percentage-based or point-based forms.

You can use this report to print out a hard copy of an individual evaluation result.



CALABRIO Agent Scored Evaluation

Start:7/08/2019
End:5/08/2020

Eval Form	Contact ID	Called Number	Calling Number	Call Duration	Contact Date	Contact Time	Contact Time Zone	Eval Date	Eval Time	Eval Time Zone	Eval Last Name	Eval First Name	Score:
% Form with KPI Questions	13876			0:00:03	7/08/2019	12:00 PM	America/Chicago	9/03/2019	4:21 PM	America/India..	Moilanen	Mary	70.00

Section:	Greetings	Weight(%):25.00			
Score:	Possible Score:	KPI	Weight(%)	Question	
0.00	50.00	N	50.00	1.1 Agent identifies company and themselves?	
50.00	50.00	N	50.00	1.3 Agent verifies customer via PIN or security questions?	
Section Total:	50.00	Possible:	100.00	Score:	50.00
Section:	Applications	Weight(%):25.00			
Score:	Possible Score:	KPI	Weight(%)	Question	
100.00	100.00	N	100.00	2.3 Stays within appropriate applications?	
Section Total:	100.00	Possible:	100.00	Score:	100.00
Section:	Handling Call	Weight(%):25.00			
Score:	Possible Score:	KPI	Weight(%)	Question	
80.00	100.00	N	100.00	3.4 Suggests customer upgrade membership or add users	
Section Total:	80.00	Possible:	100.00	Score:	80.00
Section:	Closing	Weight(%):25.00			
Score:	Possible Score:	KPI	Weight(%)	Question	
50.00	50.00	N	50.00	4.1 Reads and gains approval of disclosures	
0.00	50.00	N	50.00	4.4 Thanks the customer on the company's behalf	
Section Total:	50.00	Possible:	100.00	Score:	50.00

Eval Form	Contact ID	Called Number	Calling Number	Call Duration	Contact Date	Contact Time	Contact Time Zone	Eval Date	Eval Time	Eval Time Zone	Eval Last Name	Eval First Name	Score:
% Form with KPI Questions	13877			0:00:02	7/08/2019	12:00 PM	America/Chicago	8/09/2019	2:53 PM	America/India..	Moilanen	Mary	75.00

Section:	Greetings	Weight(%):25.00			
Score:	Possible Score:	KPI	Weight(%)	Question	
50.00	50.00	N	50.00	1.1 Agent identifies company and themselves?	
50.00	50.00	N	50.00	1.3 Agent verifies customer via PIN or security questions?	
Section Total:	100.00	Possible:	100.00	Score:	100.00
Section:	Applications	Weight(%):25.00			
Score:	Possible Score:	KPI	Weight(%)	Question	
0.00	100.00	N	100.00	2.3 Stays within appropriate applications?	
Section Total:	0.00	Possible:	100.00	Score:	0.00
Section:	Handling Call	Weight(%):25.00			
Score:	Possible Score:	KPI	Weight(%)	Question	
100.00	100.00	N	100.00	3.4 Suggests customer upgrade membership or add users	
Section Total:	100.00	Possible:	100.00	Score:	100.00
Section:	Closing	Weight(%):25.00			
Score:	Possible Score:	KPI	Weight(%)	Question	
50.00	50.00	N	50.00	4.1 Reads and gains approval of disclosures	
50.00	50.00	N	50.00	4.4 Thanks the customer on the company's behalf	
Section Total:	100.00	Possible:	100.00	Score:	100.00

Form Comments

First Name	Last Name	Comment Date	Comment Time	Comment Time Zone	Comment
Michael	Kouri	2/11/2020	4:51 AM	UTC	SECTN
Michael	Kouri	2/11/2020	4:51 AM	UTC	QSTN
Michael	Kouri	2/11/2020	4:51 AM	UTC	Good - Test Comment
Michael	Kouri	2/11/2020	4:52 AM	UTC	QSTN
Michael	Kouri	2/11/2020	4:52 AM	UTC	Section Comment - Test

Total Evaluations: 2
[Agent]:Alan Duff [Form]:% Form with KPI Questions

> **NOTE**
>
> If an evaluation score has a repetitive decimal, Webex WFO will round the value at the number of significant digits you have specified for reports. At 14 decimal places and below, the last decimal is rounded. At 15 decimals, the last two decimals are rounded.

For example, for 14 decimals, a repeating value appears as 66.66666666666667. For 15 decimals, a repeating value appears as 66.666666666666671.

Prerequisite

- You have the “View Evaluation Details” permission. See Manage roles and permissions for QM, Analytics, and Insights.

Fields in this report

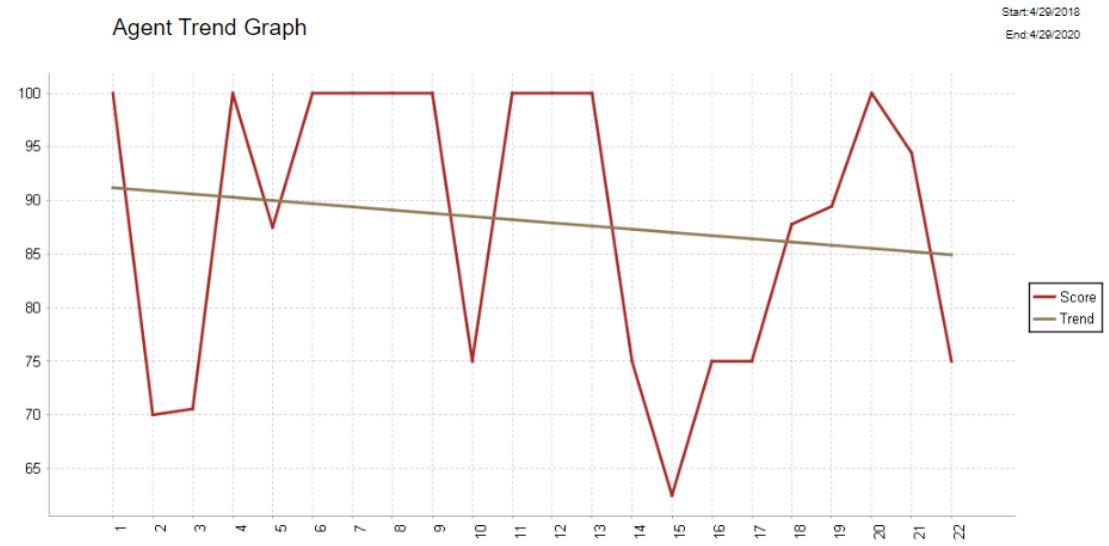
Field	Definition
Call Duration	The contact’s talk time (amount of time between call answered and call dropped).
Called Number	The DID (Direct Inward Dialing) or DNIS (Dialed Number Identification Service) number of the phone that received the call. Displays “unknown” if the called number is unlisted or blocked.
Calling Number	The Caller ID or ANI (Automatic Number Identification) of the calling party. Displays “unknown” if the calling number is unlisted or blocked.
Comment	The comment related to a form or section. Anyone who can view the evaluation can add a comment.
Comment Date	The date when the comment was entered on the evaluation.
Comment Time	The time when the comment was entered on the evaluation.
Comment Time Zone	The time zone where the comment was entered.
Contact ID	The conversation’s unique ID.
Contact Time	The time when the contact occurred.
End	The end of the day or interval, or the end of the period covered by the report.
Eval Date	The date the contact was evaluated. This value appears on requested reports if the View Evaluator Detail permission is selected. If it is not

Field	Definition
	selected, the value 12/31/2999 is displayed. On scheduled reports, this value is always displayed.
Eval Form	The evaluation form used to score the contact.
Eval Time	The time when the contact was evaluated. Available on requested reports if the View Evaluator Detail permission is selected. If the View Evaluator Detail permission is not selected, the value 12:00 AM is displayed. This value is always available on scheduled reports.
Eval Time Zone	The time zone in which the contact was evaluated. Only available on requested reports if the View Evaluator Details permission is enabled. If the permission is not enabled, the value ##### is displayed. This value is always displayed on scheduled reports.
First Name	The evaluator's first name. You can see the evaluator's first name if you have the View Evaluator Details permission.
Form Comments	The comments for a form. Anyone who can view the evaluation can add a comment.
KPI	Key Performance Indicator.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Possible	The total possible score.
Possible Score	The actual question that appears in the evaluation form.
Question	The text of the question that appears in the evaluation form.
Score	The evaluation score given to the contact.
Section	The name of the section in the evaluation form.
Section Total	The total score for the section.
Total Evaluations	The total number of evaluations performed using the specified evaluation

Field	Definition
	form during the specified time period.
Weight (%)	A percentage applied to a section or question in an evaluation form. The sum of question weights in a evaluation form section is 100 percent.

Agent Trend Graph

The Agent Trend Graph report displays a specific user's average score for each evaluation made over a specified time period, along with trend line and the detailed information below that makes up the graph.



ID	Contact ID	Form	Contact Date	Contact Time	Contact Time Zone	Call Duration	Score(%)
1	842	Training QM Form	10/22/2018	12:46 PM	America/Chicago		100.00
2	848	Training QM Form	11/06/2018	9:22 AM	America/Chicago		70.00
3	847	Training QM Form	11/08/2018	9:21 AM	America/Chicago		70.56
4	852	IB DQA - Draft	11/12/2018	8:03 AM	America/Chicago		100.00
5	853	Testing - Roles 2	11/13/2018	1:48 PM	America/Chicago		87.50
6	854	Training QM Form	11/13/2018	1:54 PM	America/Chicago		100.00
7	855	Training QM Form	11/13/2018	1:57 PM	America/Chicago		100.00
8	856	Training QM Form	11/13/2018	1:59 PM	America/Chicago		100.00
9	857	Training QM Form	11/13/2018	2:01 PM	America/Chicago		100.00
10	858	Testing - JW NA	11/13/2018	2:06 PM	America/Chicago		75.00
11	859	Testing - Roles	11/13/2018	2:09 PM	America/Chicago		100.00
12	860	Testing - Roles	11/13/2018	2:30 PM	America/Chicago		100.00
13	861	Testing - Roles	11/13/2018	2:34 PM	America/Chicago		100.00
14	862	Testing - Roles 2	11/15/2018	12:08 PM	America/Chicago		75.00
15	863	Testing - Roles 2	11/19/2018	3:43 PM	America/Chicago		62.50
16	864	Testing - Appeal Process	11/20/2018	4:48 PM	America/Chicago		75.00
17	866	Testing - Roles 2	11/30/2018	11:31 AM	America/Chicago		75.00
18	867	Training QM Form	11/30/2018	11:35 AM	America/Chicago		87.78
19	868	Testing - JW Notification	11/30/2018	11:40 AM	America/Chicago		89.44
20	872	Testing - JW Notification	12/04/2018	1:20 PM	America/Chicago		100.00
21	890	Testing - JW Notification	1/24/2019	10:01 AM	America/Chicago		94.44
22	895	Testing - Roles 2	2/06/2019	11:57 AM	America/Chicago		75.00

Fields in this report

Field	Description
Call Duration	The contact's talk time (amount of time between call answered and call dropped).
Contact Date	The date the contact occurred.
Contact ID	The conversation's unique ID.
Contact Time	The time when the contact occurred.
Contact Time Zone	The time zone in which the contact occurred.
End	The end of the day or interval, or the end of the period covered by the report.
Form	The name of the evaluation form.
ID	The ID of the contact.
Score	The evaluation score given to the contact.
Start	The start time of the day or interval or the start of the period covered by the report.
Trend	The average evaluation score over time.

Contact Detail

This report displays average evaluation scores, ranges, and contact total dates for a specific agent and whether the score exceeded, met, or was below expectation based on what was defined in the form. For the agent-level detail, you see a row per form. On the team- and group-level detail, you see some additional information for total number of evaluations, team, and agent averages.

NOTE Statistics for scored contacts do not include evaluations in progress or evaluations waiting for approval.

CALABRIO Agent Contact Detail

Start:5/08/2017
End:5/08/2020

Date	Score(%):	Exceed	Meet	Below	Call Duration
9/05/2018 10:12 AM	100.00	X			0:00:00
9/05/2018 10:12 AM	50.00			X	0:00:00
9/05/2018 10:13 AM	23.33			X	0:00:00
9/10/2018 10:22 AM	100.00	X			0:00:44
9/10/2018 12:00 PM	96.50	X			0:04:22
9/19/2018 9:36 AM	64.17			X	0:00:20
9/20/2018 8:14 AM	82.50		X		0:00:19

[Agent]:Scott Hansford [Form]:SC - Call Eval (%) III,SC Evaluation,SC - Call Eval (%) IV,GT_NoApproval_Percentage,GT_Approval_Percentage,% Form with KPI Questions,Cust. Experience,Jim's Evaluation Form,RA-EVAL,Marcus Test Form,Clone of SC - Call Eval (%) III Rev 2,Sample YMK %-based Eval,Gagori Test Sample Rubric,Evaluation Test Form - AV,TEST EVALUATION_APPEAL,Sample QA Form

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Run Date:May 8, 2020 1:09 PM

CALABRIO Team Contact Detail

Start:7/08/2017
End:5/08/2020

First Name	Last Name	Agent ID	Total Evaluations	Team Average(%)	Agent Average(%)	Score Std Dev	Total Exceed	Total Meet	Total Below
		171	1	73.42	100.00	0.00	1	0	0
		596	2	73.42	45.50	45.50	1	0	1
Advanced	Reporting	110	1	73.42	100.00	0.00	1	0	0
Alan	Duff	425	7	73.42	64.71	28.87	2	3	2
Alex	Altherr	47	72	73.42	87.44	21.09	60	0	12
Alvin	Wong	349	1	73.42	100.00	0.00	1	0	0
Anna	Alexander	62	90	73.42	82.54	24.20	65	0	25
Ashley	Van Hout	428	1	73.42	46.67	0.00	0	0	1
Ben	Bishop	48	176	73.42	68.98	28.50	80	0	96
Beth	Bryant	63	163	73.42	70.06	28.52	78	0	85
Brett(SiennaCreek)	Kadrie	429	1	73.42	65.25	0.00	0	0	1
Brian	Burns	30	161	73.42	69.97	28.35	76	0	85
Chris	Hohenberger	190	1	73.42	96.50	0.00	1	0	0
Curt	Cowens	64	1	73.42	95.50	0.00	1	0	0
Dan	Lanctot	431	2	73.42	57.13	2.87	0	1	1
Dan	Lynch	432	3	73.42	68.74	24.54	1	1	1
David	Dubinski	65	1	73.42	90.50	0.00	1	0	0
Derek	Fernholz	148	1	73.42	64.17	0.00	0	0	1
Erika	Eells	411	1	73.42	50.83	0.00	0	0	1
Gerry	Johnsen	100	4	73.42	67.08	19.90	1	0	3
Greg	Iske	436	1	73.42	71.00	0.00	0	1	0
Ignacio	Villar	76	1	73.42	85.50	0.00	0	1	0
Juana	Urshela	75	2	73.42	92.25	0.25	2	0	0
Kevin	Thurman	74	1	73.42	73.25	0.00	0	1	0
Mike	Engen	441	1	73.42	49.50	0.00	0	0	1
Nate	Isham	301	1	73.42	91.67	0.00	1	0	0
Nina	Quinlan	71	1	73.42	93.00	0.00	1	0	0
Oishong	Chok	443	3	73.42	75.93	34.05	2	0	1
Oscar	Purcell	70	1	73.42	86.50	0.00	0	1	0
Quincy	Landers	68	1	73.42	83.50	0.00	0	1	0
Sally	Risk	444	1	73.42	23.33	0.00	0	0	1
Sam	Boswell	118	1	73.42	87.50	0.00	1	0	0
Scott	Hansford	94	7	73.42	73.79	27.18	3	1	3
Shane	Johnson	169	3	73.42	58.14	25.78	0	2	1
Shane	Johnson	95	1	73.42	100.00	0.00	1	0	0
Taylor	Laehn	446	7	73.42	90.40	9.02	4	3	0
Tom	Brown	447	2	73.42	79.17	6.83	0	2	0

[Team]:Default Team [Form]:SC - Call Eval (%) III,SC Evaluation,SC - Call Eval (%) IV,GT_NoApproval_Percentage,GT_Approval_Percentage,% Form with KPI Questions,Cust. Experience,Jim's Evaluation Form,RA-EVAL,Marcus Test Form,Clone of SC - Call Eval (%) III Rev 2,Sample YMK %-based Eval,Gagori Test Sample Rubric,Evaluation Test Form - AV,TEST EVALUATION_APPEAL,Sample QA Form

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Run Date:May 8, 2020 4:19 PM

Fields in this report

Field	Definition
Below	The number of evaluated contacts that are below expectations.

Field	Definition
Date	The date of the reported information.
End	The end of the day or interval, or the end of the period covered by the report.
Exceeds	The number of evaluated contacts that exceed expectations.
Meets	The number of evaluated contacts that meet expectations.
Score	The evaluation score given to the contact.
Start	The start time of the day or interval or the start of the period covered by the report.

Contact Goal Progress

If you are using the Contact Goal feature, this report shows the progress of completed evaluations compared to their goals. The goals are by evaluator.


CALABRIO Contact Goal Progress

As Of:5/08/2017

First Name	Last Name	Contact Goal	Completed	Total to Complete	Percent Complete
Call	Design	Goal 40: calabration session	0	3	0.0%
Charlie	Snedden	Goal 40: calabration session	0	3	0.0%
Chris	Dickhans	Goal 40: calabration session	0	3	0.0%
Consulting	Calabrio	Goal 40: calabration session	0	3	0.0%

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Run Date:May 8, 2020 1:24 PM

Fields in this report

Field	Definition
First Name	The evaluator's first name. You can see the evaluator's first name if you have the View Evaluator Details permission.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Contact Goal	The description of the contact goal as configured on the Contact Queue Administration page.

Field	Definition
Completed	The number of contact goals that the evaluator has completed.
Total To Complete	The total number of contact goals the evaluator has to complete. **NOTE** If an agent is deactivated before a goal is active (or, for recurring goals, before Webex WFO assigns the next recurrence), Webex WFO does not include contacts from that agent in the total number of contacts that the evaluator must handle in order to meet that goal. If an agent is deactivated after a goal is active, that agent's contacts are included in the goal and in the metrics for this report. **EXAMPLE** Each week, evaluators have a goal to evaluate ten calls. The week runs from Monday to Friday. An agent leaves the contact center on a Wednesday. Her contacts are included in the goal and report metrics for that week but not in the goal and report metrics for the week after that.
Percent Complete	The percentage of contact goals that the evaluator has completed.

Contact Totals Graph

The Contact Totals Graph report displays the total number of recordings and evaluations per month for a specified group.

Fields in this report

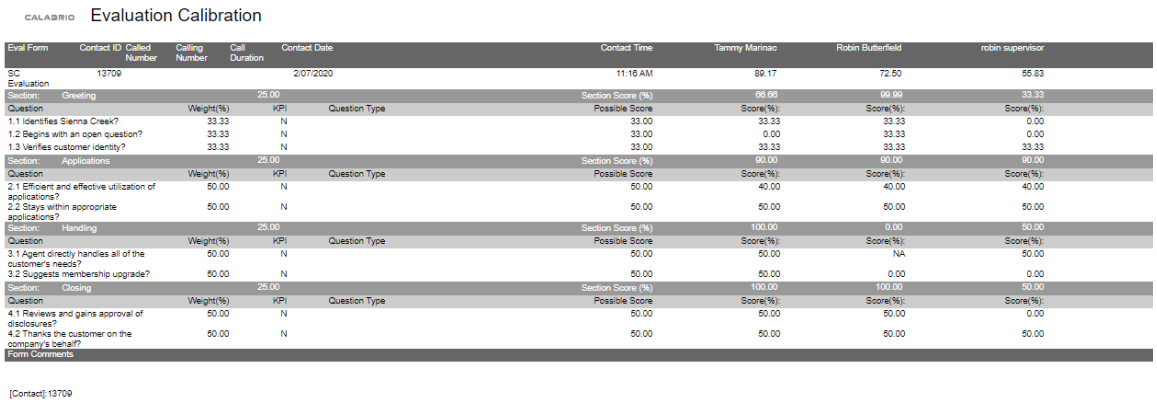
Field	Definition
End	The end of the day or interval, or the end of the period covered by the report.
Start	The start time of the day or interval or the start of the period covered by the report.
Total Evaluations	The total number of evaluations performed using the specified evaluation form during the specified time period.
Total QM Recordings	The total number of Quality Management recordings.

Evaluation Calibration

This report shows the results of a calibration session based on the Contact ID. It does not display standard evaluation scores

Prerequisite

- You have the View Evaluator Details permission. See Manage roles and permissions for QM, Analytics, and Insights.



CALABRIO Evaluation Calibration

Eval Form	Contact ID	Called Number	Calling Number	Call Duration	Contact Date	Contact Time	Tammy Marinac	Robin Butterfield	robin supervisor
SC Evaluation	13709				2/07/2020	11:16 AM	89.17	72.50	55.83
Section: Greeting				25.00		Section Score (%)	66.66	99.99	33.33
Question			Weight(%)	KPI	Question Type	Possible Score	Score(%):	Score(%):	Score(%):
1.1 Identifies Sienna Creek?			33.33	N		33.00	33.33	33.33	0.00
1.2 Begins with an open question?			33.33	N		33.00	0.00	33.33	0.00
1.3 Verifies customer identity?			33.33	N		33.00	33.33	33.33	33.33
Section: Applications				25.00		Section Score (%)	90.00	90.00	90.00
Question			Weight(%)	KPI	Question Type	Possible Score	Score(%):	Score(%):	Score(%):
2.1 Efficient and effective utilization of applications?			50.00	N		50.00	40.00	40.00	40.00
2.2 Stays within appropriate applications?			50.00	N		50.00	50.00	50.00	50.00
Section: Handling				25.00		Section Score (%)	100.00	0.00	50.00
Question			Weight(%)	KPI	Question Type	Possible Score	Score(%):	Score(%):	Score(%):
3.1 Agent directly handles all of the customer's needs?			50.00	N		50.00	50.00	NA	50.00
3.2 Suggests membership upgrade?			50.00	N		50.00	50.00	0.00	0.00
Section: Closing				25.00		Section Score (%)	100.00	100.00	50.00
Question			Weight(%)	KPI	Question Type	Possible Score	Score(%):	Score(%):	Score(%):
4.1 Reviews and gains approval of disclosures?			50.00	N		50.00	50.00	50.00	0.00
4.2 Thanks the customer on the company's behalf?			50.00	N		50.00	50.00	50.00	50.00
Form Comments									

[Contact]:13709

Fields in this report

Field	Definition
Call Duration	The contact's talk time (amount of time between call answered and call dropped).
Called Number	The DID (Direct Inward Dialing) or DNIS (Dialed Number Identification Service) number of the phone that received the call. Displays "unknown" if the called number is unlisted or blocked.
Calling Number	The Caller ID or ANI (Automatic Number Identification) of the calling party. Displays "unknown" if the calling number is unlisted or blocked.
Contact Date	The date the contact occurred.
Contact ID	The conversation's unique ID.

Field	Definition
Contact Time	The time when the contact occurred.
Eval Form	The evaluation form used to score the contact.
Evaluator Name	The first and last name of the person who evaluated or calibrated the contact. Only available on requested reports if the View Evaluator Details permission is enabled. This value is always displayed on scheduled reports.
Form Comments	The comments for a form. Anyone who can view the evaluation can add a comment.
KPI	Key Performance Indicator.
Possible Score	The actual question that appears in the evaluation form.
Question	The text of the question that appears in the evaluation form.
Question Type	The type of question based on the possible answer: Yes/No or 0–5.
Score	The evaluation score given to the contact.
Section	The name of the section in the evaluation form.
Section Score (%)	The section score given to the contact.
Weight (%)	A percentage applied to a section or question in an evaluation form. The sum of question weights in a evaluation form section is 100 percent.

Evaluation Scores

This report displays average detailed evaluation scores per agent, team, and/or group, based on form.

CALABRIO Agent Evaluation Scores

Start:3/15/2021
End:3/15/2022

Group	Team	Last Name	First Name	Agent ID	Form	Recordings	Evaluations	Exceed	Meet	Below	Average Score
Default Group	Default Team	Agent	Therese	Therese Agent	% Form with KPI Questions	423	1	0	0	1	0.00
	Section Weight(%):25.00		Section:	Greetings						Average Score:	50.00
	Question Weight(%)		Question								
	50.00		1.1 Agent identifies company and themselves?							100.00	
	50.00		1.3 Agent verifies customer via PIN or security questions?							0.00	
	Section Weight(%):25.00		Section:	Applications						Average Score:	100.00
	Question Weight(%)		Question								
	100.00		2.3 Stays within appropriate applications?							100.00	
	Section Weight(%):25.00		Section:	Handling Call						Average Score:	80.00
	Question Weight(%)		Question								
	100.00		3.4 Suggests customer upgrade membership or add users							80.00	
	Section Weight(%):25.00		Section:	Closing						Average Score:	100.00
	Question Weight(%)		Question								
	50.00		4.1 Reads and gains approval of disclosures							100.00	
	50.00		4.4 Thanks the customer on the company's behalf							100.00	

[Agent]:Therese Agent [Form]:% Form with KPI Questions
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CALABRIO Team Evaluation Scores

Start:3/15/2021
End:3/15/2022

Group	Team	Last Name	First Name	Agent ID	Form	Recordings	Evaluations	Exceed	Meet	Below	Average Score
Default Group	Default Team				% Form with KPI Questions	423	7	4	1	2	76.07
	Section Weight(%):25.00		Section:	Greetings						Average Score:	71.43
	Question Weight(%)		Question								
	50.00		1.1 Agent identifies company and themselves?							75.00	
	50.00		1.3 Agent verifies customer via PIN or security questions?							66.67	
	Section Weight(%):25.00		Section:	Applications						Average Score:	75.00
	Question Weight(%)		Question								
	100.00		2.3 Stays within appropriate applications?							75.00	
	Section Weight(%):25.00		Section:	Handling Call						Average Score:	86.67
	Question Weight(%)		Question								
	100.00		3.4 Suggests customer upgrade membership or add users							86.67	
	Section Weight(%):25.00		Section:	Closing						Average Score:	100.00
	Question Weight(%)		Question								
	50.00		4.1 Reads and gains approval of disclosures							100.00	
	50.00		4.4 Thanks the customer on the company's behalf							100.00	
Group	Team	Last Name	First Name	Agent ID	Form	Recordings	Evaluations	Exceed	Meet	Below	Average Score
Default Group	WFM Test Team 1				% Form with KPI Questions	15	2	2	0	0	100.00
	Section Weight(%):25.00		Section:	Greetings						Average Score:	
	Question Weight(%)		Question								
	50.00		1.1 Agent identifies company and themselves?							0.00	
	50.00		1.3 Agent verifies customer via PIN or security questions?							0.00	
	Section Weight(%):25.00		Section:	Applications						Average Score:	
	Question Weight(%)		Question								
	100.00		2.3 Stays within appropriate applications?							0.00	
	Section Weight(%):25.00		Section:	Handling Call						Average Score:	
	Question Weight(%)		Question								
	100.00		3.4 Suggests customer upgrade membership or add users							0.00	
	Section Weight(%):25.00		Section:	Closing						Average Score:	
	Question Weight(%)		Question								
	50.00		4.1 Reads and gains approval of disclosures							0.00	
	50.00		4.4 Thanks the customer on the company's behalf							0.00	

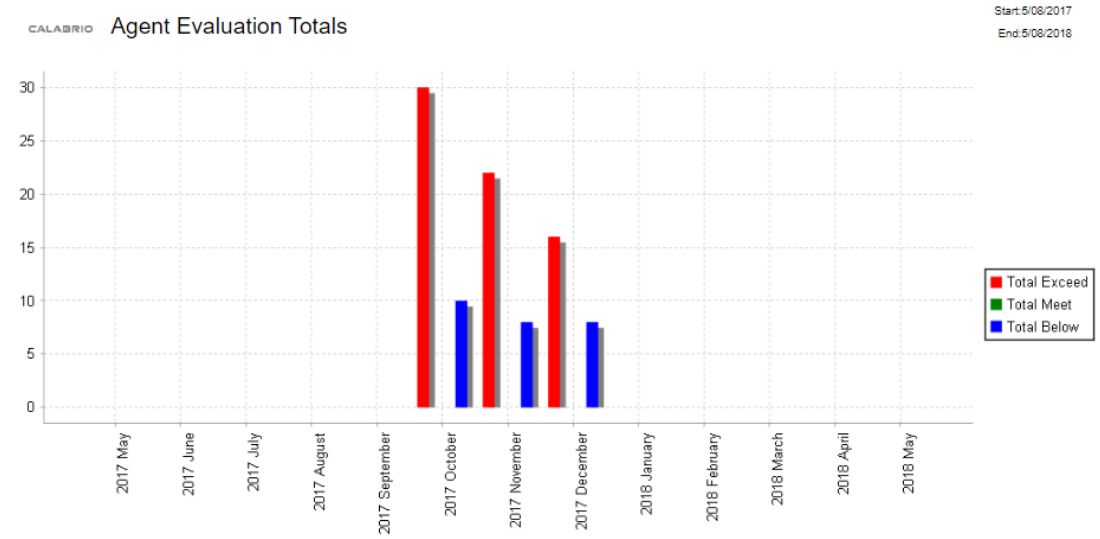
Fields in this report

Field	Description
Agent ID	The agent's system ID number.
Below	The number of evaluated contacts that are below expectations.

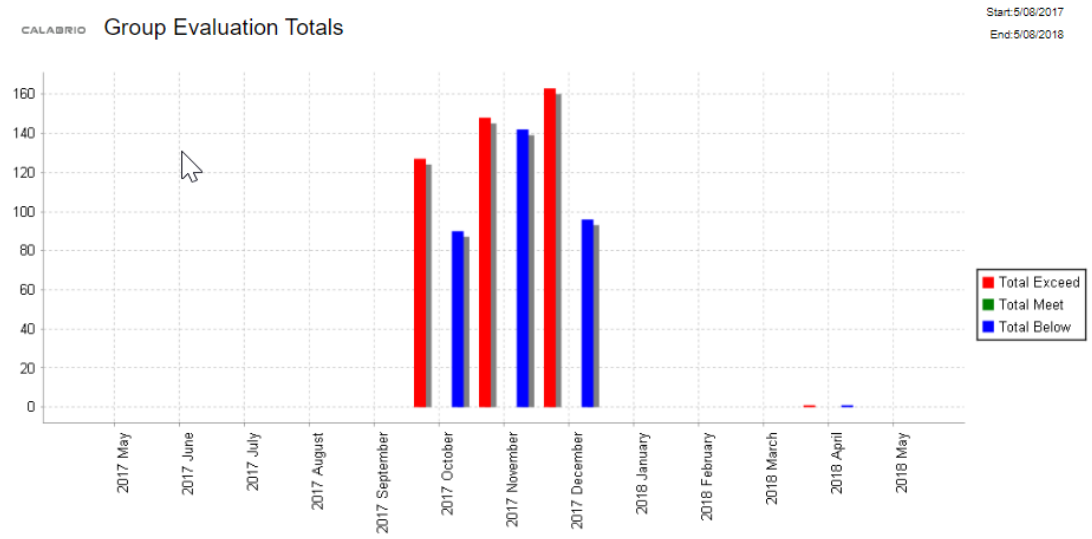
Field	Description
End	The end of the day or interval, or the end of the period covered by the report.
Evaluations	The total number of evaluations.
Exceeds	The number of evaluated contacts that exceed expectations.
First Name	The evaluator's first name. You can see the evaluator's first name if you have the View Evaluator Details permission.
Form	The name of the evaluation form.
Group	The name of the group.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Meets	The number of evaluated contacts that meet expectations.
Question	The text of the question that appears in the evaluation form.
Question Weight	A percentage applied to a question in an evaluation form. The sum of the question weights in each section of the form is 100 percent.
Recordings	The number of recordings.
Section	The name of the section in the evaluation form.
Section Weight	A percentage applied to a section in an evaluation form. The sum of the section weights in the form is 100 percent.
Start	The start time of the day or interval or the start of the period covered by the report.
Team	The name of the team. When associated with an agent, the team is the agent's current team.

Evaluation Totals Graph

The Evaluation Totals Graph report displays the evaluation totals by month for an individual agent, group, or team.



[Agent]:Aiman Amiri [Form]:SC - Call Eval (%) III,SC Evaluation,SC - Call Eval (%) IV,GT_NoApproval_Percentage,GT_Approval_Percentage,% Form with KPI Questions,Cust. Experience,Jim's Evaluation Form,RA-EVAL,Marcus Test Form,Clone of SC - Call Eval (%) III Rev 2,Sample YMK %-based Eval,Gagori Test Sample Rubric,Evaluation Test Form - AV,TEST EVALUATION_APPEAL,Sample QA Form
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[Group]:Default Group [Form]:SC - Call Eval (%) III,SC Evaluation,SC - Call Eval (%) IV,GT_NoApproval_Percentage,GT_Approval_Percentage,% Form with KPI Questions,Cust. Experience,Jim's Evaluation Form,RA-EVAL,Marcus Test Form,Clone of SC - Call Eval (%) III Rev 2,Sample YMK %-based Eval,Gagori Test Sample Rubric,Evaluation Test Form - AV,TEST EVALUATION_APPEAL,Sample QA Form
Page:1 / 1
Run Date:May 8, 2020 3:04 PM

Fields in this report

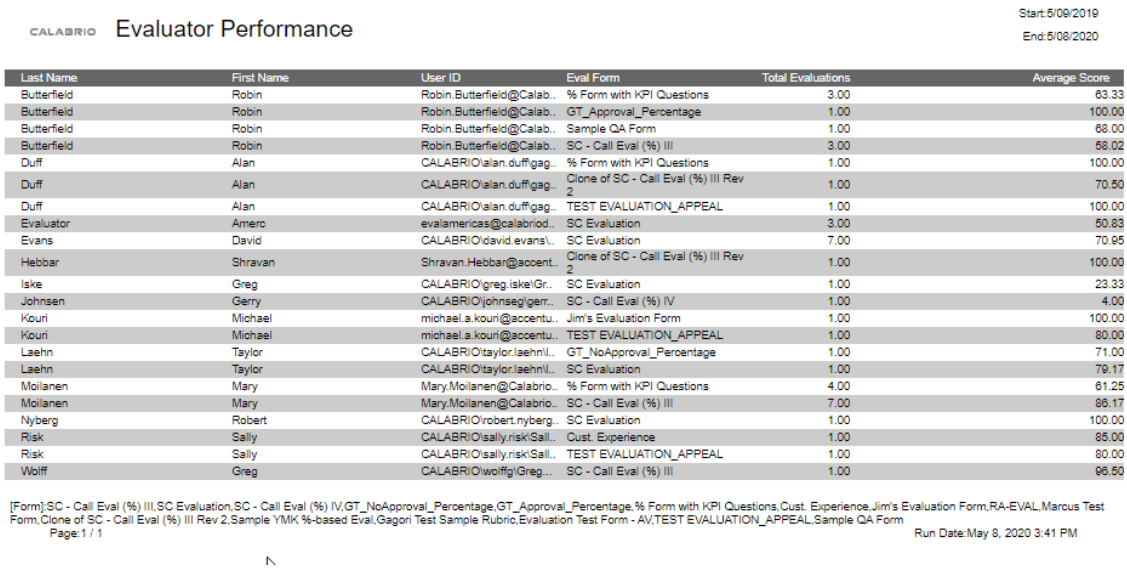
Field	Description
End	The end of the day or interval, or the end of the period covered by the report.
Start	The start time of the day or interval or the start of the period covered by the report.
Total Below	The total number of evaluated contacts whose scores fall below expectations. The default score range is 0–74 percent. The range can be modified by the administrator.
Total Exceed	The total number of evaluated contacts whose scores exceed expectations. The default score range is 90–100 percent. This range can be modified by the administrator.

Evaluator Performance

This report provides a summary of how many evaluations an evaluator has completed and the average evaluation score based on a time period. This can include one evaluation form or all point-based or percentage-based forms.

Prerequisite

- You have the View Evaluator Details permission. See Manage roles and permissions for QM, Analytics, and Insights.



CALABRIO Evaluator Performance

Start:5/09/2019
End:5/08/2020

Last Name	First Name	User ID	Eval Form	Total Evaluations	Average Score
Butterfield	Robin	Robin.Butterfield@Calab..	% Form with KPI Questions	3.00	63.33
Butterfield	Robin	Robin.Butterfield@Calab..	GT_Approval_Percentage	1.00	100.00
Butterfield	Robin	Robin.Butterfield@Calab..	Sample QA Form	1.00	68.00
Butterfield	Robin	Robin.Butterfield@Calab..	SC - Call Eval (%) III	3.00	58.02
Duff	Alan	CALABRIO\alan.duff\gag..	% Form with KPI Questions	1.00	100.00
Duff	Alan	CALABRIO\alan.duff\gag..	Clone of SC - Call Eval (%) III Rev 2	1.00	70.50
Duff	Alan	CALABRIO\alan.duff\gag..	TEST EVALUATION_APPEAL	1.00	100.00
Evaluator	Amerc	evalamericas@calabriod..	SC Evaluation	3.00	50.83
Evans	David	CALABRIO\david.evans\..	SC Evaluation	7.00	70.95
Hebbar	Shravan	Shravan.Hebbar@accent..	Clone of SC - Call Eval (%) III Rev 2	1.00	100.00
Iske	Greg	CALABRIO\greg.iske\Gr..	SC Evaluation	1.00	23.33
Johnsen	Gerry	CALABRIO\johnseg\gerr..	SC - Call Eval (%) IV	1.00	4.00
Kouri	Michael	michael.a.kouri@accentu..	Jim's Evaluation Form	1.00	100.00
Kouri	Michael	michael.a.kouri@accentu..	TEST EVALUATION_APPEAL	1.00	80.00
Laehn	Taylor	CALABRIO\taylor.laehn\l..	GT_NoApproval_Percentage	1.00	71.00
Laehn	Taylor	CALABRIO\taylor.laehn\l..	SC Evaluation	1.00	79.17
Moilanen	Mary	Mary.Moilanen@Calabrio..	% Form with KPI Questions	4.00	61.25
Moilanen	Mary	Mary.Moilanen@Calabrio..	SC - Call Eval (%) III	7.00	86.17
Nyberg	Robert	CALABRIO\robert.nyberg..	SC Evaluation	1.00	100.00
Risk	Sally	CALABRIO\sally.risk\Sall..	Cust. Experience	1.00	85.00
Risk	Sally	CALABRIO\sally.risk\Sall..	TEST EVALUATION_APPEAL	1.00	80.00
Wolff	Greg	CALABRIO\wolffg\Greg...	SC - Call Eval (%) III	1.00	96.50

[Form]:SC - Call Eval (%) III,SC Evaluation,SC - Call Eval (%) IV,GT_NoApproval_Percentage,GT_Approval_Percentage,% Form with KPI Questions,Cust. Experience,Jim's Evaluation Form,RA-EVAL,Marcus Test Form,Clone of SC - Call Eval (%) III Rev 2,Sample YMK %-based Eval,Gagori Test Sample Rubric,Evaluation Test Form - AV,TEST EVALUATION_APPEAL,Sample QA Form

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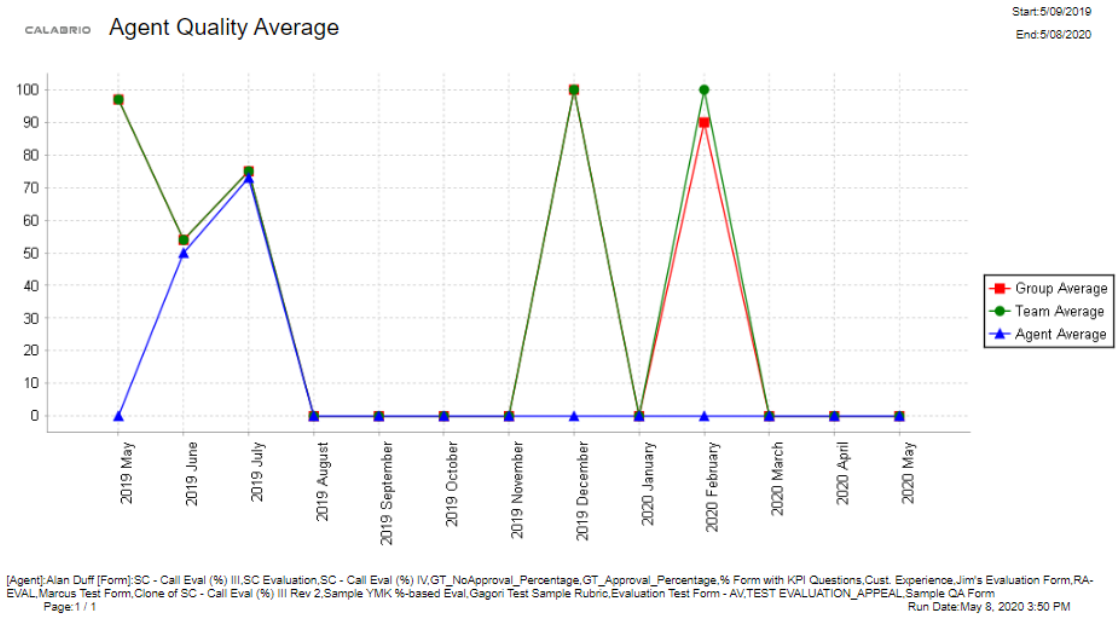
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Fields in this report

Field	Description
Average Score (%)	The average score for the form, section, or question.
End	The end of the day or interval, or the end of the period covered by the report.
Eval Form	The evaluation form used to score the contact.
First Name	The evaluator's first name. You can see the evaluator's first name if you have the View Evaluator Details permission.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Start	The start time of the day or interval or the start of the period covered by the report.
Total Evaluations	The total number of evaluations performed using the specified evaluation form during the specified time period.
User ID	The Windows login of the person who accessed the archives.

Quality Averages Graph

This graph displays quality averages over time for an agent, team, and/or group. This can include one evaluation form or all point-based or percentage-based forms.

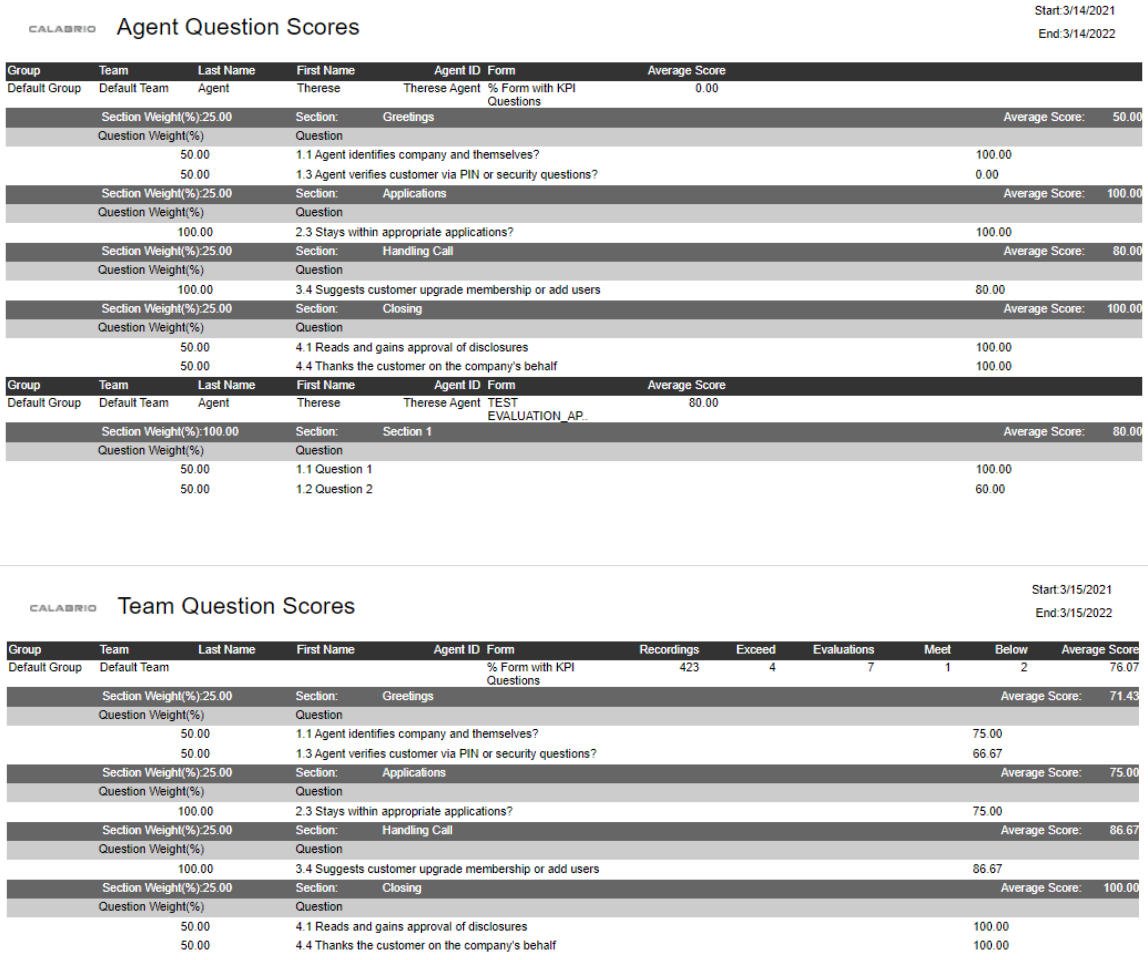


Fields in this report

Field	Description
End	The end of the day or interval, or the end of the period covered by the report.
Group Average	The average score of all contacts evaluated for agents in the group.
Start	The start time of the day or interval or the start of the period covered by the report.
Team Average	The average evaluation score of all the team's evaluations.

Question Scores

The Question Scores report displays the scores for each question on an evaluation form. This can include one evaluation form or all point-based or percentage-based forms for an individual agent, group, or team.



CALABRIO Agent Question Scores

Start:3/14/2021
End:3/14/2022

Group	Team	Last Name	First Name	Agent ID	Form	Average Score
Default Group	Default Team	Agent	Therese	Therese Agent	% Form with KPI Questions	0.00
	Section Weight(%):25.00		Section:	Greetings		Average Score: 50.00
	Question Weight(%)		Question			
	50.00		1.1 Agent identifies company and themselves?			100.00
	50.00		1.3 Agent verifies customer via PIN or security questions?			0.00
	Section Weight(%):25.00		Section:	Applications		Average Score: 100.00
	Question Weight(%)		Question			
	100.00		2.3 Stays within appropriate applications?			100.00
	Section Weight(%):25.00		Section:	Handling Call		Average Score: 80.00
	Question Weight(%)		Question			
	100.00		3.4 Suggests customer upgrade membership or add users			80.00
	Section Weight(%):25.00		Section:	Closing		Average Score: 100.00
	Question Weight(%)		Question			
	50.00		4.1 Reads and gains approval of disclosures			100.00
	50.00		4.4 Thanks the customer on the company's behalf			100.00
Group	Team	Last Name	First Name	Agent ID	Form	Average Score
Default Group	Default Team	Agent	Therese	Therese Agent	TEST EVALUATION_AP..	80.00
	Section Weight(%):100.00		Section:	Section 1		Average Score: 80.00
	Question Weight(%)		Question			
	50.00		1.1 Question 1			100.00
	50.00		1.2 Question 2			60.00

CALABRIO Team Question Scores

Start:3/15/2021
End:3/15/2022

Group	Team	Last Name	First Name	Agent ID	Form	Recordings	Exceed	Evaluations	Meet	Below	Average Score
Default Group	Default Team				% Form with KPI Questions	423	4	7	1	2	76.07
	Section Weight(%):25.00		Section:	Greetings							Average Score: 71.43
	Question Weight(%)		Question								
	50.00		1.1 Agent identifies company and themselves?							75.00	
	50.00		1.3 Agent verifies customer via PIN or security questions?							66.67	
	Section Weight(%):25.00		Section:	Applications							Average Score: 75.00
	Question Weight(%)		Question								
	100.00		2.3 Stays within appropriate applications?							75.00	
	Section Weight(%):25.00		Section:	Handling Call							Average Score: 86.67
	Question Weight(%)		Question								
	100.00		3.4 Suggests customer upgrade membership or add users							86.67	
	Section Weight(%):25.00		Section:	Closing							Average Score: 100.00
	Question Weight(%)		Question								
	50.00		4.1 Reads and gains approval of disclosures							100.00	
	50.00		4.4 Thanks the customer on the company's behalf							100.00	

Fields in this report

Field	Description
Agent ID	The agent's system ID number.
Average Score (%)	The average score for the form, section, or question.
Below	The number of evaluated contacts that are below expectations.
End	The end of the day or interval, or the end of the period covered by the report.

Field	Description
Evaluations	The total number of evaluations.
Exceeds	The number of evaluated contacts that exceed expectations.
First Name	The evaluator's first name. You can see the evaluator's first name if you have the View Evaluator Details permission.
Form	The name of the evaluation form.
Group	The name of the group.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Meets	The number of evaluated contacts that meet expectations.
Question	The text of the question that appears in the evaluation form.
Question Weight	A percentage applied to a question in an evaluation form. The sum of the question weights in each section of the form is 100 percent.
Recordings	The number of recordings.
Section	The name of the section in the evaluation form.
Section Weight	A percentage applied to a section in an evaluation form. The sum of the section weights in the form is 100 percent.
Start	The start time of the day or interval or the start of the period covered by the report.
Team	The name of the team. When associated with an agent, the team is the agent's current team.

Interaction Access by Contact

The Interaction Access by Contact report displays a list of archived recordings for a specific agent that were accessed over a specified period. It enables you to determine if a significant number of recordings concerning a particular contact, called number, or calling number were reviewed.

Fields in this report

Field	Description
Accessed Date	The date when the contact was accessed.
Accessed Time	The time when the contact was accessed.
Accessed Time Zone	The time zone where the contact was accessed.
Agent First Name	The agent's first name.
Agent ID	The agent's system ID number.
Agent Last Name	The agent's last name.
Called Number	The DID (Direct Inward Dialing) or DNIS (Dialed Number Identification Service) number of the phone that received the call. Displays "unknown" if the called number is unlisted or blocked.
Calling Number	The Caller ID or ANI (Automatic Number Identification) of the calling party. Displays "unknown" if the calling number is unlisted or blocked.
Contact Date	The date the contact occurred.
Contact ID	The conversation's unique ID.
End	The end of the day or interval, or the end of the period covered by the report.
Start	The start time of the day or interval or the start of the period covered by the report.
User First Name	The user's first name.
User ID	The Windows login of the person who accessed the archives.
User Last Name	The user's last name.

Interaction Access by User

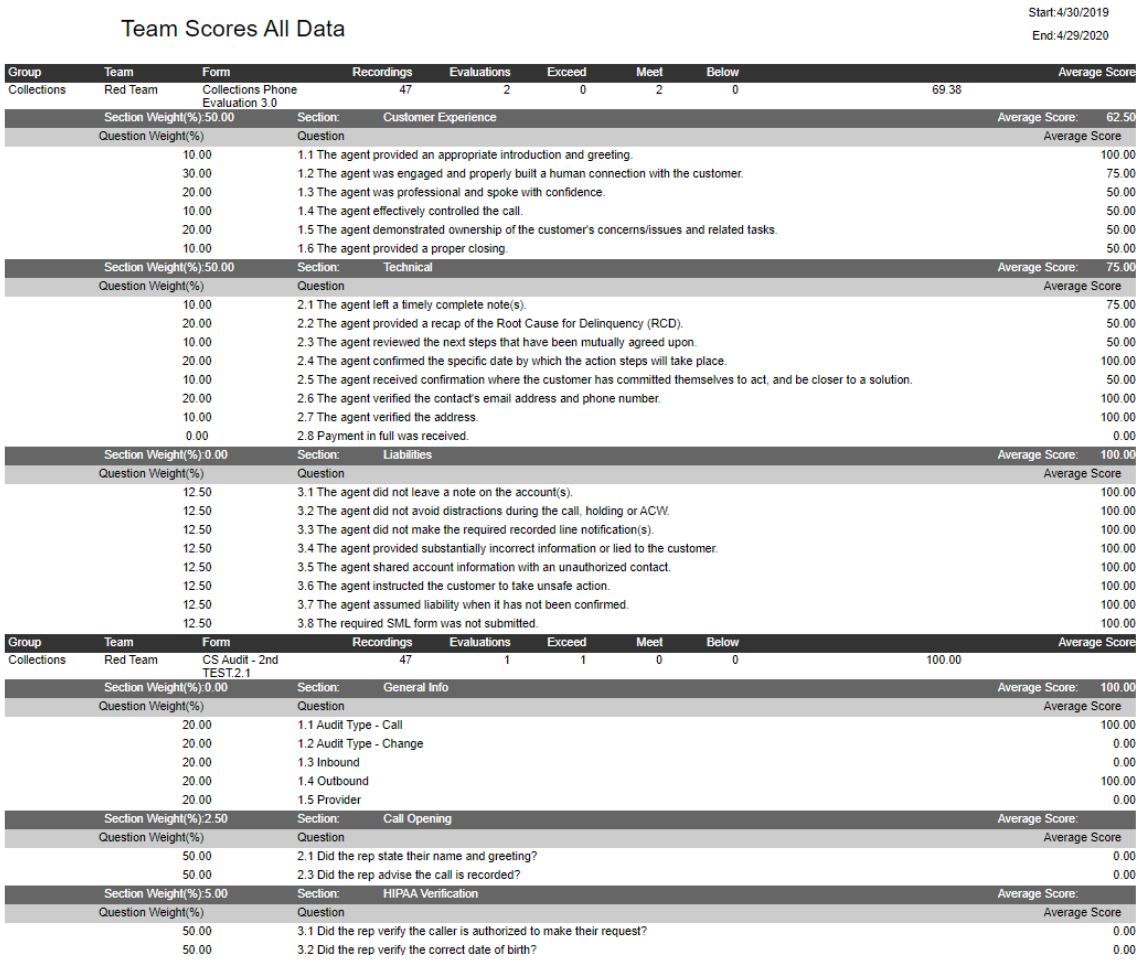
The Interaction Access by User report displays users who accessed the recordings over a specified period.

Fields in this report

Field	Description
Accessed Date	The date when the contact was accessed.
Accessed Time	The time when the contact was accessed.
Accessed Time Zone	The time zone where the contact was accessed.
Agent First Name	The agent's first name.
Agent ID	The agent's system ID number.
Agent Last Name	The agent's last name.
Called Number	The DID (Direct Inward Dialing) or DNIS (Dialed Number Identification Service) number of the phone that received the call. Displays "unknown" if the called number is unlisted or blocked.
Calling Number	The Caller ID or ANI (Automatic Number Identification) of the calling party. Displays "unknown" if the calling number is unlisted or blocked.
Contact Date	The date the contact occurred.
Contact ID	The conversation's unique ID.
End	The end of the day or interval, or the end of the period covered by the report.
Start	The start time of the day or interval or the start of the period covered by the report.
User First Name	The user's first name.
User ID	The Windows login of the person who accessed the archives.
User Last Name	The user's last name.

Scores All Data

The Scores All Data report displays average evaluation scores by group, team, or agent per form. This can include one evaluation form or all point-based or percentage-based forms.



Team Scores All Data

Start:4/30/2019
End:4/29/2020

Group	Team	Form	Recordings	Evaluations	Exceed	Meet	Below	Average Score
Collections	Red Team	Collections Phone Evaluation 3.0	47	2	0	2	0	69.38
	Section Weight(%):50.00	Section: Customer Experience						Average Score: 62.50
	Question Weight(%)	Question						Average Score
	10.00	1.1 The agent provided an appropriate introduction and greeting.						100.00
	30.00	1.2 The agent was engaged and properly built a human connection with the customer.						75.00
	20.00	1.3 The agent was professional and spoke with confidence.						50.00
	10.00	1.4 The agent effectively controlled the call.						50.00
	20.00	1.5 The agent demonstrated ownership of the customer's concerns/issues and related tasks.						50.00
	10.00	1.6 The agent provided a proper closing.						50.00
	Section Weight(%):50.00	Section: Technical						Average Score: 75.00
	Question Weight(%)	Question						Average Score
	10.00	2.1 The agent left a timely complete note(s).						75.00
	20.00	2.2 The agent provided a recap of the Root Cause for Delinquency (RCD).						50.00
	10.00	2.3 The agent reviewed the next steps that have been mutually agreed upon.						50.00
	20.00	2.4 The agent confirmed the specific date by which the action steps will take place.						100.00
	10.00	2.5 The agent received confirmation where the customer has committed themselves to act, and be closer to a solution.						50.00
	20.00	2.6 The agent verified the contact's email address and phone number.						100.00
	10.00	2.7 The agent verified the address.						100.00
	0.00	2.8 Payment in full was received.						0.00
	Section Weight(%):0.00	Section: Liabilities						Average Score: 100.00
	Question Weight(%)	Question						Average Score
	12.50	3.1 The agent did not leave a note on the account(s).						100.00
	12.50	3.2 The agent did not avoid distractions during the call, holding or ACW.						100.00
	12.50	3.3 The agent did not make the required recorded line notification(s).						100.00
	12.50	3.4 The agent provided substantially incorrect information or lied to the customer.						100.00
	12.50	3.5 The agent shared account information with an unauthorized contact.						100.00
	12.50	3.6 The agent instructed the customer to take unsafe action.						100.00
	12.50	3.7 The agent assumed liability when it has not been confirmed.						100.00
	12.50	3.8 The required SML form was not submitted.						100.00
Group	Team	Form	Recordings	Evaluations	Exceed	Meet	Below	Average Score
Collections	Red Team	CS Audit - 2nd TEST.2.1	47	1	1	0	0	100.00
	Section Weight(%):0.00	Section: General Info						Average Score: 100.00
	Question Weight(%)	Question						Average Score
	20.00	1.1 Audit Type - Call						100.00
	20.00	1.2 Audit Type - Change						0.00
	20.00	1.3 Inbound						0.00
	20.00	1.4 Outbound						100.00
	20.00	1.5 Provider						0.00
	Section Weight(%):2.50	Section: Call Opening						Average Score:
	Question Weight(%)	Question						Average Score
	50.00	2.1 Did the rep state their name and greeting?						0.00
	50.00	2.3 Did the rep advise the call is recorded?						0.00
	Section Weight(%):5.00	Section: HIPAA Verification						Average Score:
	Question Weight(%)	Question						Average Score
	50.00	3.1 Did the rep verify the caller is authorized to make their request?						0.00
	50.00	3.2 Did the rep verify the correct date of birth?						0.00

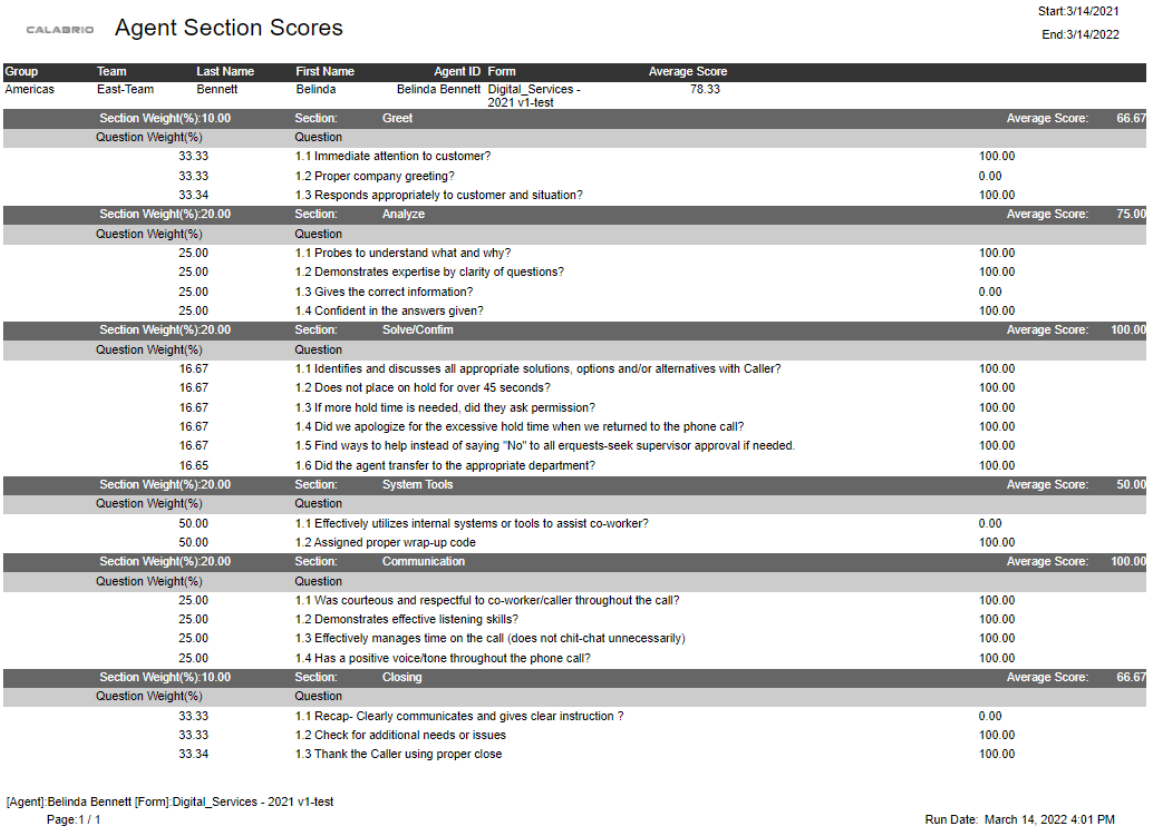
Fields in this report

Field	Description
Agent ID	The agent's system ID number.
Average Score (%)	The average score for the form, section, or question.

Field	Description
Below	The number of evaluated contacts that are below expectations.
End	The end of the day or interval, or the end of the period covered by the report.
Evaluations	The total number of evaluations.
Exceeds	The number of evaluated contacts that exceed expectations.
First Name	The evaluator's first name. You can see the evaluator's first name if you have the View Evaluator Details permission.
Form	The name of the evaluation form.
Group	The name of the group.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Meets	The number of evaluated contacts that meet expectations.
Question	The text of the question that appears in the evaluation form.
Question Weight	A percentage applied to a question in an evaluation form. The sum of the question weights in each section of the form is 100 percent.
Recordings	The number of recordings.
Section	The name of the section in the evaluation form.
Section Weight	A percentage applied to a section in an evaluation form. The sum of the section weights in the form is 100 percent.
Start	The start time of the day or interval or the start of the period covered by the report.
Team	The name of the team. When associated with an agent, the team is the agent's current team.

Section Scores

The Section Scores report displays the average score for each section of an evaluation form over a specified period. This can be run by agent, team, and/or group.



CALABRIO Agent Section Scores

Start:3/14/2021
End:3/14/2022

Group	Team	Last Name	First Name	Agent ID	Form	Average Score
Americas	East-Team	Bennett	Belinda	Belinda Bennett	Digital_Services - 2021 v1-test	78.33

Section Weight(%):10.00	Section:	Greet	Average Score: 66.67
Question Weight(%)	Question		
33.33	1.1 Immediate attention to customer?		100.00
33.33	1.2 Proper company greeting?		0.00
33.34	1.3 Responds appropriately to customer and situation?		100.00
Section Weight(%):20.00	Section:	Analyze	Average Score: 75.00
Question Weight(%)	Question		
25.00	1.1 Probes to understand what and why?		100.00
25.00	1.2 Demonstrates expertise by clarity of questions?		100.00
25.00	1.3 Gives the correct information?		0.00
25.00	1.4 Confident in the answers given?		100.00
Section Weight(%):20.00	Section:	Solve/Confirm	Average Score: 100.00
Question Weight(%)	Question		
16.67	1.1 Identifies and discusses all appropriate solutions, options and/or alternatives with Caller?		100.00
16.67	1.2 Does not place on hold for over 45 seconds?		100.00
16.67	1.3 If more hold time is needed, did they ask permission?		100.00
16.67	1.4 Did we apologize for the excessive hold time when we returned to the phone call?		100.00
16.67	1.5 Find ways to help instead of saying "No" to all erquests-seek supervisor approval if needed.		100.00
16.65	1.6 Did the agent transfer to the appropriate department?		100.00
Section Weight(%):20.00	Section:	System Tools	Average Score: 50.00
Question Weight(%)	Question		
50.00	1.1 Effectively utilizes internal systems or tools to assist co-worker?		0.00
50.00	1.2 Assigned proper wrap-up code		100.00
Section Weight(%):20.00	Section:	Communication	Average Score: 100.00
Question Weight(%)	Question		
25.00	1.1 Was courteous and respectful to co-worker/caller throughout the call?		100.00
25.00	1.2 Demonstrates effective listening skills?		100.00
25.00	1.3 Effectively manages time on the call (does not chit-chat unnecessarily)		100.00
25.00	1.4 Has a positive voice/tone throughout the phone call?		100.00
Section Weight(%):10.00	Section:	Closing	Average Score: 66.67
Question Weight(%)	Question		
33.33	1.1 Recap- Clearly communicates and gives clear instruction ?		0.00
33.33	1.2 Check for additional needs or issues		100.00
33.34	1.3 Thank the Caller using proper close		100.00

[Agent]:Belinda Bennett [Form]:Digital_Services - 2021 v1-test
Page:1 / 1

Run Date: March 14, 2022 4:01 PM

Fields in this report

Field	Description
Agent ID	The agent's system ID number.
Average Score (%)	The average score for the form, section, or question.
Below	The number of evaluated contacts that are below expectations.
End	The end of the day or interval, or the end of the period covered by the report.

Field	Description
Evaluation	The total number of evaluations.
Exceeds	The number of evaluated contacts that exceed expectations.
First Name	The evaluator's first name. You can see the evaluator's first name if you have the View Evaluator Details permission.
Form	The name of the evaluation form.
Group	The name of the group.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Meets	The number of evaluated contacts that meet expectations.
Question	The text of the question that appears in the evaluation form.
Question Weight	A percentage applied to a question in an evaluation form. The sum of the question weights in each section of the form is 100 percent.
Recordings	The number of recordings.
Section	The name of the section in the evaluation form.
Section Weight	A percentage applied to a section in an evaluation form. The sum of the section weights in the form is 100 percent.
Start	The start time of the day or interval or the start of the period covered by the report.
Team	The name of the team. When associated with an agent, the team is the agent's current team.

Surveys All Data

The Surveys All Data report displays collective post-call survey scores.

Fields in this report

Field	Description
Agent ID	The agent's system ID number.
Average Score (%)	The average score for the form, section, or question.
First Name	The evaluator's first name. You can see the evaluator's first name if you have the View Evaluator Details permission.
Form	The name of the evaluation form.
Group	The name of the group.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Question	The text of the question that appears in the evaluation form.
Question Weight	A percentage applied to a question in an evaluation form. The sum of the question weights in each section of the form is 100 percent.
Surveys	The number of surveys.
Team	The name of the team. When associated with an agent, the team is the agent's current team.

Survey Form Scores

The Survey Form Scores report displays the average scores for post-call surveys.

Fields in this report

Field	Description
Agent ID	The agent's system ID number.
Average Score (%)	The average score for the form, section, or question.
First Name	The evaluator's first name. You can see the evaluator's first name if you

Field	Description
	have the View Evaluator Details permission.
Form	The name of the evaluation form.
Group	The name of the group.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Question	The text of the question that appears in the evaluation form.
Question Weight	A percentage applied to a question in an evaluation form. The sum of the question weights in each section of the form is 100 percent.
Recordings	The number of recordings.
Surveys	The number of surveys.
Team	The name of the team. When associated with an agent, the team is the agent's current team.

System Status

The System Status report displays system and administrative events associated with agents configured for recording. You can choose to view messages generated by the service at the INFO, WARN, or ERROR level, or at all levels. Information is available for the past seven days, including the current day.

The Media web app writes events that warn when free space is low on the Site Upload server or when uploads stop because free space is too low.

Fields in this report

Field	Description
Category	The application associated with the event.
Date	The date of the reported information.
End	The end of the day or interval, or the end of the period covered by the

Field	Description
	report.
IP Address	The IP address of the computer on which the event occurred.
Level	The level of the event messages that are displayed: ■ ALL—All event level messages ■ INFO—Informational messages for events that are not errors but might be useful for troubleshooting ■ WARN—Warning messages for events that are nuisance malfunctions but do not interfere with the program's operation ■ ERROR—Error messages for events that prevent the program from continuing to work
Machine	The universally unique identifier (UUID) of the computer on which the event occurred.
Message	The event message.
Start	The start time of the day or interval or the start of the period covered by the report.
Time	The time of the contact or event.

User Recording Status

The User Recording Status report displays user and recording events associated with the agents configured for recording. You can choose to view messages generated by the service at the INFO, WARN, or ERROR level, or at all levels. Information is available for the past seven days, including the current day.

Fields in this report

Field	Description
Category	The application associated with the event.
Date	The date of the reported information.

Field	Description
End	The end of the day or interval, or the end of the period covered by the report.
First Name	The evaluator's first name. You can see the evaluator's first name if you have the View Evaluator Details permission.
IP Address	The IP address of the computer on which the event occurred.
Last Name	The evaluator's last name. You can see the evaluator's last name if you have the View Evaluator Details permission.
Level	The level of the event messages that are displayed: ■ ALL—All event level messages ■ INFO—Informational messages for events that are not errors but might be useful for troubleshooting ■ WARN—Warning messages for events that are nuisance malfunctions but do not interfere with the program's operation ■ ERROR—Error messages for events that prevent the program from continuing to work
Machine	The universally unique identifier (UUID) of the computer on which the event occurred.
Message	The event message.
Start	The start time of the day or interval or the start of the period covered by the report.
Team	The name of the team. When associated with an agent, the team is the agent's current team.
Time	The time of the contact or event.
User ID	The Windows login of the person who accessed the archives.

WFM standard reports

Use the WFM reports to view data related to forecasts, schedules, and operation. The WFM reports cover the major areas of interest in a contact center.

The update frequency depends on the type of data.

- **Shortly after a change has been made**—Forecast data, schedule data, request data, preference data, availability data, and all selection criteria.
- **Periodically during the day, usually every 15 or 30 min**—Queue and agent statistics and ready-time adherence data.
- **Once every hour**—Staffing data for yesterday, today, tomorrow, and the day after tomorrow.
- **When the agent's shift has ended**—Adherence data.
- **Once every 24h**—Staffing data for days before yesterday and days later than the day after tomorrow.

The time frames above are valid for all scenarios where reporting is enabled.

NOTE When the system is under heavy load, for example when someone has saved a large amount of data in the People module, the updates of the report data might be delayed.

The user's roles control which reports they can access and which data they can see in those reports. Use a combination of roles to provide a user access to different sets of data in different reports.

EXAMPLE Create one role to give agents access to view only their own data in some reports and create an additional role to give the agents access to view their team's data in other reports.

Prerequisites

The proper permissions for the report you want to run. See How WFM function permissions work for the full list of reporting permissions.

Page location

WFM > Reports

Procedures

Run a report

1. Click the report name to display the report's setup page.
2. Complete the report setup information. Choose the date and criteria, for example skills, teams, and activities.

   NOTE The list of time zones is based on the time zones selected for people or skills.

3. (Optional) If you want to include granular details for each individual entry, instead of only providing a total sum, select the **Include details** check box.
4. Click the format you want to run the report.

   The reports are accessed as **Excel**, **Word**, or **PDF** files. For PDF format, select **PDF** to show the report in a browser or **Download** to download the PDF file.

   A preview option is available to check that it is the correct report or that data is loaded in the report. This option only displays the first page of the report.

   NOTE The **Ready-time adherence** reports are accessed as web pages.

Agent Performance	
Adherence per Agent report	Displays the daily adherence percentage and details on how long the agent was in adherence, out of adherence, and in neutral adherence for each day.
Agent Metrics report	Displays for example the agents' ready-time adherence, occupancy, and answered calls. This is useful to evaluate agents' performance in relation to how they were scheduled.
Agent Queue Metrics report	Displays queue metrics such as answered calls, average handling time, average talk time, and average after call work, per agent and date.
Agent Queue Statistics report	Displays raw agent data (bound to queue) per interval. It gives you the full contact statistics for the agent, regardless of what skills

Agent Performance	
	they are working on. This is useful to validate the agent statistics in WFM based on the agent statistics in the ACD platform.
Agent Skills report	Provides an overview of which skills the agents have.
Agent Statistics report	Displays agent statistics which are not queue-related, for example logged-in time, ready time, and how many calls the agent has answered in total.
Gamification Leaderboard report	Displays the number of gold, silver, and bronze badges each agent has received, and how the agents are ranked.
Ready-Time Adherence per Agent report	Displays how well each agent has adhered to their schedule over a selected period of time. Based on ready-time adherence, which is less detailed than the historical adherence used in the Adherence per Agent report.
Ready-Time Adherence per Day report	Displays how well agents have adhered to their schedule on a selected day. Based on ready-time adherence, which is less detailed than the historical adherence used in the Adherence per Agent report.
Team Metrics report	Displays for example ready-time adherence, occupancy, and answered calls. This is useful to evaluate a team's performance in relation to how they were scheduled.
Audit Trail	
General Audit Trail report	Displays for example changes made in the web People tool, BPO staffing changes, import or copy of schedules between scenarios, and adjustments of agent adherence.
Employee Information	
Absence Attribute Time per	Displays full-day and part-day absence attribute time per agent, absence

Employee Information	
Agent	type, and day, grouped by agent and absence attribute.
Absence Time per Absence report	Displays part-day and full-day absences per agent, absence type, and day, grouped by absence.
Absence Time per Agent report	Displays part-day and full-day absences per agent, absence type, and day, grouped by agent.
Activity Time per Agent report	Displays how much time is scheduled on each of the selected activities per agent.
Availability per Agent report	Displays the utilization of the availability, that is the number of scheduled days and hours compared to the number of available days and hours. This is useful to show the availability for hourly employees, summarized per agent.
Requests per Agent report	Displays all requests the agents have made, the type of requests (absence, overtime, shift trade, or text request) and if the requests have been approved or denied.
Scheduled Overtime per Agent report	Displays the scheduled overtime per agent and overtime type. You can drill down from team totals to agent and date.
Shift Category and Full-Day Absence per Agent report	Displays how many shifts of each shift category, how many days off, and how many full-day absences that have been scheduled for each agent.
Forecasting Performance	
Forecast vs Actual Workload report	Displays the forecasted number of contacts, talk time, and after call work and the corresponding actual values. This is useful to evaluate the forecast accuracy.
Forecast vs Scheduled Hours report	Displays the forecasted and scheduled time and the predicted service level. This is useful to evaluate how well the schedule is designed in relation to the forecast.

Improve	
Improve report	Displays the service level, ready-time adherence, handling time and paid time, both graphically and in numbers.
Preferences	
Preference per Agent report	Displays the detailed preferences for the selected agents. This is useful to show how many agent preferences have been entered and what percentage is fulfilled, summarized per agent.
Preference per Day report	Displays the detailed preferences for the selected agents. This is useful to show how many agent preferences have been entered and what percentage is fulfilled, summarized per day.
Schedule Analysis	
Schedule Audit Trail report	Displays all schedule changes with information on when that change was done and by whom.
Scheduled Agents per Activity report	Displays the number of agents (FTEs) that are scheduled per activity and interval.
Scheduled Agents per Interval and Team report	Displays the number of agents (actual persons) who are scheduled per team and interval.
Scheduled Time per Activity report	Displays the scheduled time per activity.
Scheduled Time per Agent report	Displays the scheduled time per agent, with detailed information on scheduled overtime and scheduled absence time.
Shift Category and Full-Day Absence per Day report	Display the number of shifts of each shift category and the number of full-day absences.
Shift Category per Day	Displays the number of shifts of each shift category that are

Schedule Analysis	
report	scheduled and what percentage that is out of the total number of shifts for the selected period.

Service Level Analysis	
Abandonment and Speed of Answer report	Displays for example the answer rate, the abandon rate, and the average speed of answer. This is useful to follow up on how many calls are abandoned, and how long customers wait in queue.
Queue Statistics report	Displays raw queue data per interval. This is useful to validate the queue statistics in WFM based on the queue statistics in the ACD platform.
Service Level and Agents Ready report	Displays service level compared to the number of available and scheduled agents, including information on logged-in time, ready time, number of answered calls, and talk time.

Abandonment and Speed of Answer report

Use this report to see how many calls that are abandoned and how long customers wait in queue for selected skills and workloads. It answers questions like:

- What was the **Abandon rate** and the **Average time to abandon** on Monday?
- What was the **Average speed of answer** (ASA) for each interval yesterday?

Use the **Not defined** option in the skill and workload selection to show logged queue data which is not connected to any skill and workload.

Page location

WFM > Reports > Abandonment and speed of answer

Fields in this report

Field	Description
Answer rate (%)	The percentage of calls that are answered compared to calls offered. This could also include for example emails or chats, depending on the selection. **Calculation:** Answer rate = Answered calls ÷ Offered calls
Abandon rate (%)	The percentage of the calls that are abandoned compared to calls offered. **Calculation:** Abandon rate = Abandoned calls ÷ Offered calls
Abandon rate, excluding short calls (%)	The percentage of the calls that are abandoned compared to calls offered. This value excludes the calls that were abandoned before reaching the threshold for short calls set in the ACD. **Calculation:** Abandon rate = (Abandoned calls - Abandoned short calls) ÷ (Offered calls - Abandoned short calls)
Average speed of answer (ASA) (s)	The average time it takes for a contact to be answered. **Calculation:** Average speed of answer = Total wait time for answered calls ÷ Total number of answered calls
Average time to abandon (s)	The average time it takes for a caller to abandon their call. **Calculation:** Average time to abandon = Total wait time for abandoned calls ÷ Total number of abandoned calls
Longest delay in queue, answered (s)	The longest time a call has been in queue before being answered, for the selected time period.
Longest delay in queue, abandoned (s)	The longest time a call has been in queue before being abandoned, for the selected time period.

Related topics

- WFM standard reports

Absence Time per Absence report

This report shows the contract time, paid time and work time per absence type for all scheduled absence time. You can drill down to summaries per absence type, agent, and date. The report shows if the scheduled absence is a part-day or full-day absence.

The report answers questions like:

- How many hours of sick time did we have last week?
- How many hours of “early leave” did we see last month?

The data in this report is presented on the shift start date. For example, an absence that starts on Monday at 10:00 PM and ends on Tuesday at 6:00 AM is shown in the Monday report.

The data is always shown in the agents' local time zones.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Absence time per absence

Fields in this report

Field	Description
Contract time	All time scheduled on absences set as contract time. Absences scheduled on top of overtime are excluded.
Paid time	All time scheduled on absences set as paid time. Absences scheduled on top of overtime are excluded.
Work time	All time scheduled on absences set as work time. Absences scheduled on top of overtime are excluded.
Part of day	The number of part-day absences scheduled. Absences scheduled on top of overtime are included.
Full day	The number of full-day absences scheduled. Absences scheduled on top of overtime are included.

Related topics

- Absence Time per Agent report
- WFM standard reports

Absence Time per Agent report

This report shows contract time, paid time and work time per agent for all scheduled absence time. You can drill down to summaries per agent, absence type, and date. The report shows if the scheduled absence is a part-day or full-day absence.

The report answers questions like:

- How many hours of sick time did Ashley have last month?
- How many hours of vacation did Robert have last week?

The data in this report is presented on the shift start date. For example, an absence that starts on Monday at 10:00 PM and ends on Tuesday at 6:00 AM is shown in the Monday report.

The data is always shown in the agents' local time zones.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Absence time per agent

Fields in this report

Field	Description
Contract time	All time scheduled on absences set as contract time. Absences scheduled on top of overtime are excluded.
Paid time	All time scheduled on absences set as paid time. Absences scheduled on top of overtime are excluded.
Work time	All time scheduled on absences set as work time. Absences scheduled on top of overtime are excluded.

Field	Description
Part of day	The number of part-day absences scheduled. Absences scheduled on top of overtime are included.
Full day	The number of full-day absences scheduled. Absences scheduled on top of overtime are included.

Related topics

- Absence Time per Absence report
- WFM standard reports

Activity Time per Agent report

This report displays time scheduled on different activities during a selected time period per agent. You can drill down on each agent and activity and see the time scheduled on each activity per day.

The report answers questions like:

- How many hours of Phone time did Ashley have last week?
- How many hours of Meetings did Robert have last month?

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Activity time per agent

Fields in this report

Field	Description
Contract time	All time scheduled on activities set as contract time. Overtime is not included in contract time.
Paid time	All time scheduled on activities set as paid time.

Field	Description
Work time	All time scheduled on activities set as work time.
Overtime	The time scheduled in addition to the normal contract time. **NOTE** Only activities which are set as work time are included.
Scheduled time	The total scheduled time, regardless if it is contract time or work time. This includes for example lunch and overtime.

Related topics

- WFM standard reports

Adherence per Agent report

This report presents the daily adherence percentage for the selected agents, and details on the scheduled time and for how long the agent was in adherence, out of adherence and in neutral adherence for each day. The report also contains information on whether the agent was late for work.

The adherence information in this report is based on the same detailed adherence data that is shown in the Adherence tool. See About historical adherence for information on how the adherence percentage is calculated.

The report answers questions like:

- What was the adherence for the agents on the team yesterday?
- What has John's adherence looked like over the past month?
- Has anyone in the team been late for work in the past week?

The adherence data is available in the report when the agent's shift has ended.

Up to two years of adherence data can be saved.

NOTE Any retroactive change to an agent's schedule causes a recalculation of the adherence percentage for that day. This happens for schedule changes up to 30 days back.

Page location

WFM > Reports > Adherence per agent

Fields in this report

Field	Description
Adherence (%)	The percentage of time marked as in adherence for an agent. See About historical adherence for more information. **Calculation:** Adherence % = (Total time in adherence ÷ (Total working time - Total neutral periods)) × 100
Late for work	The time that an agent is recorded as late for work. Define for which activities to track late for work in the Adherence tool.
Time in shift	The total time scheduled on all activities for an agent.
In adherence	The time marked as in adherence for an agent.
Neutral adherence	The time marked as in neutral adherence for an agent. Time in neutral adherence does not affect the adherence score.
Out of adherence	The time marked as out of adherence for an agent.

Related topics

- WFM standard reports

Agent Metrics report

Use this report to evaluate how well the agents have performed, in relation to how they were scheduled. You can drill down to view the metrics for each selected day and for each agent.

The report answers questions like:

- What are the basic stats for Ashley, regardless of which queue the contact came in on?
- What are the stats for my group of agents, broken down by agent?

NOTE This report is based on all contacts handled by the selected agents, regardless of the queue.

In the report selection page, ensure to select the ready-time adherence calculation to use.

Shifts which cross midnight are split at the midnight break. That is, schedule and ready-time adherence figures are shown for the calendar date and do not consider the shift start date.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Agent metrics

Fields in this report

Field	Description
Scheduled ready time (hh:mm:ss)	The total time agents are scheduled on activities set as in ready time. This means that they are scheduled to be logged in and ready to handle customer contacts.
Ready time (hh:mm:ss)	The total time when the agents are logged in on the ACD platform and are in one of the ready states. The ready states are for example when they are ready to take a call, in a call or doing after call work.
Ready time / Scheduled ready time (%)	The percentage of the scheduled ready time that the agent was in a ready state.
Answered calls	The total number of answered contacts. This can include for example calls, emails, or chats, depending on the selection.
Answered calls / Scheduled ready hour	The number of answered contacts per hour that the agents are scheduled to handle contacts. **Calculation:** Answered calls per scheduled ready hour = Answered calls ÷ Scheduled ready time
Answered calls / Ready hour	The number of answered contacts per hour that the agents were actually ready to handle contacts. **Calculation:** Answered calls per ready hour = Answered calls ÷ Ready time
Occupancy (%)	The percentage of ready time that an agent spends actively handling contacts.

Field	Description
	Calculation: Occupancy = (Talk time + After call work time) ÷ Ready time The percentage of ready time that an agent spends on active time. This is useful for blended channel types or when WFM is integrated to several contact center platforms for agent queue statistics. **Calculation:** Occupancy = (Ready time - Idle time) ÷ Ready time
Ready-time adherence (%)	Ready-time adherence shows how well agents adhere to their schedule. It compares the agent's scheduled ready time to the actual ready time for each interval. There are different formulas that can be used for ready-time adherence calculation. See About ready-time adherence for more information.

Related topics

- WFM standard reports
- About ready-time adherence

Agent Queue Metrics report

This report shows the queue metrics for each agent. View metrics like answered calls and average handling time for the selected time period and for each queue that the agent has been logged in to. You can drill down to a specific queue and day to view more details.

The report answers questions like:

- What are the basic stats for my group of agents, broken down by queue?
- How many calls did my team answer and what was the average talk time?

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Agent queue metrics

Fields in this report

Field	Description
Answered calls	The total number of answered contacts. This can include for example calls, emails, or chats, depending on the selection.
Average handle time	The average time it takes to handle a contact to completion, including talk time and after call work time. **Calculation:** Average handle time = (Total talk time + Total after call work) ÷ Answered contacts
Average talk time	The average time agents spend in conversation with a customer. **Calculation:** Average talk time = Total talk time ÷ Answered calls
Average after call work	The average time agents have spent on contacts after they have finished talking to the customer. **Calculation:** Average after call work = Total after call work / Answered calls

Related topics

- WFM standard reports

Agent Queue Statistics report

This report shows raw agent data (bound to queue) per interval. It gives you the full contact statistics for the agent, regardless of what skills they are working on. This is useful to validate the agent statistics in WFM based on the agent statistics in the ACD platform.

The reports answers questions like:

- What were the basic stats of each queue by agent? Sort them by queue and agent so I can see a specific breakdown.
- How many calls were answered, how many were transferred, and what was the talk time?

NOTE This report is based on the contacts handled on the queues which are connected to the selected workloads. Contacts on other queues are not considered.

Use the **Not defined** option in the skill and workload selection to show logged queue data which is not connected to any skill and workload.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Agent queue statistics

Fields in this report

Field	Description
Answered calls	The total number of answered contacts. This can include for example calls, emails, or chats, depending on the selection.
Transferred calls	Transferred calls are calls that an agent transfer to another agent or back to the queue.
Talk time	The total time agents spend talking to customers. Hold time is usually included in the talk time, but this depends on how the integration is configured.
After call work (ACW)	The total time agents have spent on a customer contact after they have finished talking to the customer.

Related topics

- WFM standard reports

Agent Skills report

This report shows a summary of all the skills per agent on a selected day. All dates are in the agents' time zones.

The report answers questions like:

- What skills are assigned to each agent?

In the selection page, there is an option to **Only show active skills**. If this option is selected and an agent only has skills which are not active, the row is blank and the agent is not counted as skilled.

Page location

WFM > Reports > Agent skills

Fields in this report

Field	Description
Skill	The agents assigned to each skill are marked.

Related topics

- WFM standard reports

Agent Statistics report

This report shows statistics which are not related to any particular queue, such as ready time and direct calls, per agent. The data is displayed per day and interval.

The report answers questions like:

- What are the basic stats for team A, broken down by agent and by interval, and regardless of which queue the contact came in on?

Use the **Not defined** option in the team selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Agent statistics

Fields in this report

Field	Description
Logged in time	The total time when the agent is logged in to the ACD platform. All

Field	Description
	logged in time is either ready time or not ready time and this is defined by the states which the agents are in.
Ready time	The total time when the agents are logged in on the ACD platform and are in one of the ready states. The ready states are for example when they are ready to take a call, in a call or doing after call work.
Not ready time	The total time when agents are logged in on the ACD platform but are in a not ready state. Not ready states are states where the agent is for example paused or doing admin work.
Idle time	The total time agents spend waiting for a customer call. The information is based on the states which are logged from the ACD platform. Idle time is considered to be ready time.
Admin time	The total time agents spend on administrative tasks. The information is based on the states which are logged from the ACD platform.
Direct outbound calls	The number of outgoing calls made by an agent. Depending on the ACD platform used, this measure might not include outbound calls that were unanswered.
Direct outbound calls talk time	The total time agents spend talking in outgoing calls made by an agent.
Direct incoming calls	The number of calls made directly to an agent, not through a queue.
Direct incoming calls talk time	The total time that agents spend in calls made directly to an agent, not through a queue.

Related topics

- WFM standard reports

Availability per Agent report

This report shows the availability of the hourly staff, summarized per agent. It presents the number of available days and hours entered by the agent and the number of days and hours that were scheduled (work time). It also shows the utilization, that is the number of scheduled hours compared to the available hours.

The report answers questions like:

- Did we match our schedules to the agent's availability well?
- Did we utilize our agents according to their availability?

The data in this report is always shown in the agents' local time zones.

Page location

WFM > Reports > Availability per agent

Fields in this report

Field	Description
Available days	All days where any available time is set by an employee in the Availability view in MyTime.
Available time	The time, in hours and minutes, set as available by an employee in the Availability view in MyTime.
Scheduled days	All days where any available time is set by an employee in the Availability view in MyTime that were then scheduled. Only days containing activities marked as work time are considered as scheduled.
Scheduled time	The total scheduled time, regardless if it is contract time or work time. This includes for example lunch and overtime.
Utilization	The percentage of the available time that is scheduled with work time. Scheduled work time is counted on all days where available time is set by an employee, and that then is scheduled.

Related topics

- WFM standard reports

Forecast vs Actual Workload report

Use this report to compare the forecast to the actual values for the selected scenario, skills and workloads.

The report answers questions like:

- How well does the number of forecasted calls match the number of calls that were actually received?
- How well do the forecasted AHT and ACW match the actual AHT and ACW?
- How accurate was my forecast?

Use the **Not defined** option in the skill and workload selection to show logged queue data which is not connected to any skill and workload.

See Forecast vs Scheduled Hours report to compare the forecast to the schedule.

Page location

WFM > Reports > Forecast vs actual workload

Fields in this report

Field	Description
Calculated calls	An adjusted version of Offered calls which considers the workload settings for how to handle overflow and abandoned calls.
Forecasted calls	The total number of incoming calls for a certain period according to the forecast. It includes calls added by a campaign. This can include for example emails and chats, depending on the selection.
Offered calls	The total number of contacts that have been placed in a queue by the ACD platform, which can then either be handled or abandoned.
Answered calls	The total number of answered contacts. This can include for example calls, emails, or chats, depending on the selection.
Forecasted average talk time	The forecast of the average time the agents will spend in conversation with a customer.
Actual average talk time	The average time agents spend in conversation with a customer. **Calculation:** Average talk time = Total talk time ÷ Answered calls
Forecasted after call work	The forecast of the average time agents will spend working on contacts after they have ended the conversation with the customer.

Field	Description
Actual after call work	The average time agents have spent on contacts after they have finished talking to the customer. **Calculation:** Average after call work = Total after call work / Answered calls

Related topics

- Forecast vs Scheduled Hours report
- WFM standard reports

Forecast vs Scheduled Hours report

Use this report to see how well the schedule is designed in relation to the forecasted hours needed for each skill, with or without shrinkage included.

A low value on **Relative difference** and **Standard deviation** shows that you are scheduling according to your forecast.

The report answers questions like:

- How well do the actual number of hours scheduled match the number of forecasted hours?
- How efficient was my schedule compared to the forecast?

See Forecast vs Actual Workload report to compare the forecast to the actual workload.

NOTE

- The data in this report is updated once every hour for yesterday, today, tomorrow, and the day after tomorrow. For days outside of that period, the data is updated once every night.
- If you are importing staff from external suppliers using the BPO Exchange functionality, the scheduled time per skill in this report includes the imported staff. The predicted service level is calculated based on the total scheduled time per skill, including the imported data.

Page location

WFM > Reports > Forecast vs scheduled hours

Fields in this report

Field	Description
Forecasted hours (hh:mm)	The work time required to meet the need according to the forecast. This does not consider shrinkage.
Forecasted hours incl. shrinkage (hh:mm)	The work hours and minutes required to meet the need according to the forecast, with the shrinkage taken into consideration.
Scheduled hours (hh:mm)	The scheduled hours for a skill. If the overtime activity is skill activity, it is included. It does not include time scheduled for lunch, break, meetings, and so on.
Relative difference (%)	The difference between scheduled and forecasted time as a percentage value. **Calculation:** Relative difference = (Scheduled time - Forecasted time) ÷ Forecasted time
Relative difference incl. shrinkage (%)	The difference between the scheduled and forecasted time, with the shrinkage taken into consideration.
Standard deviation	The standard deviation is used to indicate how much the scheduled hours value deviates from the forecasted hours value during a particular time period.
Predicted service level (PSL)	The service level percentage that can be reached based on the current forecast and schedules.
Predicted service level incl. shrinkage	The predicted service level that can be reached, with the defined shrinkage taken into consideration. The calculation is based on the current forecast and schedules.

Related topics

- Forecast vs Actual Workload report
- WFM standard reports

Gamification Leaderboard report

Gamification can be used to select the “Agent of the month” or the “Best agent in a campaign.” The gamification leaderboard facilitates this by presenting the agents who received the highest number of gold, silver and bronze badges for the selected time period. By default, the report will show yesterday and one month back.

The report answers questions like:

- Who received the most badges last week?
- Which three agents received the most badges last month?

The rank on the leaderboard is calculated for the current selection of agents. It is primarily based on the number of gold badges, secondarily on the number of silver badges and thirdly on the number of bronze badges, just like in the Olympic Games. If two agents have the same number of badges on all levels, they receive the same rank.

If you belong to a team, the Gamification leaderboard by default shows your team. If you don't belong to a team, all agents that you have permissions to see are shown. Use the search function to show for example a specific team or agents working on a particular skill.

Page location

WFM > Reports > Gamification leaderboard

Fields in this report

Field	Description
Rank	The agent's position on the leaderboard.
Gold badges	The number of gold badges the agent has received.
Silver badges	The number of silver badges the agent has received.
Bronze badges	The number of bronze badges the agent has received.

Related topics

- WFM standard reports

General Audit Trail report

View what changes were made, when, and by whom. You can search by either who made the change or in which context the change was made.

The report answers questions like:

- Who granted the Team leader role to Ashley?
- Has any new employees been imported this week?
- When was the staffing from the external supplier imported?
- Who approved John's late arrival as In adherence?

The general audit trail tracks for example the following changes:

User management

- Granting or revoking roles in the People tool on web.
- Changing the application or identity logon in the People tool on web.
- Changing user information in the People tool on web.
- Importing new employees using the file import.
- Changing the default values for the new employee import.
- Changing permission roles.

Forecasts

- Importing queue data via the web Forecasts tool.
- Applying suggested updated forecast.

Schedules and staffing

- Import staffing from external suppliers via the BPO Exchange functionality.
- Removing imported staffing from external suppliers.
- Importing or copying schedules from one scenario to another.

Adherence

- Approving an agent's occurrence of out of adherence as in adherence.
- Adjusting the adherence to neutral for all agents.

NOTE

- Changes in access management made in the People module in the WFM client are not shown in the **General audit trail** report.
- Schedule changes are tracked in the Schedule Audit Trail report

Page location

WFM > Reports > General audit trail

Related topics

- Schedule Audit Trail report
- WFM standard reports
- Audit user and system changes for QM and Analytics—Audit all changes for the rest of the Webex WFO suite

Improve report

Use this report to analyze the correlations between the three KPIs; ready-time adherence, service level and handling time compared to paid time. It gives a general overview of the performance of the contact center for a selected period. The report makes it possible to view data in various levels of detail, from a single interval up to weekdays and months.

The report answers questions like:

- Are the agents working according to their schedule?
- Are the calls answered in time, according to our goals?
- How much “customer time” do we get for each paid hour?

Ensure to select the ready-time adherence calculation and service level calculation that you want to use on the report selection page.

Page location

WFM > Reports > Improve

Fields in this report

Field	Description
Service level	The service level indicates the percentage of contacts that are handled within the defined service level threshold. Select the specific formula you want to use to calculate the service level. This makes it possible for you to define for example if you want to consider contacts abandoned within the service level threshold and if you want to include overflow in.
Ready-time adherence	Ready-time adherence shows how well agents adhere to their schedule. It compares the agent's scheduled ready time to the actual ready time for each interval. There are different formulas that can be used for ready-time adherence calculation. See About ready-time adherence for more information.
Handling time / Paid time	The percentage of the scheduled paid time that is handling time.

Related topics

- WFM standard reports
- About ready-time adherence

Preference per Agent report

Use this report to show how many agent preferences that are fulfilled or unfulfilled during a selected time period, summarized per agent. The report shows preferences for shift categories, days off, absences and extended preferences such as maximum work time or earliest start time. It also shows the number of must have preferences.

The agents enter their preferences for how and when they want to work. A preference is counted as fulfilled when the agent is scheduled according to the preference. If not, it is counted as unfulfilled. All preferences entered for one single day is counted as one preference.

> **EXAMPLE** An agent enters a preference for the **Early** shift category with a maximum work time of 8 hours and sets the preferred latest end time 3:00 PM. This counts as one preference, an extended preference. If one or more of the criteria is not fulfilled in the schedule, the preference is counted as unfulfilled.

The report answers questions like:

- How many of the shifts fulfilled the agent’s preferences this month?
- Which agents had the least of their preferences fulfilled for this schedule period?

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

NOTE The dates of the preferences are shown according to the agent's time zone.

Page location

WFM > Reports > Preference per agent

Fields in this report

Field	Description
Must haves	The number of preferences which are selected as particularly important to the agent. Days which are selected as must have days are marked with a heart.
Fulfilled	The number of preferences which are fulfilled during a selected time period. The preference is counted as fulfilled when the agent is scheduled according to the preference. **NOTE** If a day off is scheduled on a day with a preference for a shift, the preference on this day is considered as fulfilled.
Unfulfilled	The number of preferences that were unfulfilled when scheduling. The preference is counted as unfulfilled when the agent is scheduled and the shift scheduled is not according to the agent's preference.
Fulfillment %	The percentage of preferences which are fulfilled during a selected time period. The preference is counted as fulfilled when the agent is scheduled according to the preference. **Calculation:** Preference fulfillment % = Preferences fulfilled ÷ Preferences requested

Related topics

- Preference per Day report
- WFM standard reports

Preference per Day report

Use this report to show the number of agent preferences that are fulfilled or unfulfilled during a selected time period, summarized per day. The report shows preferences for shift categories, days off, absences or extended preferences such as maximum work time or earliest start time. It also shows the number of must have preferences.

The agents enter their preferences for how and when they want to work. A preference is counted as fulfilled when the agent is scheduled according to the preference. If not, it is counted as unfulfilled. All preferences entered for one single day is counted as one preference.

EXAMPLE An agent enters a preference for the **Early** shift category with a maximum work time of 8 hours and sets the preferred latest end time 3:00 PM. This counts as one preference, an extended preference. If one or more of the criteria is not fulfilled in the schedule, the preference is counted as unfulfilled.

The report answers questions like:

- For last week, did we do a good job of meeting our agents' preferences each day?

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

NOTE The dates of the preferences are shown according to the agent's time zone.

Page location

WFM > Reports > Preference per day

Fields in this report

Field	Description
Must haves	The number of preferences which are selected as particularly important to the agent. Days which are selected as must have days are marked with a

Field	Description
	heart.
Fulfilled	The number of preferences which are fulfilled during a selected time period. The preference is counted as fulfilled when the agent is scheduled according to the preference. **NOTE** If a day off is scheduled on a day with a preference for a shift, the preference on this day is considered as fulfilled.
Unfulfilled	The number of preferences that were unfulfilled when scheduling. The preference is counted as unfulfilled when the agent is scheduled and the shift scheduled is not according to the agent's preference.
Fulfillment %	The percentage of preferences which are fulfilled during a selected time period. The preference is counted as fulfilled when the agent is scheduled according to the preference. **Calculation:** Preference fulfillment % = Preferences fulfilled ÷ Preferences requested

Related topics

- Preference per Agent report
- WFM standard reports

Queue Statistics report

This report shows the “raw” queue data per interval. This is useful to validate the queue statistics in WFM based on the queue statistics in the ACD platform. All interval data is summarized per day to facilitate further calculations.

The report answers questions like:

- What are the basic stats of each queue for each interval of a day?

NOTE The report does not show the statistics per skill.

Use the **Not defined** option in the skill and workload selection to show logged queue data which is not connected to any skill and workload.

Page location

WFM > Reports > Queue statistics

Fields in this report

Field	Description
Offered calls	The total number of contacts that have been placed in a queue by the ACD platform, which can then either be handled or abandoned.
Answered calls	The total number of answered contacts. This can include for example calls, emails, or chats, depending on the selection.
Answered calls within service level threshold	The number of contacts that are answered within the service level target set in the ACD platform.
Abandoned calls	The number of calls where the caller hung up and abandoned the queue. This could also include for example chats, depending on the selection.
Abandoned calls within service level threshold	The number of contacts that have been abandoned within the service level target set in the ACD platform. This does not include abandoned short calls.
Abandoned short calls	Short calls or abandoned short calls are calls where the caller hangs up when they have only been in queue for a very short time. The threshold is set in the ACD platform.
Overflow out calls	The number of calls that have been routed out to another queue in the ACD platform.
Overflow in calls	The number of calls that have been routed in from another queue in the ACD platform.
Speed of answer	The total time it takes for the contacts to be picked up to be handled for the selected time period. That is, the total time all contacts wait in queue.
Talk time	The total time agents spend talking to customers. Hold time is usually included in the talk time, but this depends on how the integration is configured.

Field	Description
After call work	The total time agents have spent on a customer contact after they have finished talking to the customer.
Handle time	The total time that agents spend on calls, including the after call work.
Time to abandon	The total time customers waited before abandoning the call or chat.
Longest delay in queue, answered	The longest time a call has been in queue before being answered, for the selected time period.
Longest delay in queue, abandoned	The longest time a call has been in queue before being abandoned, for the selected time period.

Related topics

- WFM standard reports

Ready-Time Adherence per Agent report

This report shows in detail, interval by interval, how well an agent adheres to their schedule over a period of time. You can only select one agent at a time but for several days. Use the Ready-Time Adherence per Day report to compare the ready-time adherence for several agents on a selected day.

The **Ready-time adherence per agent** report answers questions like:

- What is Ashley's adherence percentage for the last month?
- What is the adherence percentage of each agent in a graphical format?
- What is my adherence percentage this week?

NOTE The **Ready-time adherence per agent** report uses ready-time adherence. It is calculated on interval level and will not completely match the more detailed historical adherence shown in the Adherence tool and the Adherence per Agent report. See About ready-time adherence for more information on how the adherence percentage is calculated.

The report presents the following information.

- The average **Ready-time adherence** percentage for each day.
- The total deviation in minutes for each day.

- The agent's shifts, where the colors indicate the schedule activities. A striped interval within a shift indicates that there is more than one activity within the interval, for example a 5-minute break within a 15-minute interval.
- The numbers of minutes that the agent was ready or in a call, for each interval. If it shows 0, no ready time is registered for this interval. If it is blank, there is no data at all for this interval.
- The average adherence percentage and the total deviation in minutes, summarized over the selected period.
- The ready time that occurs between shift segments, such as when an agent has a split shift.

Ensure to select the ready-time adherence calculation you want to use on the report selection page, as it affects the values shown in the report. Any ready time within two hours before and after the shift is shown in the report, regardless of which adherence calculation that is selected.

Deviation and **Ready time** are presented in minutes, but the **Ready-time adherence** percentage is calculated in seconds. Therefore, even if it looks like you have a perfect adherence for each interval, the ready-time adherence percentage for the day can be for example 99,8% since the minute values are rounded.

The data in this report is presented on the shift start date. For example, if the shift starts on Monday at 10:00 PM and ends on Tuesday at 6:00 AM, all intervals of the shift are presented in the Monday report.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

NOTE This report collects data from different data sources. Because of this, the values in the report might be incorrect for the most recent intervals when you run the report for today.

Page location

WFM > Reports > Ready-time adherence per agent

Fields in this report

Field	Description
Ready time	The total time when the agents are logged in on the ACD platform and are in one of the ready states. The ready states are for example when they are ready to take a call, in a call or doing after call work.

Field	Description
	The ready time is shown for each interval in the visualization of the shift. If an interval shows 0, no ready time is registered for this interval. If an interval is blank, there is no data at all for this interval.
Ready-time adherence	Ready-time adherence shows how well agents adhere to their schedule. It compares the agent's scheduled ready time to the actual ready time for each interval. There are different formulas that can be used for ready-time adherence calculation. See About ready-time adherence for more information.
Deviation	The deviation is the time the agents are not ready to handle contacts when they are scheduled to be. **Calculation:** Deviation = Scheduled ready time - Ready time

Related topics

- About ready-time adherence
- Ready-Time Adherence per Day report
- Adherence per Agent report
- WFM standard reports

Ready-Time Adherence per Day report

This report shows in detail how well the agents adhere to their schedule during a day. Use the report to view the ready-time adherence for a whole team or group, agent by agent and interval by interval for a selected day. You can select several agents at a time but only one day. Use the Ready-Time Adherence per Agent report to show the ready-time adherence for one agent for a longer period.

The **Ready-time adherence per day** report answers questions like:

- What was the adherence percentage for my team yesterday?

NOTE The **Ready-time adherence per day** report uses ready-time adherence. It is calculated on interval level and will not completely match the more detailed historical adherence shown in the Adherence tool and the Adherence per Agent report. See About ready-time adherence for more information on how the adherence percentage is calculated.

The report presents the following information.

- The average **Ready-time adherence** percentage for each agent.
- The total deviation in minutes for each agent.
- The agents' shifts, where the colors indicate the schedule activities. A striped interval within a shift indicates that there is more than one activity within the interval, for example a 5-minute break within a 15-minute interval.
- The numbers of minutes that the agent was ready or in a call, for each interval. If it shows 0, no ready time is registered for this interval. If it is blank, there is no data at all for this interval.
- The average adherence percentage and the total deviation in minutes, summarized for all selected agents.
- The ready time that occurs between shift segments, such as when an agent has a split shift.

Ensure to select the ready-time adherence calculation you want to use on the report selection page, as it affects the values shown in the report. Any ready time within two hours before and after the shift is shown in the report, regardless of which adherence calculation that is selected.

Deviation and **Ready time** are presented in minutes, but the **Ready-time adherence** percentage is calculated in seconds. Therefore, even if it looks like you have a perfect adherence for each interval, the ready-time adherence percentage for the day can be for example 99,8% since the minute values are rounded.

The data in this report is presented on the shift start date. For example, if the shift starts on Monday at 10:00 PM and ends on Tuesday at 6:00 AM, all intervals of the shift are presented in the Monday report.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

NOTE This report collects data from different data sources. Because of this, the values in the report might be incorrect for the most recent intervals when you run the report for today.

Page location

WFM > Reports > Ready-time adherence per day

Fields in this report

Field	Description
Ready time	The total time when the agents are logged in on the ACD platform and are in one of the ready states. The ready states are for example when they are ready to take a call, in a call or doing after call work. The ready time is shown for each interval in the visualization of the shift. If an interval shows 0, no ready time is registered for this interval. If an interval is blank, there is no data at all for this interval.
Ready-time adherence	Ready-time adherence shows how well agents adhere to their schedule. It compares the agent's scheduled ready time to the actual ready time for each interval. There are different formulas that can be used for ready-time adherence calculation. See About ready-time adherence for more information.
Deviation	The deviation is the time the agents are not ready to handle contacts when they are scheduled to be. **Calculation:** Deviation = Scheduled ready time - Ready time

Related topics

- About ready-time adherence
- Ready-Time Adherence per Agent report
- Adherence per Agent report
- WFM standard reports

Requests per Agent report

This report shows how many requests the agents have initiated during a period of time, summarized per agent. The report shows the type of request (absence, shift trade, overtime or text request) and if the requests have been approved or denied. Any waitlisted requests which are canceled by the agent before they are approved or denied are not listed in the report.

The report answers questions like:

- What absence requests were sent in by each agent last month, and were they approved?
- What shift trade requests were sent in last week and were they approved or not?

The data in this report is always shown in the agents' local time zones.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

> **NOTE** In the Requests tool, you can only review shift trade requests that were approved by both agents. For example, if agent 1 sends a shift trade request to agent 2 but agent 2 does not approve, the request will not appear in the Requests tool. Similarly, if agent 1 sends a shift trade request to agent 2 and the request is automatically denied, it will not appear. However, these requests are available in the Requests per Agent report

Page location

WFM > Reports > Requests per agent

Fields in this report

Field	Description
Application date	The date when the request was initiated.
Request period	The start and end date for the request.
Type	The type of the request; absence, overtime or shift trade request.
Status	The status this request is currently in.
Requests	The number of requests sent.
Requested days	The number of days for which requests have been sent.

Related topics

- WFM standard reports

Schedule Audit Trail report

This report shows all changes that are made to the schedule for the default scenario. It requires that the audit trail is enabled.

The report answers questions like:

- Who made a change to Ashley's schedule for next week, and exactly when was it made?
- What changes were made to Monday's schedule? I need to keep my team accountable for the changes that were made.

You can filter it on any field in the report.

You can export data to Excel but filters will not be applied.

NOTE If a schedule change is modified by "WFM System", this means that the schedule is changed by an automatic process. For example, this is shown when an agent's request has been automatically approved or when schedules are copied to or imported from another scenario.

Page location

WFM > Reports > Schedule audit trail

Fields in this report

Field	Description
Modified at	The date and time when the change happened.
Modified by	The name of the user who made the change. If a schedule change is modified by "WFM System", this means that the schedule is changed because an absence request, overtime request, or shift trade request has been automatically approved.
Agent	The agent whose schedule was changed.
Type	The type of item that was changed; shift, absence or day off.
Action	The type of change which was made and where in the product it was made.

Field	Description
Details	More information about the shift category, absence type or day off.
Start time	The start time of the shift, absence or day off.
End time	The end time of the shift, absence or day off.

Related topics

- General Audit Trail report
- WFM standard reports
- Audit user and system changes for QM and Analytics—Audit all changes for the rest of the Webex WFO suite

Scheduled Agents per Activity report

This report shows the number of agents (FTEs) that are scheduled per activity and interval. It also shows a summary of the total number of agents that are scheduled for the selected interval. Select several days at the time to make it easier to compare a specific intraday period over time.

The report answers questions like:

- How many agents are scheduled on a break between 10:00 AM and 1:00 PM today?
- How many agents were scheduled on each activity by interval?
- How many agents were scheduled to be on the phone from 11:30 AM to 11:45 AM yesterday?
- What was the maximum number of agents who were scheduled to go to lunch at one time yesterday?

Page location

WFM > Reports > Scheduled agents per activity

Fields in this report

Field	Description
Number of agents	The number of agents scheduled for each interval and activity.

Field	Description
Totals	The total number of agents scheduled for this interval for the selected teams.

Related topics

- WFM standard reports

Scheduled Agents per Interval and Team report

This report shows the number of agents (heads) that are scheduled for the selected activities per team and interval. It also shows a summary of the total number of agents scheduled for the selected teams and activities.

The report answers questions like:

- How many agents did Richard's team have on the phones yesterday?
- How many agents were scheduled yesterday in total, regardless of activity and sorted by team?

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Scheduled agents per interval and team

Fields in this report

Field	Description
Number of agents	The number of agents scheduled for each interval and team.
Totals	The total number of agents scheduled for this interval for the selected teams.

Related topics

- WFM standard reports

Scheduled Overtime per Agent report

This report shows the scheduled overtime per agent, date and overtime type. You can drill down from team totals, agent and date.

The report answers questions like:

- How much overtime did each agent have scheduled last week?
- How many hours of overtime did we schedule last month?

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Scheduled overtime per agent

Fields in this report

Field	Description
Scheduled overtime	The time scheduled in addition to the normal contract time. **NOTE** Only activities which are set as work time are included.

Related topics

- WFM standard reports

Scheduled Time per Activity report

This report shows the current scheduled time per activity. It shows a matrix and a pie chart of all scheduled time, summarized by day and activity. This gives you an overview of where time is spent. The report does not include version history.

The report answers questions like:

- How much coaching time did we schedule for our agents in total over the last month?
- How many hours of meetings were scheduled in the last quarter?

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Scheduled time per activity

Fields in this report

Field	Description
Scheduled time	The scheduled time for each day and activity.
Totals	The total time scheduled for this day for the selected teams.

Related topics

- WFM standard reports

Scheduled Time per Agent report

This report shows the scheduled time for an agent and how the time is divided by days, activities and absences. You can drill-down from team, agent, date and activity or absence totals.

The report answers questions like:

- How much paid time did we schedule yesterday?
- How much absence time did we have last month?

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Scheduled time per agent

Fields in this report

Field	Description
Contract time	All time scheduled on activities and absences set as contract time. Overtime is not included in contract time.

Field	Description
Work time	All time scheduled on activities and absences set as work time.
Paid time	All time scheduled on activities and absences set as paid time.
Scheduled overtime	The time scheduled in addition to the normal contract time. **NOTE** Only activities which are set as work time are included.
Absence time	Time scheduled on absences which are set as contract time.
Scheduled time	The total scheduled time, regardless if it is contract time or work time. This includes for example lunch and overtime.
Planned overtime	The originally planned overtime for an agent. If an agent was scheduled to work overtime but is absent, they are not compensated for the overtime.

Related topics

- WFM standard reports

Service Level and Agents Ready report

This report shows how the service level is affected by the number of agents ready. You should use the report on the interval level, instead of using the total values. The charts on the first page of the report give you an overview and the second page contains all matrix data.

The report answers questions like:

- What was my service level compared to the number of agents that were scheduled?
- How can I see how well the contact center was staffed throughout the day compared to my volumes?
- How many offered calls per agent do we have according to the schedule and what was the outcome?
- How many calls do we answer within our service level goal and how many calls are abandoned?
- Did we have as many agents ready as we scheduled?

Ensure to select what service level calculation to use in the report selection page.

Use the **Not defined** option in the skill and workload selection to show logged queue data which is not connected to any skill and workload.

Page location

WFM > Reports > Service level and agents ready

Fields in this report

Field	Description
Scheduled agents ready	The number of agents who are scheduled to be ready, for example scheduled to answer calls or emails.
Agents ready	The number of agents (heads) in the ready state. An agent is counted as ready as soon as they have any ready time at any point during the period.
Offered calls / Scheduled agents ready	The number of offered calls per agent who is scheduled to be ready.
Offered calls / Agents ready	The number of offered calls per agent who is in a ready state.
Offered calls	The total number of contacts that have been placed in a queue by the ACD platform, which can then either be handled or abandoned.
Answered calls	The total number of answered contacts. This can include for example calls, emails, or chats, depending on the selection.
Abandoned calls	The number of calls where the caller hung up and abandoned the queue. This could also include for example chats, depending on the selection.
Answer rate (%)	The percentage of calls that are answered compared to calls offered. This could also include for example emails or chats, depending on the selection. **Calculation:** Answer rate = Answered calls ÷ Offered calls
Service level (%)	The service level indicates the percentage of contacts that are handled within the defined service level threshold. Select the specific formula you want to use to calculate the service level. This makes it possible for you to define for example if you want to consider contacts abandoned within the service level threshold and if you want to include overflow in.

Related topics

- WFM standard reports

Shift Category and Full-Day Absence per Agent report

The report shows the number of shifts of a specific category, days off and full-day absences that have been scheduled for a specific agent during a selected period.

The report answers questions like:

- How many shifts of each shift category did we schedule last week?
- How many full-day absences did we have last month?

The data in this report is presented on the shift start date. For example, a shift that starts on Monday at 10:00 PM and ends on Tuesday at 6:00 AM is shown in the Monday report.

An absence is considered a full-day absence when the absence covers the entire underlying shift. If an agent is working overtime on a day off, it is still considered a day off.

The data in this report is always shown in the agents' local time zones.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Shift category and full-day absence per agent

Fields in this report

Field	Description
Number of shifts, days off, or absences	The number of shifts, days off, or full-day absences scheduled for that type.
Totals (horizontal)	The total number of shifts, days off, and full-day absences scheduled for the agent.
Totals (vertical)	The total number of shifts, days off, or full-day absences scheduled for that particular type.

Related topics

- Shift Category and Full-Day Absence per Day report
- WFM standard reports

Shift Category and Full-Day Absence per Day report

This report shows the number of shifts with a certain shift category and the number of full-day absences per day for one or more teams and agents.

The report answers questions like:

- How many shifts did we schedule in each category by day?
- How many late shifts were scheduled last week?
- How many people called in sick each day last month?

The data in this report is presented on the shift start date. For example, a shift that starts on Monday at 10:00 PM and ends on Tuesday at 6:00 AM is shown in the Monday report.

The data in this report is always shown in the agents' local time zones.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Shift category and full-day absence per day

Fields in this report

Field	Description
Number of shifts, days off, or absences	The number of shifts, days off, or full-day absences scheduled for that type.
Totals (horizontal)	The total number of shifts, days off, and full-day absences scheduled for this date.
Totals (vertical)	The total number of shifts, days off, or full-day absences scheduled for that particular type for the selected period.

Related topics

- Shift Category and Full-Day Absence per Agent report
- WFM standard reports

Shift Category per Day report

This report shows the number of shifts of a specific category that have been scheduled for a selected period. The distribution percentage is also shown.

The report answers questions like:

- How many of each shift category were scheduled yesterday?
- How many graveyard shifts did we have last month, by day?
- What percentage of our shifts were at 8:00 AM last month?

The data in this report is presented on the shift start date. For example, a shift that starts on Monday at 10:00 PM and ends on Tuesday at 6:00 AM is shown in the Monday report.

The data in this report is always shown in the agents' local time zones.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

Page location

WFM > Reports > Shift category per day

Fields in this report

Field	Description
Number and percentage of shifts	The number of shifts scheduled of each shift category, and the percentage scheduled of this shift category out of the total number of shifts for this day.
Totals (horizontal)	The total number of shifts scheduled for this date.
Totals (vertical)	The total number of shifts scheduled of that particular shift category for the selected period.

Related topics

- WFM standard reports

Team Metrics report

Use this report to evaluate how well each team has performed in relation to how they where scheduled. It shows for example the ready-time adherence, occupancy, and answered calls. You can drill-down to a specific date in the selected period.

The report answers questions like:

- What are the basic stats of my team, broken down by team and day, regardless of which queue the contact came in on?

Ensure to select the ready-time adherence calculation to use in the report selection page.

Use the **Not defined** option in the team and agent selection to show logged data which is not connected to any agent and team.

To view same metrics per agent, use the Agent Metrics report.

Page location

WFM > Reports > Team metrics

Fields in this report

Field	Description
Scheduled ready time	The total time agents are scheduled on activities set as in ready time. This means that they are scheduled to be logged in and ready to handle customer contacts.
Ready time	The total time when the agents are logged in on the ACD platform and are in one of the ready states. The ready states are for example when they are ready to take a call, in a call or doing after call work.
Ready time / Scheduled ready time	How much actual ready time there was in comparison to the scheduled ready time.

Field	Description
Answered calls	The total number of answered contacts. This can include for example calls, emails, or chats, depending on the selection.
Answered calls / Scheduled ready hour	The number of answered contacts per hour that the agents are scheduled to handle contacts. **Calculation:** Answered calls per scheduled ready hour = Answered calls ÷ Scheduled ready time
Answered calls / Ready hour	The number of answered contacts per hour that the agents were actually ready to handle contacts. **Calculation:** Answered calls per ready hour = Answered calls ÷ Ready time
Occupancy (%)	The percentage of ready time that an agent spends actively handling contacts. **Calculation:** Occupancy = (Talk time + After call work time) ÷ Ready time The percentage of ready time that an agent spends on active time. This is useful for blended channel types or when WFM is integrated to several contact center platforms for agent queue statistics. **Calculation:** Occupancy = (Ready time - Idle time) ÷ Ready time
Ready-time adherence (%)	Ready-time adherence shows how well agents adhere to their schedule. It compares the agent's scheduled ready time to the actual ready time for each interval. There are different formulas that can be used for ready-time adherence calculation. See About ready-time adherence for more information.

Related topics

- WFM standard reports
- About ready-time adherence

Manage the list of Data Explorer dashboards and reports

The Data Explorer asset browser page contains a list of dashboards and reports. From this page you can view, share, create, and manage dashboards and reports. Exactly what you can do in the asset browser depends on the permissions assigned to your role. The functions available on the asset browser page are:

View the standard Data Explorer dashboards

Set your homepage

Copy a report or dashboard

Share reports and dashboards

Set up report email delivery

Tag reports and dashboards with roles

Search the asset browser by tag

Export a report

About the DX toolbar

The Data Explorer toolbar enables you to select a predefined filter to limit which items appear in the asset browser. For example, you can opt to list only reports and dashboards you shared or only those you created. You can also search for specific reports or dashboards by name, description, or tag.

The asset browser page can display reports and dashboards as a flat list, a categorized list, or generic thumbnail icons. To change the display, click the desired icon in the toolbar.



Field / Button		Description
1	All Items drop-down list	Select the items you want to be displayed on the page from the drop-down list.

Field / Button		Description
2	Flat List button	View items on the page in a flat list.
3	Categorized List button	View items on the page grouped as dashboards and reports.
4	Thumbnails button	View items on the page as thumbnails. The pictures in the thumbnails represent either a dashboard or a report, not the actual look of the item.
5	Bottom Preview Panel button	Display the item preview panel at the bottom of the page.
6	Right Preview Panel button	Display the item preview panel at the right side of the page.
7	Hide Preview Panel button	No item preview is displayed.
8	Settings drop-down list	Configure settings for the page. This controls how items are sorted on the page and which properties are displayed for each item.

View the standard Data Explorer dashboards

Data Explorer comes with a variety of pre-built dashboards that you can copy and edit.

Prerequisites

- For QM or Analytics, you have the Data Explorer permission.
- For WFM, you have the Home Page and Data Explorer permissions.
- (To copy and edit standard dashboards) You have the Content Creation permission.
- The dashboards available to you vary depending on the Cisco subscriptions your organization has. See Available pre-built dashboards for specifics.

Page location

Data Explorer

Procedures

View the standard Data Explorer dashboards

The standard dashboards have **System** in the **Owner** column.

1. Click a dashboard to open it.
2. Click **Data Explorer** to return to the list of dashboards. (Do not click your browser's Back button. That takes you back to your home page.)

Available pre-built dashboards

QM dashboards

These dashboards are available if your organization has Cisco Quality Management.

Dashboard	Description
Agent Profile Dashboard	A snapshot of performance for any single agent over the last 30 days that lets supervisors, managers, and evaluators drill directly into contacts for further review. You can also access this dashboard by opening a contact and clicking the agent's name.
Agent Profile Dashboard - Agent Homepage View	A comprehensive overview of a single agent's performance for the last 30 days that lets an agent drill directly into contacts they handled for further review. You can assign this dashboard as a home page for any agent. Each agent sees only their data.
CCR Drill Detail Agent Profile	This is a child dashboard that you can drill down to from the Agent Profile dashboard.
CX Focus QM - Contact Detail Dashboard (Last 7 Days)	Contains the number of contacts and duration information for each group from the previous seven days. You can drill down to see scores for teams and agents.
CX Focus QM - Evaluations Detail Dashboard (Last 7 Days)	Contains evaluation scores for each group from the previous seven days. You can drill down to see scores for teams and agents.
CX Focus QM - NPS Detail Dashboard (Last 7 Days)	Contains net promoter scores for each group from the previous seven days. You can drill down to see scores for teams and agents.

Dashboard	Description
QM Agent Quality Percentage (AQP)	Contains the number of evaluations completed and average evaluation score. You can filter by date, contact start time, group, team, agent, evaluation form, and evaluator.
QM Common Metrics	Contains average scores, evaluations, and contact times from the previous thirty days.
QM CX Focus Overview	Contains contact duration, holds, average evaluations, and net promoter score (NPS) from the previous thirty days.
Widgets - QM Only	Widgets are pre-built apps that you can drop into a dashboard to get information without having to write queries or build reports. This dashboard contains all the widgets for QM. See Available QM widgets for more information about each widget. **BEST PRACTICE** Most widgets come without any date filters set, so they automatically pull data from as far back as possible. If widgets take too long to load, adjust the filters to a shorter date range.

WFM dashboards

These dashboards are available if your organization has Cisco Workforce Management.

Dashboard	Description
WFM Agent Dashboard	Shows agents their WFM performance for the current week, as well as their scheduled time for the previous, current, and next weeks. You can assign this dashboard as a home page for any agent. Each agent sees only their data.

Analytics dashboards

These dashboards are available if your organization has Cisco Analytics.

Dashboard	Description
Advanced Speech Search	Search for phrase hits by date, confidence, duration, and category.
Agent Smart Benchmarking	Contains information about contact volume, duration, and call events.

Dashboard	Description
	You can filter by date, group, team, agent, contact type, and phrase hit.
Analytics - Agent Coaching Opportunities	Contains hits for the most commonly used phrases that indicate a need for coaching, as well as information on evaluation scores.
Analytics - Customer Effort	Contains hits for the most commonly used phrases related to customer effort, such as transfers and escalations, plus information on call events such as holds and silence.
Analytics - Customer Experience	Contains hits for the top phrase categories that influence a positive or negative customer experience.
Analytics - First Call Resolution	Tracks trending related to the biggest drivers of first-call resolution such as escalations, transfers, and service barriers. Contains hits for the phrases that lead to non-resolution.
Analytics - Main Overview	Contains information about the topics and discussions in your contact center, based on phrase categories and hits. Helps identify positive and negative trends over time within common categories such as repeat effort or transfers.
Analytics - Phrase Drilldown	Contains information on contacts that contain a specific phrase hit. You can filter by date, group, team, agent, phrase category, and phrase.
CCR Drill Detail	This is a child dashboard that you can drill to from a parent dashboard.
CCR Drill Detail Smart Benchmarking	This dashboard opens when you click into a report that is within another Analytics dashboard. It contains information about the contacts in the report, such as start time, agent, and evaluation state.
Predictive Evaluations	Contains predicted and actual evaluation scores for contacts. You can filter by date, group, team, agent, evaluation form, and phrase hit.
Predictive Net Promoter Score	Contains predicted and actual net promoter scores for contacts. You can filter by date, group, team, agent, contact type, and phrase hit.

CXI - Contact Center dashboards

These dashboards are available if your organization has Cisco Data Management.

Dashboard	Description
CXI - Contact Center - Customer Effort	Provides a view of the effort made by a customer when interacting with your contact center. It compares metrics like handle time and the prevalence of escalations against metrics like NPS and sentiment to show how increased effort affects customer satisfaction.
CXI - Contact Center - Employee Engagement and Satisfaction	Provides an overall view of agent engagement, as measured by metrics such as utilization, transfer rate, and escalation-related phrase hits. You can filter by date, group, team, and agent.
CXI - Contact Center - Process Improvement	Includes metrics that show opportunities for process improvements across the contact center. Call times, agent behavior, script adherence, training opportunities, and application usage help you find training opportunities or processes that might need improvement.
CXI - Contact Center - Repeat Calls	Helps you determine if your customers are making multiple calls to the call center, potentially indicating a lack of first-call resolution. The abandoned contacts metric shows how many customers hang up when they are waiting in the queue.
CXI - Contact Center - Systems Improvements	Helps you monitor systems issues and opportunities for improvement. Speech hit data shows how often systems issues come up during calls. NPS and sentiment data show how those issues impact customer satisfaction, and duration graphs show how they impact overall call length. You can also see which applications agents are spending the most time in.
CXI - Contact Center - Workforce Optimization	Provides an overview of workforce performance and areas for optimization. The dashboard has two main sections: the left side focuses on quality evaluations from agent calls, and the right side provides an overview of other workforce performance metrics.
CXI - Handle Time Detail	You can access this dashboard on its own or by drilling through to it from a call-time metric on a different dashboard. It provides more granular detail on handle times, including the breakdown between talk, hold, and after-call work time, as well as times by group. You can click a group to drill further down to team or agent.

Dashboard	Description
CXI - NPS Detail	You can access this dashboard on its own or by drilling through to it from an NPS metric on a different dashboard. It helps you to understand the trends in your actual and predictive NPS scores, as well as variances in your NPS and predictive NPS scores.
CXI - Phrase Hits Detail	You can access this dashboard on its own or by drilling through to it from a phrase hits metric on a different dashboard. It shows the absolute and relative number of phrase hits for the phrase categories and phrases you select.

Related topics

- Copy a report or dashboard
- Manage roles and permissions for QM, Analytics, and Insights—Assign permissions to let users view Data Explorer information.
- How WFM function permissions work—Assign permissions to let users view Data Explorer information.
- Available QM widgets—Information about the pre-built QM apps that appear in some standard dashboards.
- Available WFM widgets—Information about the pre-built WFM apps that appear in some standard dashboards.

Set your homepage

Data Explorer includes many predefined reports and dashboards that any user can set as a homepage. For example, if you use QM, you can set the Widgets - QM Only dashboard as your homepage.

Data Explorer tags default reports and dashboards by product, so you can search for relevant reports and dashboards by product tag: WFM, CWFM, QM, or Analytics.

NOTE Dashboards and reports show only data that is within your scope. For example, if another user shares a report comparing the average evaluation scores of Team A and Team B, but you have scope over just Team A, the report does not show any data for Team B.

You can set only one dashboard or report at a time as your homepage.

Prerequisites

- Data Explorer permission—gives you read-only access to the Data Explorer asset browser page

Page location

Data Explorer or Data Explorer > Reports

Procedures

Set a dashboard or report as your homepage

1. Navigate to the Data Explorer asset browser page.
2. Right-click a dashboard or report listed in the asset browser.
3. Click **Set as homepage**. Data Explorer marks the dashboard or report with a red homepage icon and the selected report or dashboard becomes your homepage.

Copy a report or dashboard

Unless a report or dashboard is shared with you and the owner gives you permission to make changes to it, the best way to take an existing report or dashboard and make it your own is to copy it. You are then the owner of the copy.

Once you are the owner, you can customize it and share it as you please.

Prerequisites

- Data Explorer permission—gives you read-only access to the Data Explorer asset browser page
- Content Creation permission—enables you to create, update, and delete dashboards and reports

Page location

Data Explorer or Data Explorer > Reports

Procedures

Copy a report or dashboard shared with you

1. Right-click the shared report or dashboard on the asset browser page.
2. Click **Copy**. Data Explorer adds a copy of the report or dashboard and makes you its owner.

Share reports and dashboards

After you create a report or dashboard, you can allow other users to access it. When sharing a report or dashboard, you control what the other users can do with it—view, copy, or edit it.

> **NOTE** Reports and dashboards show only data that is within your scope. For example, if another user shares a report comparing the average evaluation scores of Team A and Team B, but you have scope over just Team A, the report does not show any data for Team B.

You can share only the reports and dashboards you own. To share one that has been shared with you, create a copy of it.

Prerequisites

- Data Explorer permission—gives you read-only access to the Data Explorer asset browser page
- Content Publishing permission—enables you to share reports and dashboards that you own to sharing groups you belong to

Page location

Data Explorer or Data Explorer > Reports

Procedures

Share a report or dashboard

1. Right-click the report or dashboard you want to share on the asset browser page.
2. Click **Share**. The Sharing dialog box opens.
3. Select the level of permission that you want to assign to other users who belong to one of the groups

listed. The following table describes the permission levels available.

Permission	Description
None	Other users cannot view the item. This permission is the default choice for all the groups listed.
View	Other users can view the item.
Explore	(Reports only) Other users can change filters, groups, and other report elements but cannot save changes.
Save As	Other users can make changes and save a copy of the item. They cannot overwrite the original item.
Edit	Other users have full permission to change and overwrite the original item. Note that there is no audit trail that shows who edited the item or what was changed.

4. Click **OK**.

The **Shared To** column on the asset browser page now displays with whom the item is shared.

Set up report email delivery

IMPORTANT Cisco Data Management has been declared End of Sale as of November 1st, 2023 and is no longer available for purchase.

The Deliver function allows you to schedule a report you own to be delivered to recipients at intervals for a certain length of time. You can specify the report file format, the interval, the length of time it is delivered, and the recipients.

EXAMPLE I want my Agent Statistics report in PDF format to be sent to James Smith and Angela Brown daily at 10 AM until March 31.

Deliveries can be made to both email addresses associated with Webex WFO users and email addresses external to Webex WFO.

Once set up, you can edit the details of the delivery and start or stop deliveries through the Deliver function or from the Delivery page (see Manage report email delivery).

Prerequisites

- Your organization has a Data Management license.

  IMPORTANT Report email delivery is not available without a Data Management license.

- You have the Report Delivery permission—allows you to configure and manage when and to whom a report that you own is emailed

Page location

Data Explorer or Data Explorer > Reports

Procedures

Set up delivery of a report

1. On the Data Explorer asset browser page, locate the report you want to deliver. You must be the owner of the report.
2. Right-click the report and select **Deliver** from the drop-down list. The **All Deliveries** window opens.
3. Click **Click to add a delivery schedule** to display the **Edit Delivery** dialog box.
4. Complete the fields to configure the delivery schedule.
5. Click **Click to add a delivery method** to display the **Edit Email Delivery** dialog box.
6. Click  At the bottom left of the **Recipients** pane to display the **Choose Recipients** dialog box.
7. Expand the tenant user in the **Available** pane to show all available users, select the recipients, and click **Add the selected accounts**  to move them to the **Selected** pane.

   NOTE Only recipients who are Webex WFO users can be added in the Choose Recipients dialog box. You must return to the **Edit Email Delivery** dialog box to add external recipients.

8. Click the **Edit Email Delivery** button in the top left of the title bar to move back to the **Edit Email Delivery** dialog box.

> **NOTE** Do not click **Set**. If you do, the delivery is saved and you are returned to the asset browser page. If you are not finished configuring your delivery, you will have to edit the delivery setup.

9. At the bottom of the dialog box, select formats for the report.
   - If you opt to deliver the report as an image of the report as it appears in Data Explorer, the data format must be **None**.
   - If you opt to deliver the report as data (a CSV or Excel file), the image format must be **None**.
   - You can select a custom page size for the report. By default, reports are delivered in your default page size.
10. If you want to add an external recipient email address, click directly below the **Recipients** label or below an existing recipient's name to bring up an editable field.



11. Type the external email address and press **Enter**.
12. Click **Set**. The delivery configuration is saved and you return to the asset browser page.

Manage report email delivery

The Delivery page enables you to control the sending and receiving reports by email. The page has two sections:

Deliveries from others panel—This upper panel lists reports sent to you by other users. You might be the only recipient of the report, or you might be a member of a sharing group and receive a report that also goes to the other members of the group. You can opt out of receiving these reports.

Your deliveries panel—This lower panel lists reports that you set up to be delivered to other users. You can start or stop (turn on or off) the delivery of a report here. This allows you to set up reports in advance to their being needed. For example, a report that shows the progress of a sales campaign is turned on only when the campaign is in progress, and is turned off after the campaign is done. The report can then be turned on again when the next sales campaign starts.

Each panel displays the name of the report being delivered, who the recipients are, and what the delivery schedule is.

Deliveries are set up on the Data Explorer asset browser page.

Prerequisites

- Your organization has a Data Management license.

  IMPORTANT Report email delivery is not available without a Data Management license.

- You have the Delivery Management permission—allows you to opt in and opt out of receiving scheduled reports by email from other users and to start and stop the report deliveries to other users that you have set up.
- You have the Report Delivery permission—allows you to configure and manage when and to whom a report that you own is emailed

Page location

Data Explorer > Settings > Delivery

Procedures

Manage deliveries from others

NOTE If a report is delivered to you at an email address outside of the email address used for you in Webex WFO, you cannot opt in or out of delivery to that address. This feature is available only for email addresses within Webex WFO.

- To discontinue receiving report deliveries set up by other users, select the **Opt-out** check box and click **Save**.
- To restart delivery, clear the **Opt-out** check box and click **Save**.

Manage your own deliveries

- To turn on a report's delivery, select the **On/Off** check box and click **Save**.
- To turn off a report's delivery, clear the **On/Off** check box and click **Save**.

Delete one of your own deliveries

- Select the delivery you want to delete and click  in the lower left corner of the **Your deliveries** panel, and then click **Save**.

Cancel changes you make to the page

- Click the **Revert** button to cancel any changes you make to the Delivery page. You must do this before you save your changes. After your changes are saved, you cannot revert them.

Related topics

- Set up report email delivery

Tag reports and dashboards with roles

If you want only users with a specific role to access a shared report or dashboard, you can tag it with the name of the desired role.

You can tag only reports or dashboards that you own. To become the owner of a report or dashboard shared with you, copy it (see Copy a report or dashboard).

NOTE If the role does not include access to Data Explorer, a tagged dashboard becomes the default homepage for people with this role.

Prerequisites

- Data Explorer permission—gives you read-only access to the Data Explorer asset browser page
- Content Publishing permission—enables you to share reports and dashboards that you own to sharing groups you belong to

Page location

Data Explorer or Data Explorer > Reports

Procedures

Tag a report or dashboard with a role

For roles created in QM or Analytics

PREREQUISITE

- The role was created on the Application Management > Roles page.

1. On the Data Explorer page, right-click the report or dashboard and select **Tag** from the drop-down list. The **Tags** window opens.
2. Enter **c1_role_** and then the name of the role.

   IMPORTANT The role name must match the name that your organization uses. A list of roles is available on Application Management > Global > User Configuration > Roles.

   To add a role whose name is one word, enter the name.

   EXAMPLE **c1_role_Agent**

   To add a role whose name is multiple words separated by spaces, enclose the tag in double quotes.

   EXAMPLE **“c1_role_East Coast Team Leader”**

   To add multiple roles at the same time, enter them one after the other separated by a space.

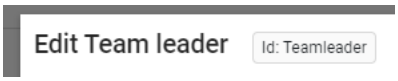
   EXAMPLE **c1_role_Evaluator “c1_role_East Coast Agent”**
3. Click **Add Tag**.
4. Click **OK**. The **Tag** window closes.

For roles created in WFM

Step 1: Find the role ID

PREREQUISITE The role was created on the WFM > Permissions page.

- On the Permissions page, click **Edit** (the pencil icon) next to the role. The **Edit [role name]** window opens. The role ID is at the top of the window next to the role name.



Step 2: Tag the report or dashboard with the role ID

1. On the Data Explorer page, right-click the report or dashboard and select **Tag** from the drop-down list. The **Tags** window opens.
2. Enter **wfm_role_** and then the role ID.

   EXAMPLE **wfm_role_Teamleader**

   To add multiple role IDs at the same time, enter them one after the other separated by a space.

   EXAMPLE **wfm_role_Teamleader wfm_role_Agent**
3. Click **Add Tag**.
4. Click **OK**. The **Tag** window closes.

Search the asset browser by tag

You can search the asset browser by any tag. If you are searching by product tag, you can only see tags for products you are licensed to use. For example, if you only have a QM license, you will only see predefined items that have a QM tag, not items that have a WFM or an Analytics tag.

NOTE Depending on the WFM license you have, WFM fields are tagged with WFM (for new WFM) or CWFM (for classic WFM).

Prerequisites

- Data Explorer permission—gives you read-only access to the Data Explorer asset browser page

Page location

Data Explorer or Data Explorer > Reports

Procedures

Search for reports and dashboards by tag

1. On the asset browser page, click the search icon, and then select **Search tags**.
2. In the search field, type the desired tag. Data Explorer shows only reports and dashboards tagged with this value.

> **NOTE** If the tag name is multiple words separated by spaces, enclose the name with double quotes. For example, to search for **Agent East Coast**, enter **"Agent East Coast"**.

Export a report

Data Explorer allows you to export reports. Each report page has an **Export as** button. This allows you to export the data from a report in CSV or XLSX format.

> **IMPORTANT** To export the results of a report, you must save the filter criteria and any other edits before exporting.

Prerequisites

- Data Explorer permission—gives you read-only access to the Data Explorer asset browser page

Procedures

Export a report

1. Click the name of the report in the asset browser. The report page opens.
2. Click **Export as**. The **Export Report** dialog box opens.
3. Select the file format you want for the export.
4. Click **Next**. When the data is ready, a download link appears.
5. Click the link to download the file.
6. Click **Close** after your download is complete.

Create a dashboard

A dashboard is a collection of panels—reports, lists, images, widgets, and webpages—that share a common theme or focus and can provide a high-level picture of a business situation. Dashboards are generally created to track business changes, watch for warning signs, or monitor progress.

BEST PRACTICE Before you create a dashboard, you should know what content you want to put on it and how that content will be arranged. The reports you want to include should already have been created. You might want to sketch out your dashboard design before you start so you have a plan to follow.

Create a new dashboard

1. On the Data Explorer **asset browser** page, click the **New Dashboard** button. The dashboard designer opens with the Dashboard Control visible. The dashboard designer is where you add all the elements that make up your new dashboard. It has a grid to help you align and arrange panels.
2. In the **Dashboard Control**, click **Page Settings**. Enter a name for the new dashboard in the **Title** field and click **Save**.

   The dashboard designer view closes and the new dashboard is displayed with the title in the upper left corner. It is now also listed in the asset browser's list of dashboards.

Edit your new dashboard

1. If you just saved your new dashboard with a name, it is already displayed on your screen. If you haven't worked on it recently, locate it in the list of reports on the asset browser page.
2. Click **Edit Dashboard** in the upper right corner of the dashboard to open the dashboard designer.

   You are now ready to add content to the dashboard using the Dashboard Control.

About the Dashboard Control

The Dashboard Control enables you to add various types of content to a dashboard and configure how the dashboard looks. It includes 4 controls.

Add Panels Control

The Add Panels control is the primary way to add content to your dashboard. A panel is a container for specific kinds of content:

- Content panels—lists, reports, and web pages
- Styling panels—images and text
- Parameter controls—compact member picker, member picker, number entry, text entry, and time period picker
- WFM and QM widgets

Parameters Control

The Parameters control links (“binds”) a parameter control panel with the report that parameter control affects. For example, if you have a report that contains data for multiple agents, a Member Picker parameter control can be linked to that report so you can select which agent’s data you view on the dashboard.

Grid Settings Control

The Grid Settings control enables you to change the grid in the dashboard designer. You can add or remove rows and columns, and change the spacing between grid lines.

Page Settings Control

The Page Settings control enables you to configure how your dashboard looks. You can configure the header, the footer, borders, the background, and a navigation bar for the top of your dashboard.

Add a panel

Panels contain the data you want displayed on your dashboard. The data they contain can come from inside or outside of Data Explorer:

- Reports, parameters, and widgets come from inside of Data Explorer
- Web pages, lists, text, and images come from outside of Data Explorer

Add a panel to the dashboard

1. In the **Dashboard Control**, click **Add Panels**.
2. In the **Panels** dialog box, click the type of panel you want to add. Your cursor changes to a cross  .
3. On the dashboard grid, drag the cursor to draw a new panel, using the grid to help position and size it.
4. In the upper right corner of the panel, click **Edit > Properties**.
5. In the **Properties** dialog box, select the content for the panel and configure how you want the content to appear and behave.
6. Click **Apply**.
7. Click **Save**.

Types of panels

Content panels

List panel

A list panel lets you display a selected list of reports and dashboards. This helps the dashboard user to quickly access those reports and dashboards without having to search the asset browser for them.

The list panel properties dialog box has 2 tabs.

- The **General** tab lets you configure how the list panel looks. You can add a margin, borders, and a background color, and enter a title for the list. You can also specify if you want a preview of the list item, and when that preview appears. The preview is a tooltip that contains the name of the item, the date it was created and last updated, and who owns it.
- The **Selection** tab is where you set the filters that determine the contents of the list.

Select the reports and dashboards to appear in the list

1. On the **Selection** tab, click the **Add Filter** icon  under the top pane. The two fields under the pane become enabled. These fields are your filters.
2. From the first field, choose how to identify the reports and dashboards you want to appear in the list. The second field changes depending on your selection in the first field.
    - If you selected Name, Description, Tags, Shared To, or Owner in the first field, the second field becomes a text field. Enter a string to search reports and dashboards for those that contain that string.
    - If you selected Updated, Modified, or Created in the first field, the second field becomes two fields used to set a relative date range.
    - If you selected Type or Select Reports & Dashboards, the second field becomes a list you choose from.

    Your filters are listed in the top pane. You can add more than one filter.

    > **NOTE** As you add filters, a preview of the list displays. If the combination of filters isn't working, and you need to remove a filter, select it and click the **Remove Filter** icon  .

3. In the **Show** section, select the information you want listed for each report and dashboard in the list.

4. (Optional) In the **Sort 1** and **Sort 2** sections, select a primary and secondary sort field and specify if it is ascending or descending.
5. Click **Apply**.

Report panel

A report panel displays a chart or table that was created in the report designer.

The report panel properties dialog box has 3 tabs.

- The **General** tab lets you configure how the report panel looks. You can add a margin, borders, and a background color, and enter a title for the report.
- The **Selection** tab is where you select the report you want to display.
- The **Behaviour** tab controls how the report behaves on the dashboard. There are 4 controls on this tab:

    a. **Zoom Behaviour**—If you choose the **View/edit report** default option, the view/edit report icon  is enabled on the title bar. When you click the icon, the report opens in the report designer window where you can edit it. If you choose the **Open report full screen** option, when you click the view/edit icon, the report opens full-screen in read-only mode.

    > **NOTE** You must enable **Show title bar** on the **General** tab for the icon to be visible.

    b. **Export Behaviour**—If you choose the **Export enabled** option, the **Export report** icon  appears on the title bar. When you click the icon, the report downloads to your computer as a CSV file.

    > **NOTE** You must enable **Show title bar** on the **General** tab for the icon to be visible.

    c. **Report Appearance**—If you choose **Draw Report Background**, the color you set as the report background will be visible in the panel.

    d. **Automatic Refresh**—At this time, this option is not available.

A parameter panel is often used in conjunction with a report panel. Parameter panels contain specific filters for reports. When they are linked together, you use the parameter panel to filter the information that the report panel displays. For more information, see Add a parameter.

Webpage panel

A webpage panel lets you display a webpage on the dashboard. The webpage can be on your internal intranet or the external internet.

The webpage panel has 2 tabs.

- The **General** tab lets you configure how the webpage panel looks. You can add a margin, borders, and a background color, and enter a title for the webpage.
- The **Location** tab is where you enter the URL for the webpage you want displayed on the dashboard. You must enter the full URL, including **HTTP** or **HTTPS**.

Styling panels

Image panel

An image panel lets you place an image on the dashboard. The image must be located on a server where all users have access to it, not on a local machine.

The image panel has 2 tabs.

- The **General** tab lets you configure how the image panel looks. You can add a margin, borders, and a background color, and enter a title for the image.
- The **Image** tab is where you enter the URL for the image you want displayed on the dashboard. You must enter the full URL, including **HTTP** or **HTTPS**. You can control the image scaling and its vertical and horizontal position within the panel.

  BEST PRACTICE Select **Preserve Aspect Ratio** to prevent the image from becoming distorted.

Text panel

A text panel lets you place text on the dashboard.

The text panel has 2 tabs.

- The **General** tab lets you configure how the text panel looks. You can add a margin, borders, and a background color, and enter a title for the text.
- The **HTML** tab is where you enter the text. Type your text in the pane, select it, and then apply color and styles to the selected text using the style ribbon. The foreground and background colors you can set using the style ribbon are for the text only. The panel background color is set on the **General**

tab.

> **NOTE** The text you enter is not visible in the panel until you save your changes and view the dashboard. Until then, you see only the panel background color you have selected.

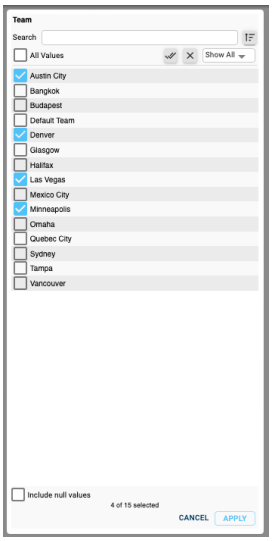
Parameter controls

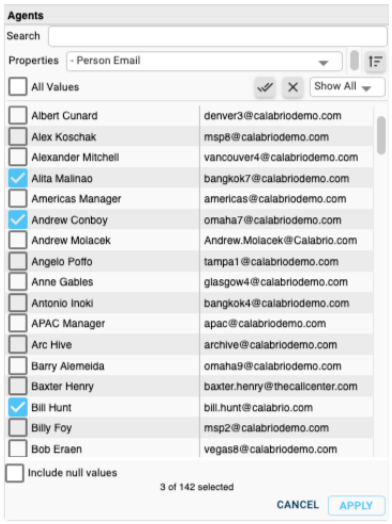
A parameter control panel works in association with a report panel and a parameter. The parameter control panel and the report panel are bound together when the parameter is configured. Create the report panel and the parameter control panel first, and then configure the parameter.

For more information on how these three elements work together, see Add a parameter.

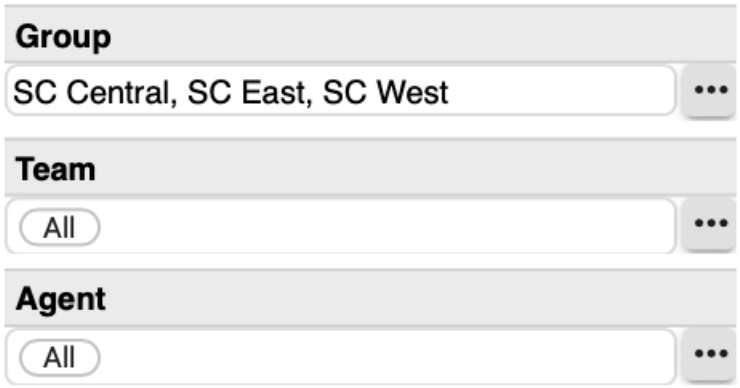
There are 5 different parameter controls to choose from.

- **Member Picker**—This control allows you to select one or more items to filter your report by. The control shows the possible items in a scrollable list.



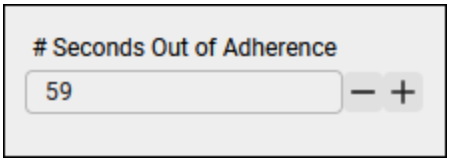


- **Compact Member Picker**—This control is a small version of the regular Member Picker that takes up less space on a dashboard. You choose one or more items to filter by from a popup dialog box that closes when you apply your filter items.

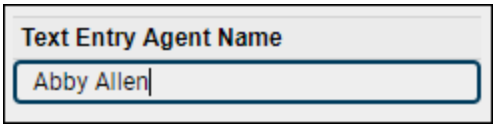




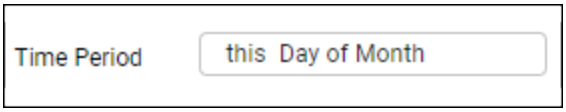
- **Number Entry**—This control lets you set a specific number to filter the report by. For example, you might have a report where you want to show which agents are more than a certain number of seconds out of adherence. You can change the number of seconds out of adherence with this control.

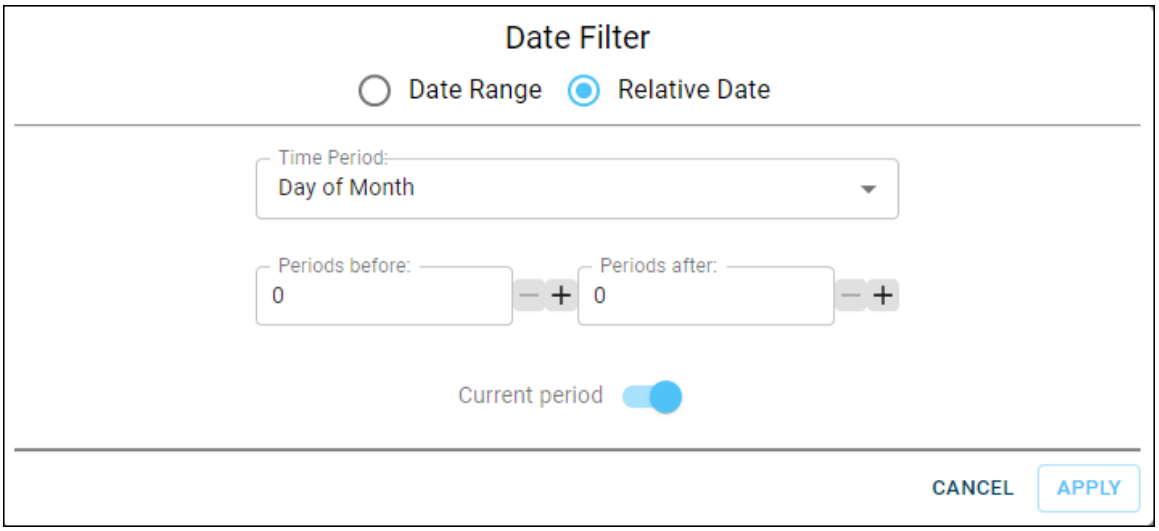


- **Text Entry**—This control lets you filter by a specific text string. For example, you might want to see calls taken by Abby Allen, so you enter **Abby Allen** in the entry field. You must type the exact text string in order to get results. The filter returns no results on partial strings, for example, if you enter **Allen** instead of the complete string **Abby Allen**.



- **Time Period Picker**—This control lets you select a specific date, a date range, or a relative date (for example, the last 7 days from today) to filter the report data. The control itself is a field. When you click in the field, a Date Filter dialog box opens where you configure the time period. Your filter is summarized in the control's field.





QM and WFM widgets

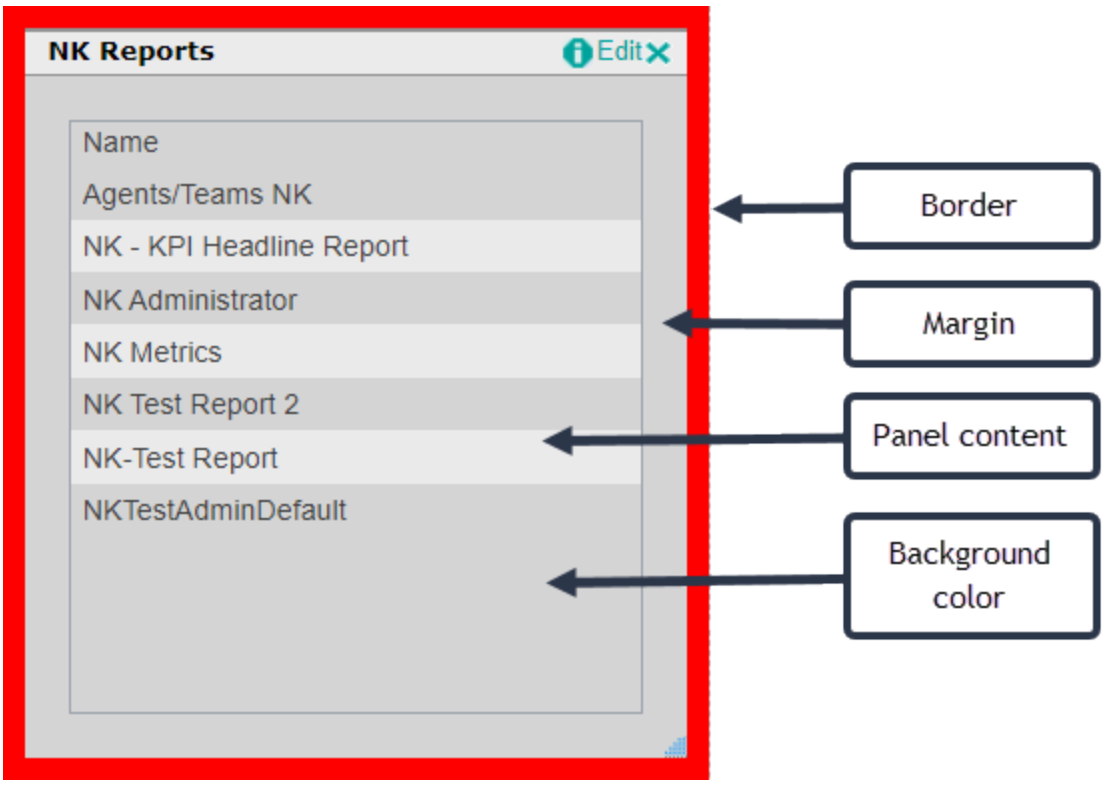
The QM and WFM widgets are preconfigured reports that display different types of data and can be added to your dashboard like any other panel. For more information on these widgets, see Available QM widgets and Available WFM widgets.

About appearance and color

The **General** tab in a panel's **Properties** dialog box allows you to configure how the panel looks on the dashboard. This includes setting a title bar, a margin, a border, and a background color.

This graphic shows a list panel in the dashboard designer. It has been configured to have the following:

- A title bar.
- A margin between the panel content and the border that is 20 pixels wide.
- A red border that is 10 pixels wide.
- A gray background. The background color applies both to the panel content area and the margin.



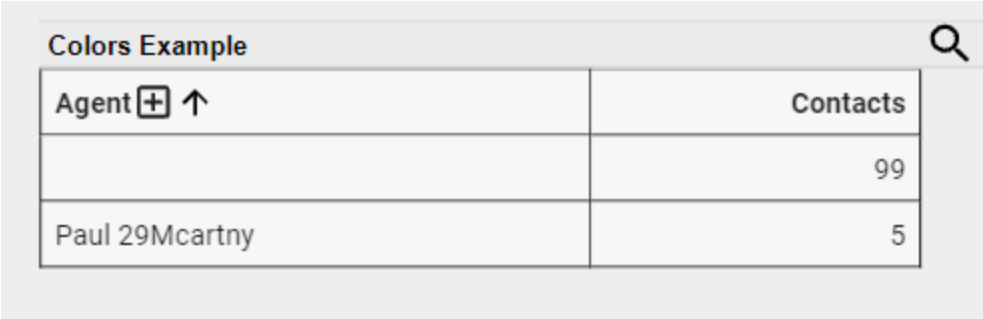
Dashboard and panel colors

You can apply color to your dashboard and its panels from various places—at the dashboard level, the panel level, and the panel content level. Each of these levels is a layer going from general (the dashboard level) to the specific (panel content level). A specific level overrides a general level. The order of levels from most general to most specific is as follows:

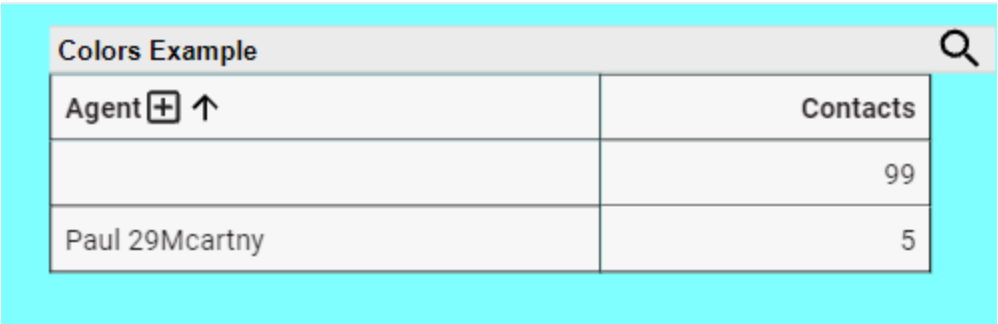
1. Dashboard background
2. Panel background
3. Panel content background
4. Panel content

EXAMPLE

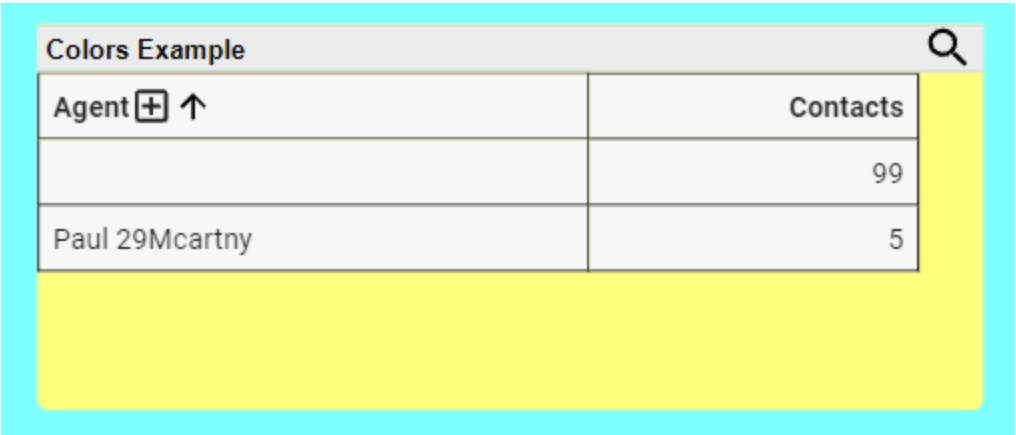
To illustrate dashboard and panel colors, let's place a simple report on a dashboard. No colors have been set at any level at this point—the default colors (a pale gray for the dashboard, and white for the report content) are used.



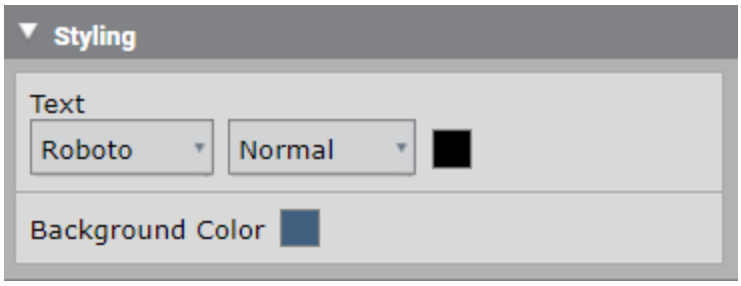
Now let's apply a color to the dashboard. This is the lowest and most general layer for color. We do this from **Page Settings** in the Dashboard Control. On the **General** tab, set the dashboard background color to light blue. The report content remains white.



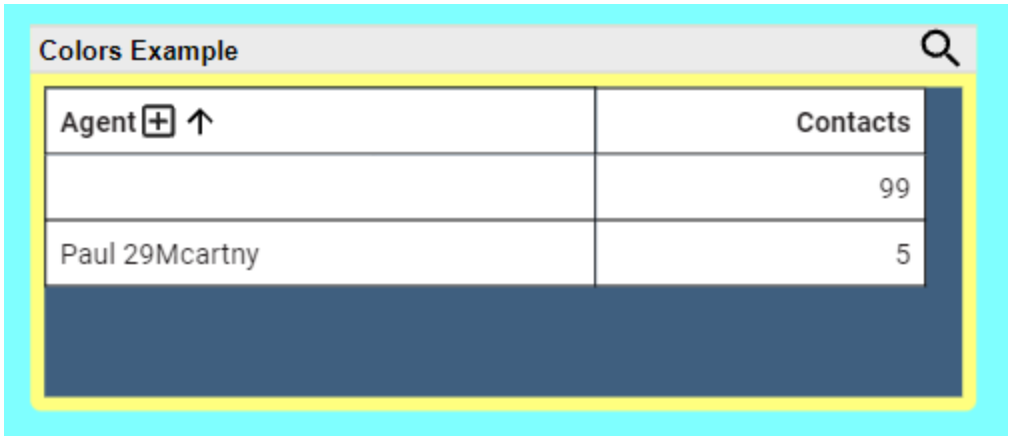
Next, let's apply color to the report panel. We do this from the **General** tab in the panel's **Properties** dialog box. Set the panel's background color to yellow. The dashboard remains light blue, the panel becomes yellow, and the report content remains white.



Next, we will apply color to the panel content background. Do this in the **View** tab of the **Question** panel where you create your report. Configure the background color using the **Styling** control. We set the background color to dark blue.



This results in the dark blue report background overlaying the yellow panel background. You can still see the panel background because we set a margin of 6 pixels. If there was no margin set, no yellow would be visible.

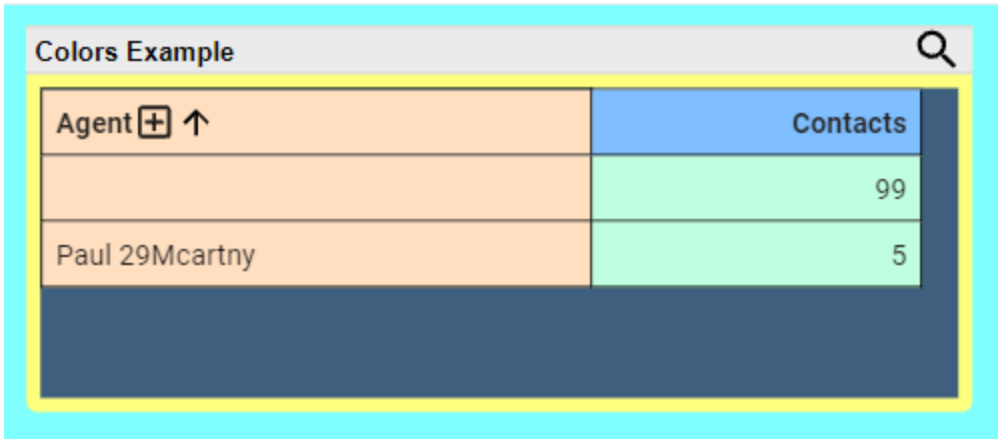


NOTE You must also enable **Draw Report Background** on the **Behaviour** tab of the report **Properties** dialog box for the background color to be visible.

Next we will apply color to the panel content. Do this in the **View** tab of the **Question** panel, just like the panel content background. Depending on which view you choose for your report, there are various controls that can apply color. In this example, we used the **Table Style** control. We set colors for the table's row headings, column headings, and cells:



The final result is this.



BEST PRACTICE This is an exaggerated example of colors in a dashboard and a report. Use color sparingly. Using the default color setting at most levels results in a more pleasing dashboard appearance.

Add a parameter

A parameter is a means to refine the data that is shown in a report. Parameters belong to the dashboard that contains the report, and are linked (bound) to filters in the report.

For example, you might have a report that displays evaluation scores for a specific contact center. This report shows all evaluation scores for all teams and all agents on those teams, and it is long and difficult to read. However, if you add parameters, you can narrow down what you see in the report. For example, you can choose a specific date or date range and just the agents on one team, or one agent.

Parameters can be bound to one or more reports on the dashboard. For example, a parameter that allows you to select a group might be bound to both a tabular report and a graphical report. When you select the desired group using the parameter control, both reports reflect your choice.

There are 4 things that must be completed in order to add parameters to a dashboard.

1. **Add the desired filters to the report**—Your report must be configured with the filters you are going to use, and those filters must be changed to parameters. See "Add one or more report parameters" in Set a filter for more information on how to do this when creating your report.
2. **Add the report to the dashboard**—Add a panel to your dashboard and configure it to contain your report. See Add a panel to learn how to add the report and what kind of panels are available to use.
3. **Add the parameter controls to the dashboard**—A parameter control is a type of panel and is added to your dashboard similarly to how you add the panel that contains your report. See Parameter controls to learn about the kinds of parameter controls that are available.
4. **Bind the parameter controls to the report**—Once your dashboard has the report and all the parameter controls on it, it is time to connect (or bind) the parameter controls to the report using a parameter in the dashboard. This can be done automatically with the **AutoBind** feature, or manually.

Automatically bind the parameter controls to the report

The AutoBind feature discovers available report parameters in dashboard content panels, generates the necessary dashboard parameters to match, binds them together as appropriate, and then adds and binds pickers to those parameters.

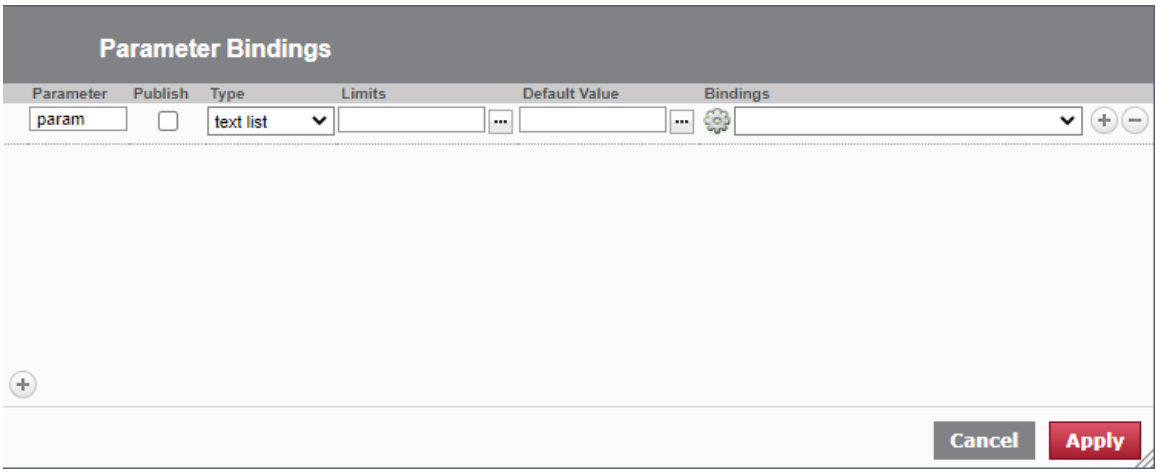
1. Click **Parameters** in the **Dashboard Control**. The **Parameter Bindings** dialog box opens.
2. Click **AutoBind** to generate a list of recommended parameters and bindings for this dashboard. You can modify this list if necessary.

   NOTE If you click **AutoBind** again, it replaces any parameter or binding modifications with the recommended parameters and bindings.

3. Click **Apply**.

Manually bind the parameter controls to the report

1. Click **Parameters** in the **Dashboard Control**. The **Parameter Bindings** dialog box opens.
2. Click **Add a new parameter**  in the lower left corner of the dialog box. A new parameter line is added.



3. In the **Parameter** field, enter a name to identify the parameter.
4. Select the **Publish** check box, if required. This check box ensures that the parameter is visible outside of the application. Select the check box if you want to be able to set the parameter value using a URL or API, so that you can link the dashboard from another report or dashboard.
5. In the **Type** field, select the type of data the parameter is.
6. In the **Limits** field, select a limit. The Limits field shows what subject and subject property the parameter is bound to in the data model.
7. In the **Default Value** field, add a value. You can look up certain user attributes and use them as Default Values in your parameters so that your dashboards automatically filter based on that user information. This look-up feature uses the uattr Substitution Variable in the format [uattr [variablename]]. Some examples are:
    - WFM_PERSON_ID restricts dashboards so that the agents only see their own information.
    - CALABRIO_PERSON_ID retrieves the value for the current user's PersonID in Webex WFO.
    - indicee.display_name retrieves the current user's first and last name.

    > **NOTE** A Default Value specifies any value that you must use as the initial filter for the parameter and corresponds to the Type and Limits fields previously set. If no value is specified, Data Explorer chooses the value set in the first report bound to the parameter. It is best practice to set a Default Value for all parameters. Use an asterisk (*) to specify All Values from your Limits binding. This selects all valid entries from the Subject. Use the keyword NULL to include all null values from the Limits binding.

You can combine these together as *+NULL to ensure that you include all data from the Limits binding. This is important for complex dashboards because it indicates that the engine should bypass this filter if no specific values are chosen. This will speed up processing of your dashboards. All dashboards execute their queries the moment you open the dashboard. The default values dictate the initial setting for each of the filters bound to the parameters and those filters in turn limit the information returned by the queries in the reports. We recommend setting a narrow window for the default date range to allow the dashboard to load quicker.

8. In the **Bindings** drop-down field, select the name of the filter you set as a report parameter. The drop-down list shows the available filters. They are identified with the report parameter name and the report name, like this: '<report parameter name>' on "<report name>"
9. Click  to the right of the **Bindings** field to add a second Bindings field below the first.
10. In this second **Bindings** drop-down field, select the name of the parameter control you want to use to filter the report. The drop-down list shows the available parameter controls. They are identified with the collection displayed in the parameter control (for example, "members" or "time period") and the parameter control name, like this: '<collection displayed in parameter control>' on "<parameter control name>". It is best practice to use a reportname_purposeoffilter format for the filter name and to rename the parameter control to a meaningful name.

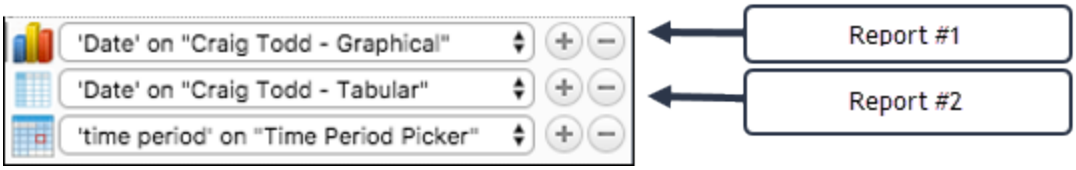
    NOTE It does not matter in which order you put the selections in the binding fields. You can put the report filter name in the first field and the parameter control in the second field, or the reverse. All that matters is that they are associated with each other.

11. Repeat steps 2 through 7 for as many parameter controls you have added to the dashboard.
12. Click **Apply**.

Bind a parameter control to more than one report

1. Add a parameter in the **Parameter Bindings** dialog box as in the above procedure.
2. In the **Bindings** drop-down field, select the report parameter name and report name for the first report you want to bind the parameter control to.
3. Click  to the right of the **Bindings** field to add a second Bindings field below the first, and select the report parameter and report name for the second report you want to bind the parameter control to. Repeat this step for however many reports you want to bind the parameter control to.

4. Click ⊕ to the right of the **Bindings** field to add another Bindings field, and select the name of the parameter control you want to use to filter the report.



5. Click **Apply**.

Available QM widgets

The following widgets contain statistics for QM.

- Contact Goal Progress widget
- Contact Totals widget
- Current Best Performers widget
- Evaluation Averages widget
- Evaluation Ranges widget
- Gamification Score widget
- Recent Evals Performed widget
- Recent Evaluations widget
- Recording Surveys widget

Prerequisites

- You need the View QM Dashboard permission to view your own data.
- You need the Administer Dashboards permission to edit dashboards. See Manage roles and permissions for QM, Analytics, and Insights.

Page location

Data Explorer > New Dashboard or Dashboard (in Dashboard list) > Add Panels > QM Widgets

Homepage > Edit Dashboard > Add Panels > QM Widgets

Contact Goal Progress widget

The Contact Goal Progress widget displays the current completion status of contact goal evaluations, calibrations, and reviews. You can choose to display data for all active goals for a single evaluator or to display data for all evaluators for a single goal.

Data Element	Description
Name	The name of the evaluator for the current goal.
Progress	Displays progress as one of the following metrics: ■ Completed—The number of contact goal tasks that the evaluator has completed out of the total required. ■ Remaining—The number of contact goal tasks remaining for the evaluator to complete.

Contact Totals widget

The Contact Totals widget displays the current contact totals for the selected group, team, or agents. The displayed data is based on results from a specific evaluation form or type of evaluation form. For more information about this report, see Contact Totals Graph.

Current Best Performers widget

The Current Best Performers widget displays the current list of your best performing agents.

Data Element	Description
Agent	The agent's first and last name.
Score	The score based on evaluated calls that contain the specified metadata value for the specified date range. A star appears for each scoring band. **EXAMPLE** For percentage-based scoring, four stars appear in the Score field if the agent's score is between 61 and 80.
ACD Status	The status of ACD agents. This is the current ACD Status in Workforce Management. **NOTE** This field appears only if you have both QM and WFM.

Evaluation Averages widget

The Evaluation Averages widget displays the current evaluation averages for the selected group, team, or agents.

Evaluation Ranges widget

The Evaluation Ranges widget displays the current evaluation ranges for the selected group, team, or agents. It displays the following data elements.

Data Element	Description
Below	The number of evaluated contacts that are below expectations.
Meets	The number of evaluated contacts that meet expectations.
Exceeds	The number of evaluated contacts that exceed expectations.

Gamification Score widget

The Gamification Score widget displays metrics based on the following performance categories:

- QM Quality Score
- WFM Adherence Score

NOTE The WFM Adherence Score is only available when WFM is activated.

In the Gamification Score widget, agents can see their current level and their progress towards the next level. They can choose which performance category to display: QM Quality Score or WFM Adherence Score.

When agents configure the Gamification Score widget, it displays a badge and a progress bar. The badge has a number next to it: the badge symbolizes the level the agents have achieved, and the number next to it indicates the level they have achieved for the performance category they have selected. The progress bar indicates how close agents are to the next level.

Supervisors and administrators can configure the Gamification Score widget to display a single agent (that would look identical to the agent's Gamification Score widget) or to display all agents for a specific performance category.

The Gamification Score widget displays the following data elements.

Data Element	Description
Group	The name of the group.

Data Element	Description
Team	The name of the team.
Agent	The agent's first and last name.
Badge	The badge that the agent has earned, which is based on the number of points that the agent currently has accumulated.

Recent Evals Performed widget

The Recent Evals Performed widget displays the results for the most recent evaluations that you performed for the selected group, team, or agents. You can select a point-based or percentage-based evaluation form from the Eval Form drop-down list.

Data Element	Description
Last	The point or percentage score for the last evaluation that you performed. The widget determines the last evaluation by the date and time of the evaluation.
Last 5	The average point or percentage score for the last five evaluations that you performed. The widget determines the last five evaluations by the date and time of the evaluations.

Recent Evaluations widget

The Recent Evaluations widget displays the results for the most recent evaluations that all evaluators performed for the selected group, team, or agents. You can select a point-based or percentage-based evaluation form from the Eval Form drop-down list.

NOTE When an agent moves from one team to another, the agent's contacts from the original team, and the evaluations associated with those contacts, stay with the original team. Contacts and their evaluations from the agent's second team stay with the second team.

Data Element	Description
Last	The point or percentage score for the last evaluation. The widget determines the last evaluation by the date and time of the evaluation.

Data Element	Description
Last 5	The average point or percentage score for the last five evaluations. The widget determines the last five evaluations by the date and time of the evaluations.

Recording Surveys widget

The Recording Surveys widget displays the results for the most recent post-call surveys that customers have submitted for the selected group, team, or agents. You can select one or all of the survey forms from the Survey Form drop-down list.

Data Element	Description
Last	The score for the last survey submitted. The widget determines the last survey by the date and time of the survey response.
Last 5	The average survey score for the last five surveys submitted. The widget determines the last five surveys by the date and time of the survey responses.

Available WFM widgets

The My Schedule widget is available for WFM users.

Prerequisites

- Agents need these permissions in order to view dashboards, their home page, and the My Schedule widget:
  - API Access > Read Schedule
  - Data Explorer
  - Home Page
- Supervisors need these permissions in order to add the widget to a dashboard and to view schedules in the My Schedule widget:
  - API Access > Read Schedule
  - Data Explorer > Content Creation
  - Home Page

Page location

Data Explorer > New Dashboard or Dashboard (in Dashboard list) > Add Panels > WFM Widgets

Homepage > Edit Dashboard > Add Panels > WFM Widgets

My Schedule widget

The My Schedule widget displays a summary of an agent's schedule for three days: yesterday, today, and tomorrow. By default, the schedule shows the current time (indicated by a dashed red line) and current activity (indicated by a white background and a black border on the left). The agent can scroll up and down to view all three days' schedules. The schedule activities are displayed in the agent's configured time zone. The format of date and time are determined by the locale configured on the Person page.

If the agent has no schedule for one or two of the three days, the view is empty for that day. If the agent has no schedule for all three days, the widget displays "No schedule."

Any schedule updates are reflected in the widget within five minutes of the update.

Customize a Data Explorer widget

When you move your pointer over a widget toolbar, the widget configuration button becomes available. If you click this button, a roll-out panel that contains configurable widget settings opens. Once you apply changes to the settings, the changes persist each time you log in. To hide the widget settings, click the icon again.

Prerequisites

You need the correct permissions to view and edit widgets. The required permissions vary by widget. See Manage roles and permissions for QM, Analytics, and Insights.

Page location

Homepage > Edit Dashboard > Add Panels > WFM Widgets or QM Widgets

> **NOTE** You need the Data Explorer permission to access the Data Explorer tab. With this permission, the following alternative path is available:
> Data Explorer > New Dashboard or Dashboard (in Dashboard list) > Add Panels > QM Widgets

Procedures

Add a widget to your dashboard

1. Navigate to your dashboard.
2. Click **Add Panels**.
3. Select your desired widget.
4. Click inside the grid and drag to draw the outline of the parameter panel.
5. Click **Save**. The **Preview Dashboard** page displays.
6. Click the **Settings** icon (the gear in the top right corner of the widget).
7. Configure the available fields as desired.

   NOTE Fields vary depending on the widget. See the field descriptions below for more information on all potential fields.

8. Click **Apply**.

Edit a widget

1. Click the **Settings** icon (the gear in the top right corner of the widget) while on the **Preview Dashboard** page.
2. Edit the available fields as desired.
3. Click **Apply**.

Field descriptions

The fields that can appear in the panel are listed below. Only the fields that apply to a specific widget appear in that widget's panel.

Field	Description
Agent	The name of the agent. The default setting for this field depends on your role: ■ If you are an agent and your role is limited in scope, your name appears in this field and the field is disabled ■ If your role has a broader scope, this field is enabled and you can

Field	Description
	choose an agent from the drop-down list ■ If you are an agent and your role has a broader scope, your name appears in this field and you can choose an agent from the drop-down list
Range	The date range for the historical information. The default range is: ■ Eight days for Service Queue Performance ■ One month for Agent Percentages, Average Time per Call, Agent Calls per Hour, Call Volume, Agent Time, Agent Time Distributions, Agent Time Totals, and Speech Statistics ■ The past six months for Contact Totals, Evaluation Averages, and Evaluation Ranges
Chart	The type of chart you want to appear in this widget.
Eval Form	The type of evaluation form or the name of a specific evaluation form.
Group	The name of the group. The default is determined by your role.
Team	The name of the team. The default is determined by your role.
Group By	How dates are grouped. The default setting is Day.
Series 1–8	The data elements you want to appear in this widget. Each widget contains a unique set of data elements, and the number of data elements varies depending on the widget.
Service Queue	The name of the service queue. This field only appears for supervisors.
Goal	The goal for the selected service queue. Select the check box to display the goal.
Bands 1–4	The bands determine the number of stars that appear in the Score

Field	Description
	field. For percentage-based scoring, the bands use integers from 0–100. The default value for each band is as follows: ■ Band 1 = 20 ■ Band 2 = 40 ■ Band 3 = 60 ■ Band 4 = 80 **EXAMPLE** If the agent scores 61 or higher, four stars appear in the Score field. If the agent scores between 41 and 60, three stars appear in the Score field. For point-based scoring, the bands use integers. The minimum value for this range is determined by the total of all minimum values that are assigned to questions. The maximum value for this range is determined by the total of all maximum values that are assigned to questions.
Metadata Key	The metadata associated with the score. The drop-down list displays all defined metadata keys. The metadata that appears in this drop-down list is defined by the administrator. The default value = All. Select a metadata key and value to filter scores based on specific metadata values.
Metadata Value	The value associated with the metadata key. Wildcards are supported. The asterisk wildcard (*) represents any number of characters and the question mark wildcard (?) represents one character.

Related topics

- Manage roles and permissions for QM, Analytics, and Insights
- Create a dashboard
- Add a report or parameter panel

Create your own reports with Data Explorer

Data Explorer allows you to create your own reports and dashboards. The Data Explorer page includes a list of default reports and dashboards that you can use as is, or use as templates to get you started on developing your own.

A report is a tool that you use to answer a business question. For example, you can create a report that tells you what your total sales were last year or how many contacts an agent transferred between June and August. Using Data Explorer, you can define the question that your report will answer.

Once you have report data that gives you targeted, useful information, you can configure a chart or table to present that information in a visual format that is easy to understand. Charts can display a single piece of information, like a headline, or show trends and relationships between several complex metrics.

Reports can be grouped by theme or subject in dashboards. Dashboards provide a wealth of information at a glance and can reveal new or hidden relationships between different kinds of data.

> **IMPORTANT** The amount and complexity of reports in Data Explorer dashboards can affect performance. For optimal performance, limit the number of complex reports included on your Data Explorer dashboards.

Create a question

Reports are the building blocks of Data Explorer that help you visualize trends in your data. You create a report by defining the question you want to answer and configuring the output so the answer is presented in a meaningful way. There are a wide variety of customizable charts and tables to choose from.

You use the Question panel to create a question. To start the process, break down the question into its individual parts:

- **What**—The measures (metrics) you want to understand. These are numerical fields that will have calculations performed on them, such as adding or averaging.

- **How**—How you want the measures grouped. These are text fields that are used as category-style groupings, such as agent ID number or queue name.
- **Filters**—The limits that you want the metrics to fall within, such as a time frame or maximum/minimum values.

EXAMPLE

You want to find out how many contacts that lasted longer than ten minutes were handled by each agent on the East Coast team during the month of March.

- **What** is the number of contacts (the measure).
- **How** is the agents on the East Coast team (the grouping).
- **Filters** limit the report to contacts longer than ten minutes and that were from the month of March.

NOTE As you create your question, the pane at the bottom of the Question panel states the question in plain language based on your selections in the What, How, and Filters sections.

Create a new report

In order to create a question, you need a report in which to put it.

Create and name your new report

1. On the Data Explorer home page, click **New Report** to display the report designer.
2. Click **Unnamed Report** in the title bar and enter a name for the new report.

Choose a measure

Decide what information you want your report to show. These numeric values are called measures.

There is a list of measures that you can choose from, or you can create your own custom measures. Multiple measures are often used in reports. For example, a report that shows contact duration in hours might also show the average contact duration.

NOTE

The Adherence % – Daily measure is computed after the close of the day and is then timestamped only with a date, and not a time. The engine assigns a time value of midnight UTC to it. Since reports are executed in the time context of the user running the report, there is a time shift by default, and adherence values can seem incorrect in the report.

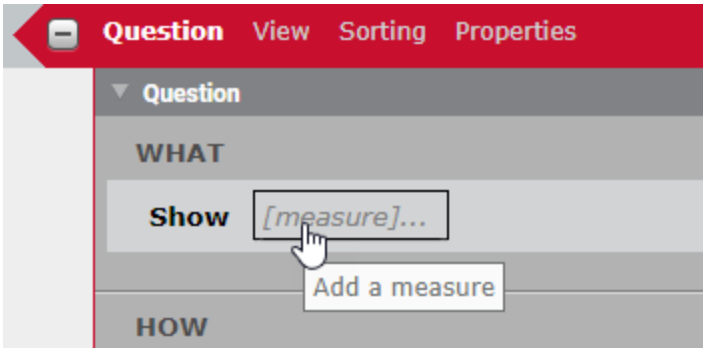
To adjust for this, you have several options:

1. Set the time zone for the report to UTC.
2. Set the time zone for the user running the report to UTC.
3. Apply the following custom formula to the report:

```
timeShiftValue([Adherence PCT],[Adherence Date], 'Hour', -8)
```

Configure measures for a new report

1. In the **What** section of the **Question** panel, click Show **[measure]**. The **Select Measure** dialog box opens.



   By default, **all** available measures are listed, but you can search, sort, and filter the list.

   - Click **By Tags** to view measures that apply only to various sources of data, such as Analytics or QM. Some measures have multiple tags and so appear in more than one tag list.
   - Click **Favorites**  (upper right of the list) to view only those measures you tagged as a favorite. To tag a favorite, click the box to the left of the measure's name in the list so a yellow star appears. Any measure you tag as a favorite will stay tagged from session to session.
   - Click **Sort**  (upper right of the list) to sort the list of measures in ascending/descending order. By default the list is in ascending order.
   - Enter the name of the measure you want to use in the **Search** field to find that field quickly.

2. Select the measure you want to include in the report from the list of available measures.

   You can also click **Custom** in the top right corner to create a custom measure. For more information about custom measures, see Create a custom measure.

3. (Optional) Customize how the measure will appear in the report by using the **Measure Configuration** panel at the bottom of the dialog box. Here you can configure the number or date format of the measure, how it is aggregated, and apply content attributes to it. For more information about configuring a measure, see Configure a measure's appearance.
4. Click **Add**.
   The measure you added is displayed in the Question panel, and another Show field is added below the one you completed. Use this field to add additional measures to your question.

   > **NOTE** If you want to configure a measure you have already added to the **What** section, click the measure to open the **Select Measure** dialog box again.

5. (Optional) Measures display as columns by default. Click **as columns** to switch to displaying them as rows.

Choose a grouping

After you have defined the topic of your question with the measure, determine how to group the information. The **How** question term is often the organization of people, places, things, and timeframes that provide real-world subjects or circumstances for the report. It is common to have multiple How subjects in a report.

Determine how the report will group the information

1. In the **How** section of the Question panel click Group **[grouping]**. The **Select Grouping** dialog box opens.

   There are two grouping options, **Subject** or **Time**. By default you see the Subject option. If you want to group by time or date, click **Time** in the upper right corner of the dialog box. You are also able to further refine the time grouping by period.

   > **NOTE** Just as you can with measures, you can narrow down the displayed subjects and times by tag or favorites, sort them in ascending/descending order, or search for a specific subject or time by name.

2. Choose the desired grouping, and then click **Add**.

   The grouping you added is displayed in the Question panel, and another **[grouping]** field is added below the one you completed. Use this field to add additional groups to your question.

   > **NOTE** If you select **with totals** in the Group section of the Question panel and select **Preserve Totals** when creating a visualization, the chart will display the total value as an additional column.

Set a filter

The final step of defining a question is choosing a filter. A measure alone can return a large amount of information. The filter serves to target the specific information you want to include or exclude in your report. You can select specific values to include or exclude, or you can set text comparison filters or range comparison filters to determine which range of values are included in your report.

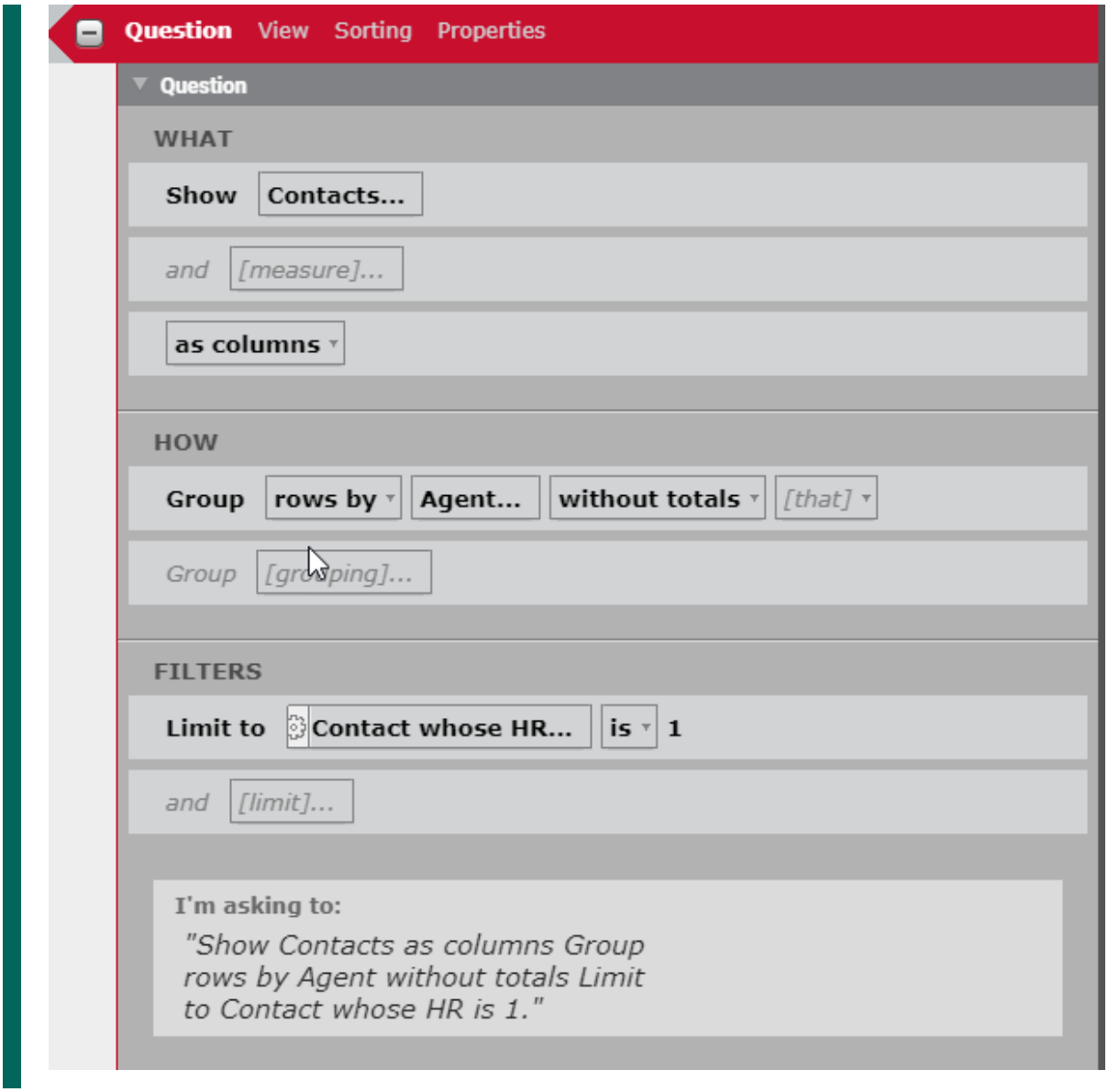
> **NOTE** Data Explorer reports on the last two years of data. If your system has a lot of historical data, you might find it useful to configure your filter before you configure your measures and groupings. This helps speed up displaying the report preview.

The filter section is also used to configure which subjects are used in conjunction with parameters on the dashboard. For example, if your report lists every agent in the contact center, but you want to be able view data only for a specific agent, the parameter allows you to select that agent and see only their data displayed in the report.

Include only certain values of a subject in the report

1. In the **Filters** section of the Question panel, click Limit to **[limit]**. The **Select Filter** dialog box opens.
2. Select a subject, and then select a field to filter the report by.
3. Clear the **All Values** check box, and select the check box for the values you want to include.
4. Click **Add** to filter the report.

> **EXAMPLE**
> You want to include only contacts that were tagged for HR in your report. You complete the **Select Filter** dialog box as follows.
>
> - In the left-hand pane, select **Contact**.
> - In the middle pane, select **HR**.
> - In the right-hand pane, on the **Select** tab, clear the **All values** check box and select the **1** (which means true or yes) check box.



Exclude certain values from the report

1. In the **Filters** section of the Question panel, click Limit to **[limit]**. The **Select Filter** dialog box opens.
2. Select a subject, and then select a field to filter the report by.
3. Clear the **All Values** check box, and then select the check box for one or more of the values that you want to exclude.
4. Click **Add**.

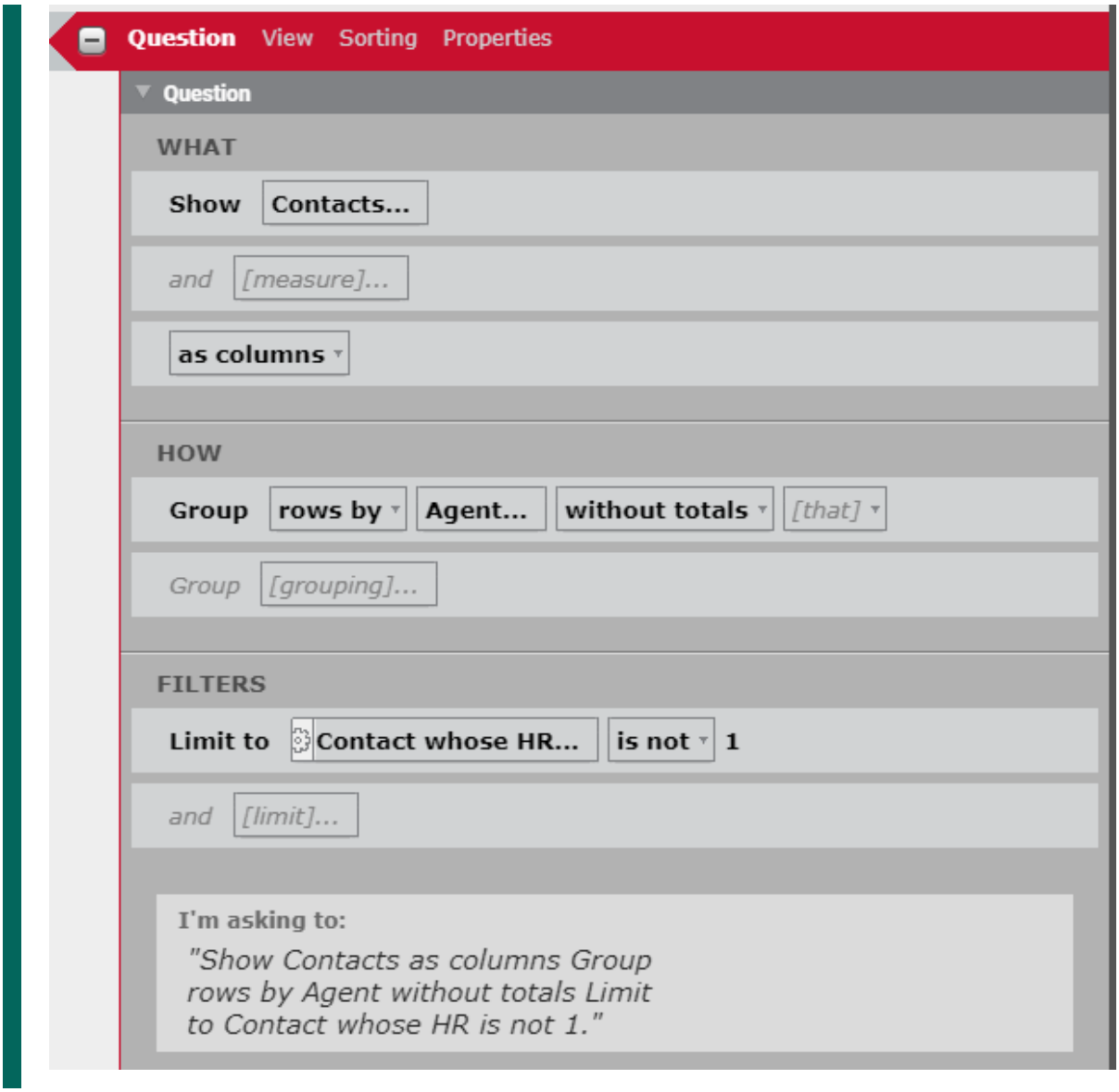
5. In the **Filters** section of the Question Panel, click the **is** drop-down list in the filter you created and select **is not** from the drop-down list.

   EXAMPLE

   You want to exclude contacts that were tagged for HR in your report. You complete the **Select Filter** dialog box as follows.

   - In the left-hand pane, select **Contact**.
   - In the middle pane, select **HR**.
   - In the right-hand pane, on the **Select** tab, clear the **All values** check box and select the **1** (which means true or yes) check box.

   In the **Filters** section of the Question panel, next to the filter you just added, change **is** to **is not** in the drop-down list.

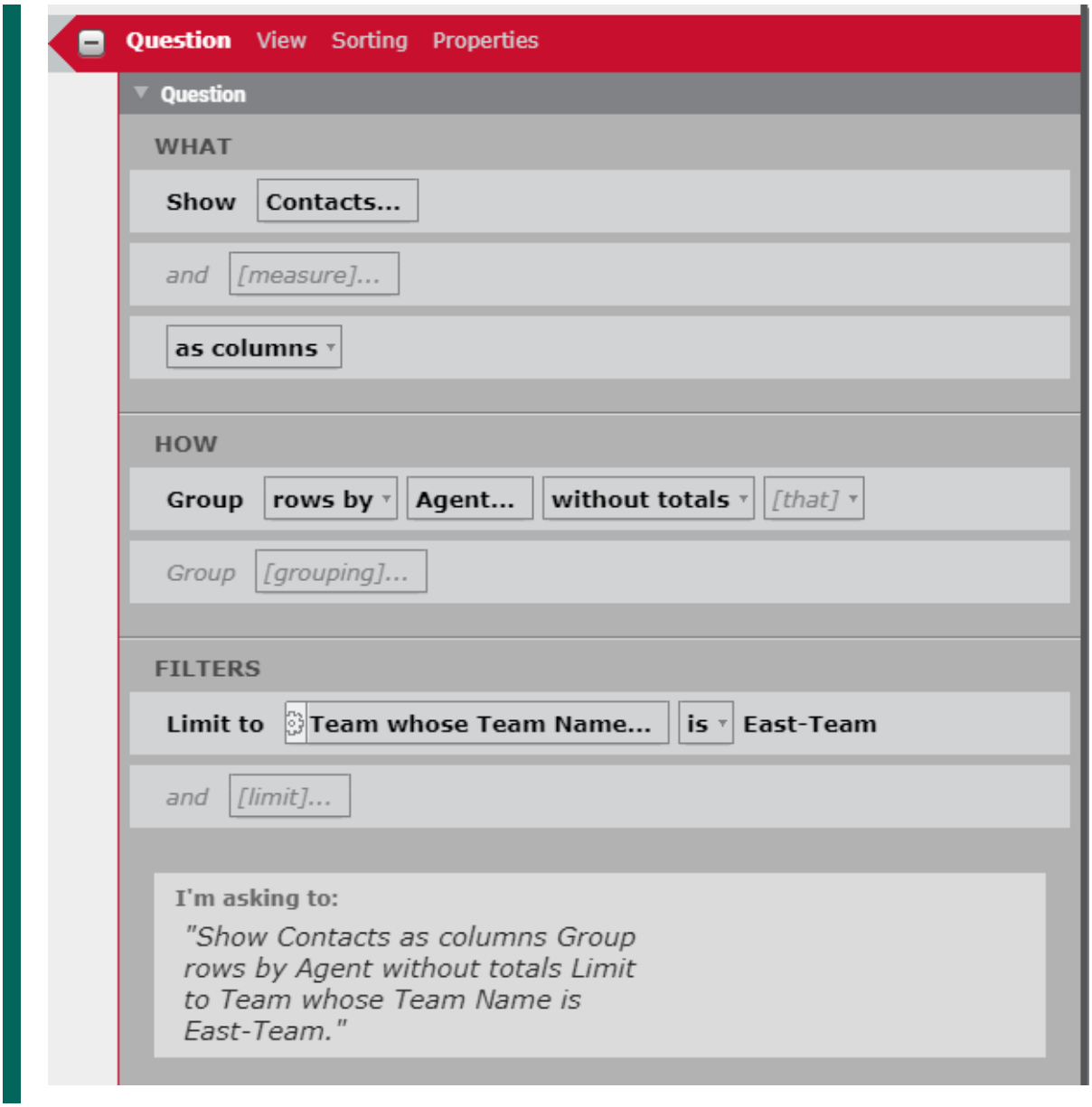


Include or exclude values using comparison filters

1. In the **Filters** section of the Question panel, click Limit to **[limit]**. The **Select Filter** dialog box opens.
2. Select a subject, and then select a field to filter the report by.
3. Clear the **All Values** check box, and then take one of the following actions:
   - Select the check box for the value to set it as a comparison.
   - On the **Specify** tab, enter a value in quotation marks to set as a comparison.

4. Click **Add**.
5. In the Filters section of the Question panel, click the **is** drop-down list in the new filter and select the operator you would like to apply to the value.

> **EXAMPLE**
> You want to include only agents who belong to the East Team in your report. You complete the **Select Filter** dialog box as follows.
>
> - In the left-hand pane, select **Team**.
> - In the middle pane, select **Team Name**.
> - In the right-hand pane, on the **Select** tab, clear the **All values** check box and select the **East-Team** check box. Alternatively, click the **Specify** tab and enter **"East-Team"** in the filter value pane.

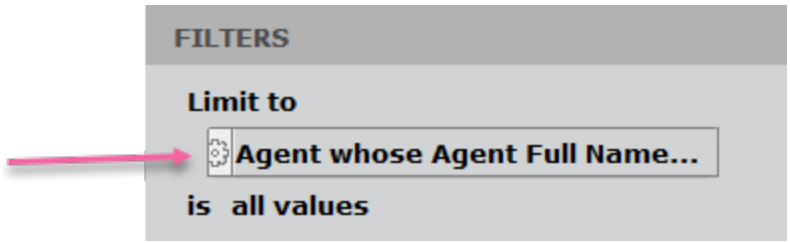


Add one or more report parameters

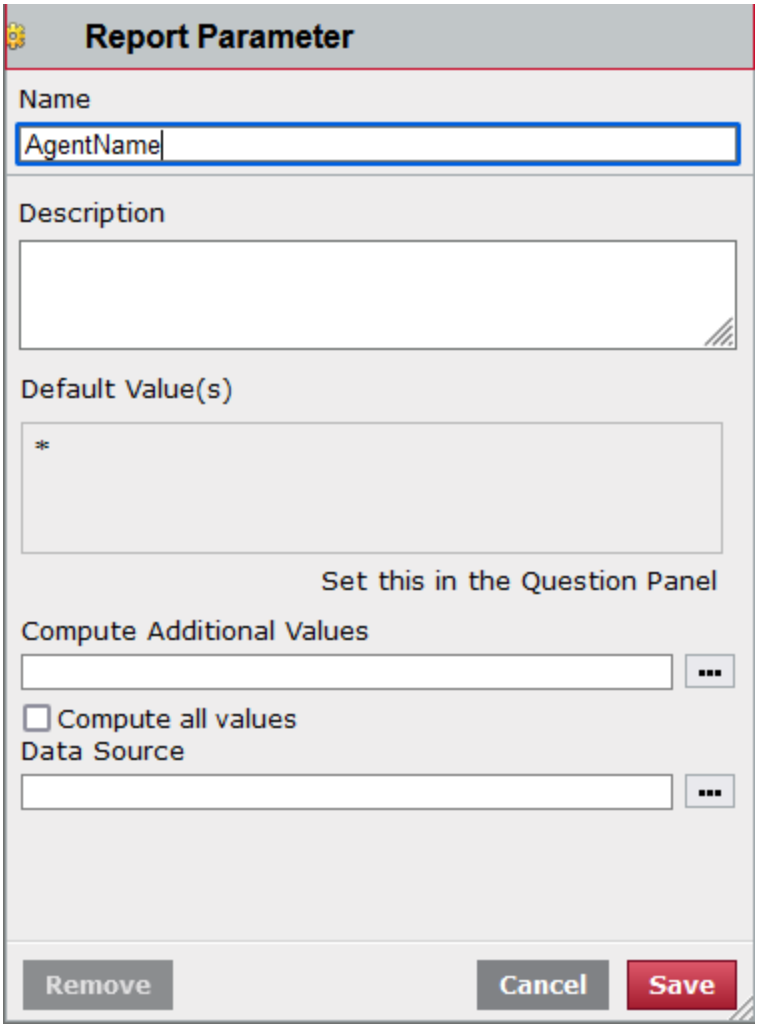
If you intend to use a parameter control such as a member picker to filter the data displayed in a report, you must add one or more report parameters to the report. For more information about using parameters with a report, see Add a parameter.

1. In the **Filters** section of the **Question** panel, click Limit to **[limit]**. The **Select Filter** dialog box opens.
2. Select a subject, and then select a field to filter the report by.

3. On the **Select** tab, select the **All Values** check box.
4. Click **Add**. The subject is displayed in the **Limit to** field.
5. To the left of the **Limit to** field, click the gear icon to open the **Report Parameter** dialog box.



6. In the **Name** field, enter a name for the parameter. The name cannot contain a space. All other fields are optional.



7. Click **Save**. Note that the gear icon has turned red, indicating that the parameter has been configured.
8. Repeat this procedure for any other filters you want to use in the report.

Filtering deleted forecast, adherence, and agent schedule records

By their nature, forecast, adherence, and agent schedule records are frequently changed. For example, an agent's schedule might be changed multiple times. Each time this occurs, a schedule record is deleted and a new one is created.

In the Data Explorer database, these records are not physically deleted. Rather, they are flagged as deleted, and the record remains in the database. This results in many records that are no longer relevant and might result in inaccurate reports if they are included. In this case, the records that are flagged as deleted should be filtered out of your report.

NOTE Bear in mind that there might be times when you want to include these flagged records in a report. For example, you might need to audit how many times a specific agent's schedule was changed. In such a case, you would not filter the deleted records from your report, because each record logs a schedule change.

Filter deleted forecast, adherence, and agent schedule records

1. In the **Filters** section of the **Question** panel, click Limit to **[limit]**. The **Select Filter** dialog box opens.
2. Select a forecast, adherence, or schedule subject, and see if the fields associated with that subject include any of these flag fields:
    - Agent Adherence Report IsDeleted
    - Schedule Activity IsDeleted
    - Forecast IsDeleted
3. If you locate one of these fields, select it. Clear the **All Values** check box and select **1** (1 = true or yes).
4. Click **Add**.
5. In the **Filters** section of the **Question** panel, click the **is** drop-down list and select **is not**.

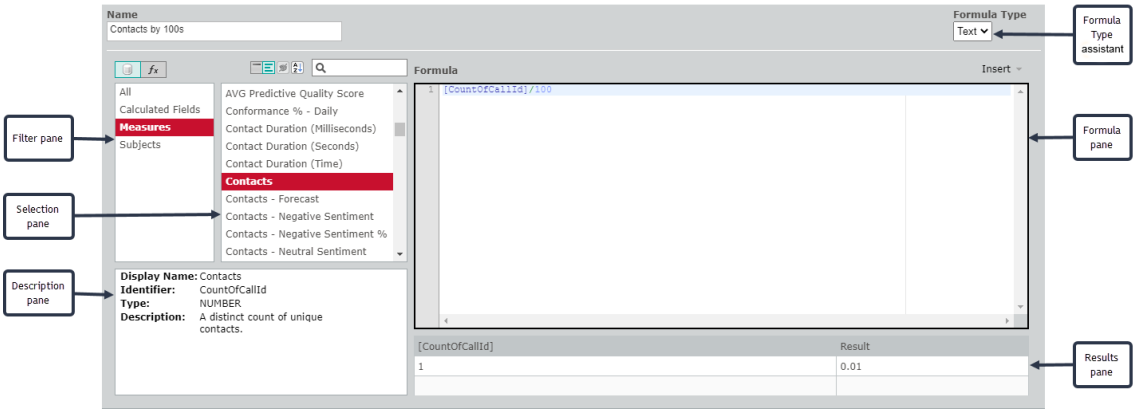
Create a custom measure

If you want to add a measure to a report that is not in the list of measures, you can create a custom measure by clicking **Custom** in upper right corner of the **Select Measure** dialog box.

Custom measures use formulas to alter measures and fields that already exist in the data model. You can create a formula by manually entering measures and operators into the Formula pane. The custom Create Measure dialog box includes lists of the available measures, operators, and references that you can choose from to build a formula.

The Create Measure dialog box for custom measures is made up of two sections: the Formula Editor panel at the top and the Measure Configuration panel at the bottom. For information on the Measure Configuration panel, see Configure a measure's appearance.

The Formula Editor is context-specific. It allows you to include only the data elements, functions, and other features for your formula that are appropriate for the measure you select.



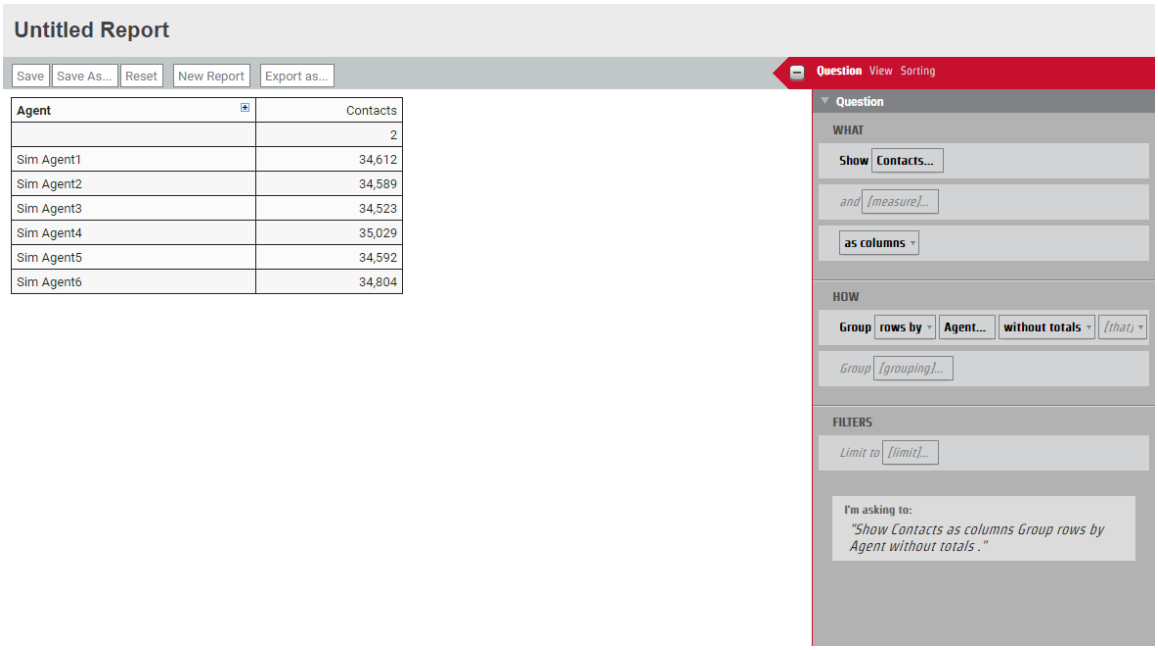
- The **Filter pane** contains the options you can use to narrow the number of data elements or functions displayed in the Selections pane. For example, if you select **Measures** in the Filter pane, only measures are listed in the Selections pane. Use the buttons above the Filter pane to toggle between data elements and functions. Data elements are the fields in the data library that are available for use in your formula, and functions are defined operational tasks.
- The **Selection pane** displays the elements or functions you can add to your formula. What is displayed depends on your selection in the Filter pane. Use the buttons above the Selection pane to toggle between measure or function display names and identifiers. You can sort the data elements or functions in ascending or descending order with the Sort button, and search for a specific data element or function with the search field.

  NOTE This button is not currently used.
- The **Description pane** displays information about the data element or function that you have selected in the Selection pane.
- The **Formula pane** displays the formula as you create it. This pane includes the data elements and functions you select and whatever other formula elements you enter manually.
- The **Results pane** attempts to compile your formula as you work and to display the result. It will display an error message if your formula contains errors.
- The **Formula Type assistant** drop-down list enables you to access assistants that help you create various types of formulas. The default is a text formula, but besides text you can choose from difference, ratio, scale, split, and time shift formula types. See Create a custom measure with a Formula Type assistant for more information.

Example of a custom measure

The Custom Measure function is a tool that can be used to create many different types of formulas with different levels of complexity. There are several ways to create a formula. The following example explains one way to create a custom measure.

For this example, let us say that you want to see a report that involves the number of contacts your agents handle. Your contact center receives large numbers of contacts, so the report would show each agent handling contacts that can number in the thousands every year. However, you use the report to find agents who are performing above or below the rest of the group, and seeing the exact number of contacts for each makes that difficult to absorb at a glance, as seen in this graphic:



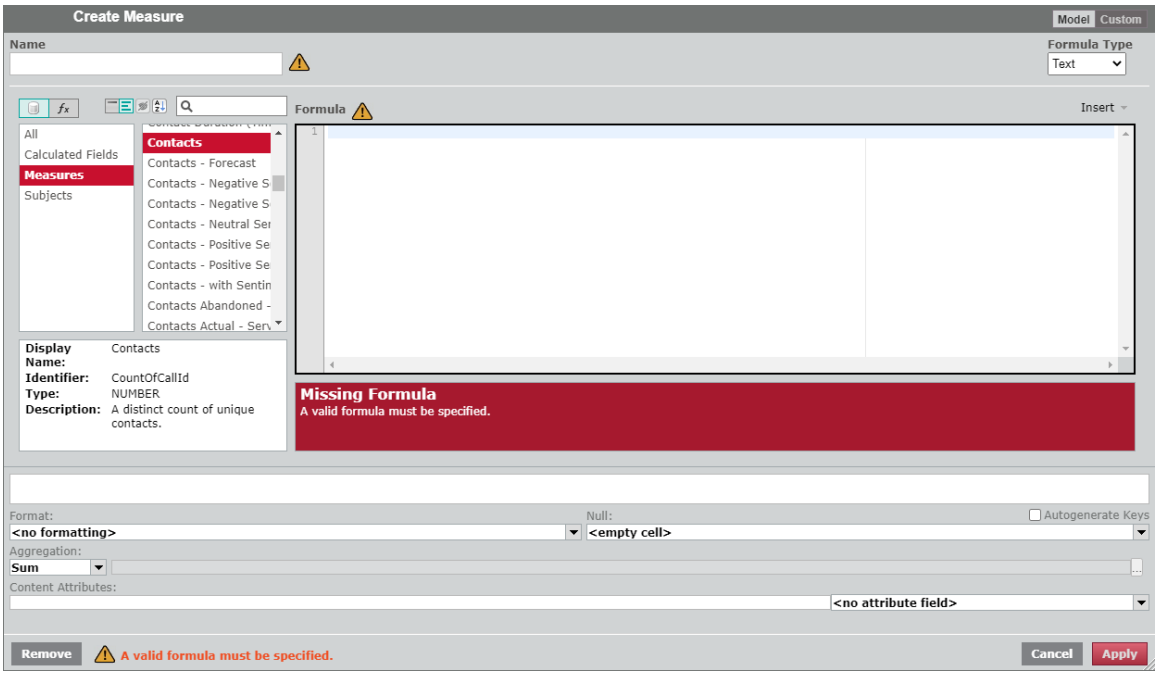
The way to solve this problem is to present the number of contacts as factors of 1,000 in order to see agent productivity at a glance. In this example we will show you how to create a custom measure that divides the number of contacts by 1,000.

Create a custom measure to divide contacts by 1,000

1. On the Question tab of the Question panel, click Show **[measure]**. The **Select Measure** dialog box opens.
2. Click **Custom**. The Create Measure dialog box opens. The text boxes will be empty, and several warnings will display in the dialog box.
3. Enter **Contacts by 1K** in the **Name** text box.

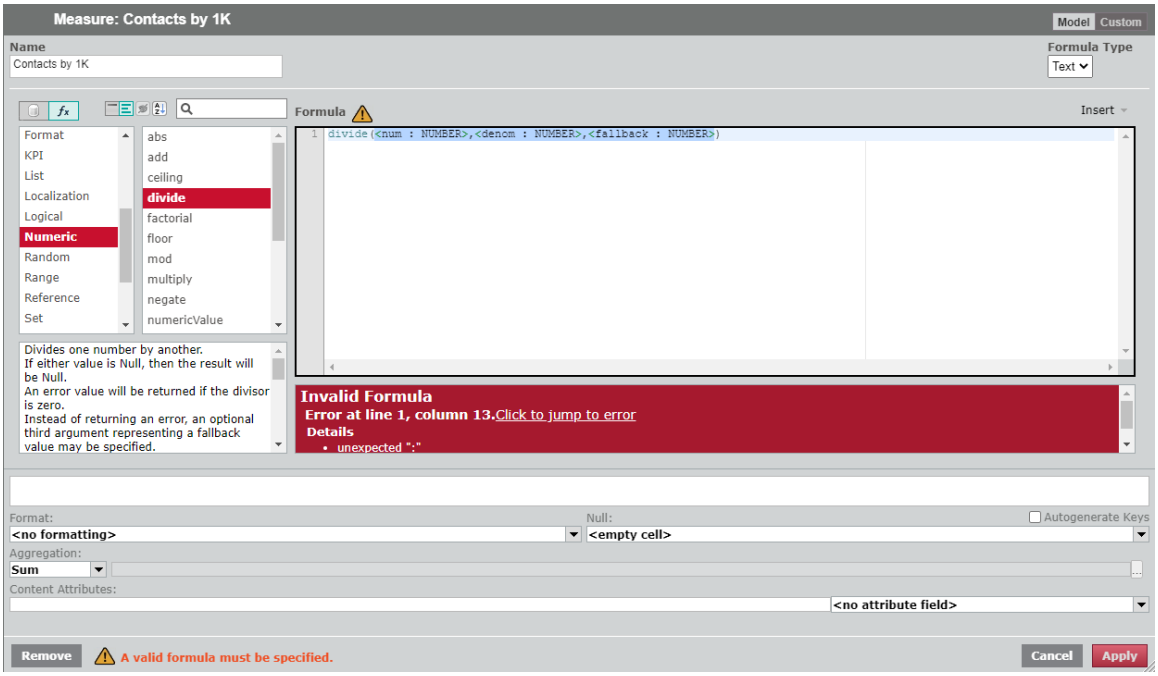
4. Locate and select the **Contacts** measure.

> **NOTE** You might need to clear the search field of an existing search string in order to see all results in the Selection pane.



5. To use the Divide function, click the **Data Elements/Functions** toggle so the **Filter** and **Selection** panes display functions.

6. Click **Numeric** in the **Functions Filter** pane, and then double-click **divide** in the **Selection** pane. The Divide function text is displayed in the Formula pane.

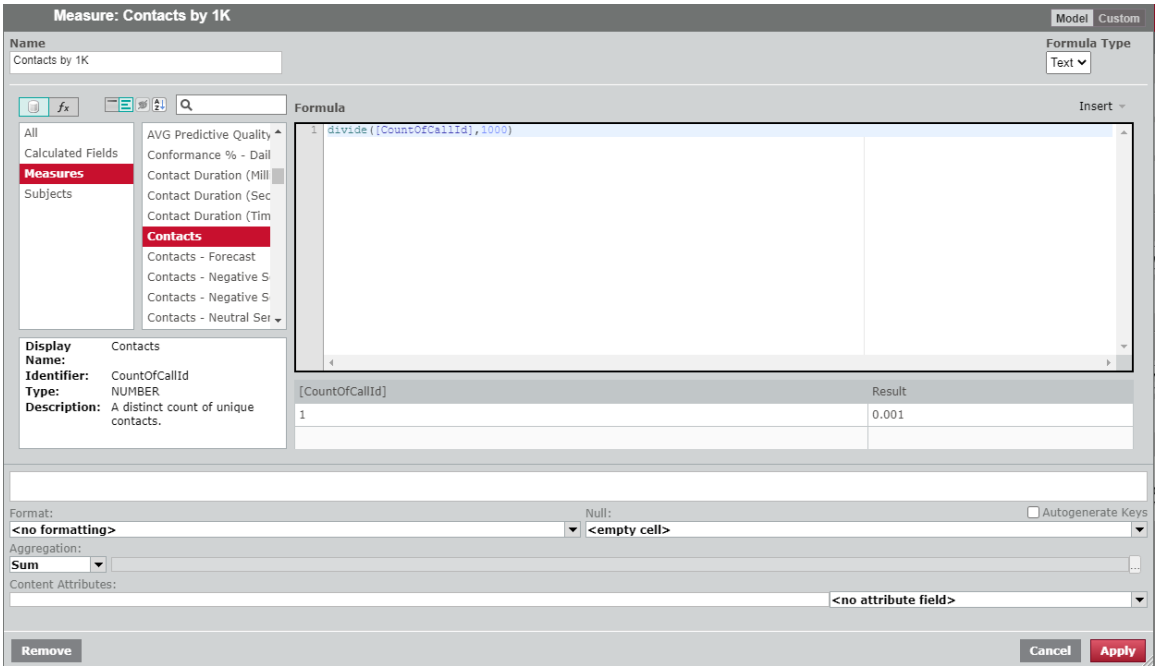


The Divide function text is an outline of the formula. You must replace the placeholder text with the values you want to divide in the order that they would appear in a mathematical equation.

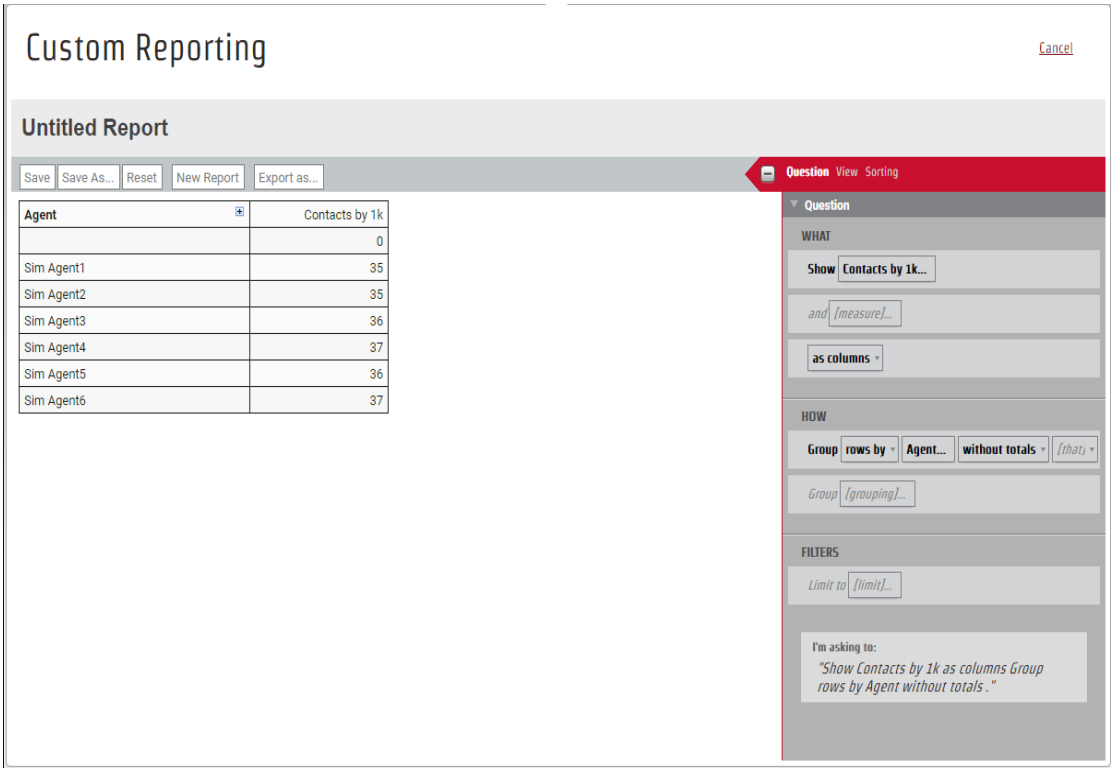
- <num : NUMBER> is the numerator, the number being divided. Replace this with the contact field name.
- <denom : NUMBER> is the denominator, the number you are dividing by. Replace this with **1000**.
- <fallback : NUMBER> is an optional value that is displayed if the formula results in dividing by zero instead of returning an error.

7. To replace `<num : NUMBER>` with the measure for the number of contacts, highlight **<num : NUMBER>** in the Formula pane.
8. Click the **Data Elements/Functions** toggle to display lists of data elements.
9. Click **Measures** in the **Data Elements Filter** pane, and then double-click **Contacts** in the **Selection** pane. The Contacts text appears in the Formula pane in place of **<num : NUMBER>**.
10. Delete **<denom : NUMBER>**, and type **1,000** in its place. The Results pane displays a sample of the calculation.

NOTE We have also deleted **<fallback : NUMBER>** from the formula, because we are not using this optional element.



11. To make the results display as a whole number, in the Measure Configuration section, select a format from the **Format** drop-down list that does not include any decimal places, such as **#,###**.
12. Click **Add**. Your new custom measure appears in the Question panel, and the new column in the table displays the number of contacts divided by 1,000.



NOTE As previously mentioned, the Create Measure dialog box includes several options for creating formulas. As an alternative to selecting a Function and editing the placeholder text, you can create a custom measure to divide the number of contacts by 1,000 by selecting the elements individually or manually entering the following formula in the Formula pane.

```
[CountOfCallId]/1000
```

Related Topics

- Configure a measure's appearance

Create a custom measure with a Formula Type assistant

Formula Type assistants are guides that help you write the formulas that create custom measures. The default selection is a text formula, where you enter the formula manually without an assistant. If you opt to use an assistant, you can choose from difference, ratio, scale, split, and time shift formula types. Once you choose your formula type, the Formula Type drop-down list will show only your choice plus the Text option.

When you use an assistant, Data Explorer creates a formula based on your selections. This formula is displayed in the Create Measure formula pane. You can view your formula by selecting **Text** from the Formula Type drop-down list. Return to your assistant by selecting it from the drop-down list.

> **NOTE** Even if you opt to view the display names of the available measures, the formula uses the measure's identifier, not its display name.

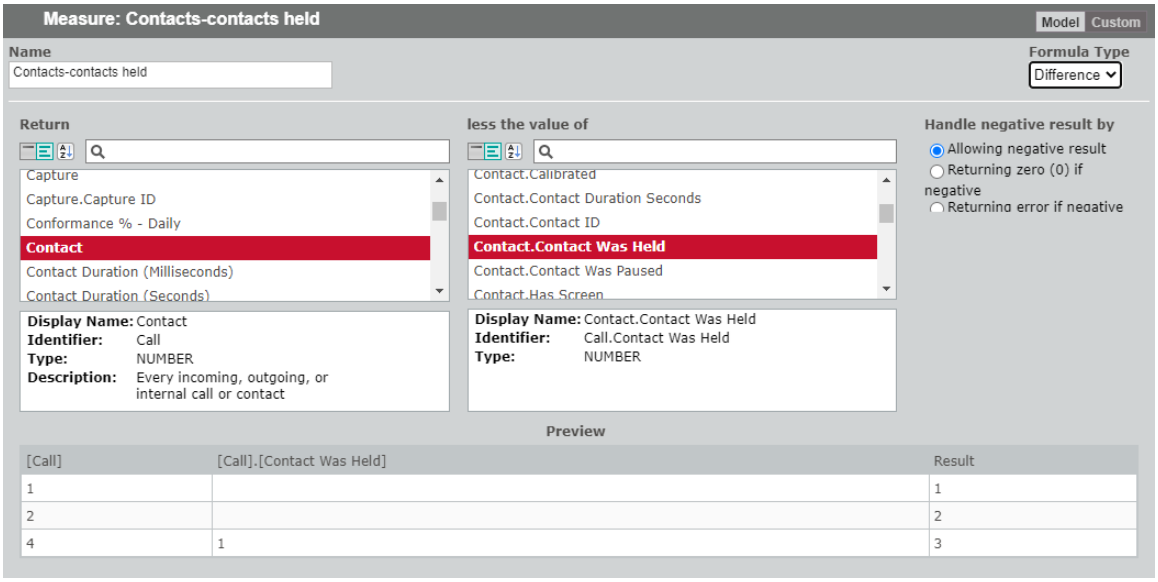
Like any custom measure, you can configure how the measure will appear by configuring the Measure Configuration panel at the bottom of the Create Measure dialog box. See Configure a measure's appearance for more information.

Provide a name for your custom measure in the **Name** field. This is what appears in your report to identify the value.

> **NOTE** To understand the formulas these assistants create, refer to the appropriate formula function in the Data Explorer formula language reference.

Difference assistant

The Difference assistant helps you create a formula that subtracts one measure from another measure.



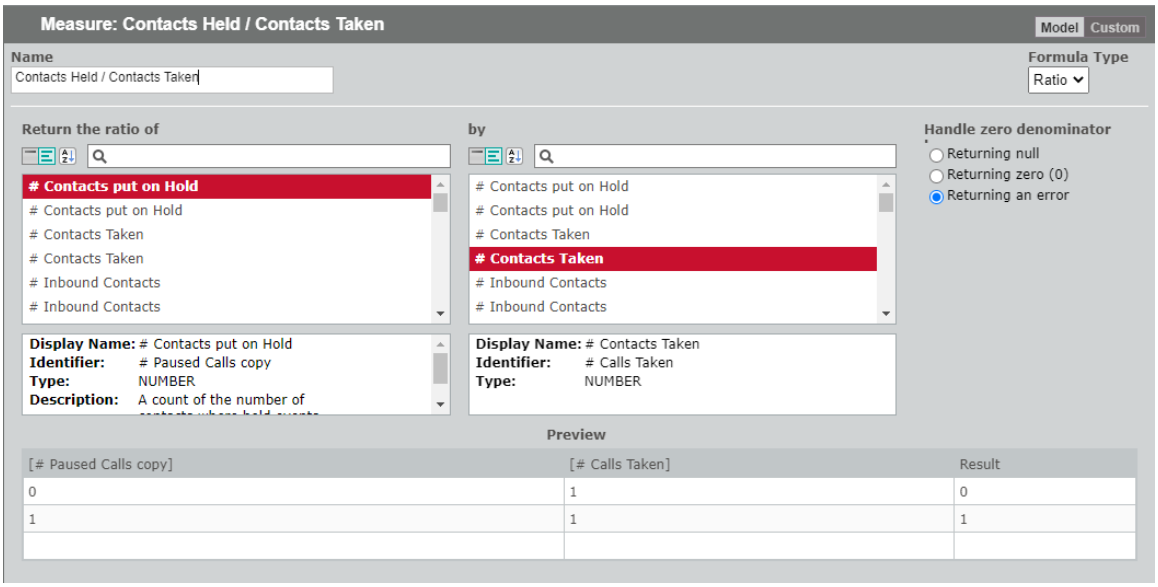
Select the first element of your equation from the **Return** pane and the second from the **less the value of** pane ("Return <your first selected measure> less the value of <your second selected measure>"). You can choose the way you want negative numbers to be handled using the options at the right of the panel. The Results pane at the bottom of the panel compiles your formula and shows the result.

In the graphic above, we have subtracted the number of contacts held (**Contact.Contact Was Held**) from the total number of contacts (**Contact**). When viewed in the Formula pane, the formula looks like this:

```
[Call] - [Call].[Contact Was Held]
```

Ratio assistant

The Ratio assistant helps you create a formula that divides one measure by another measure.



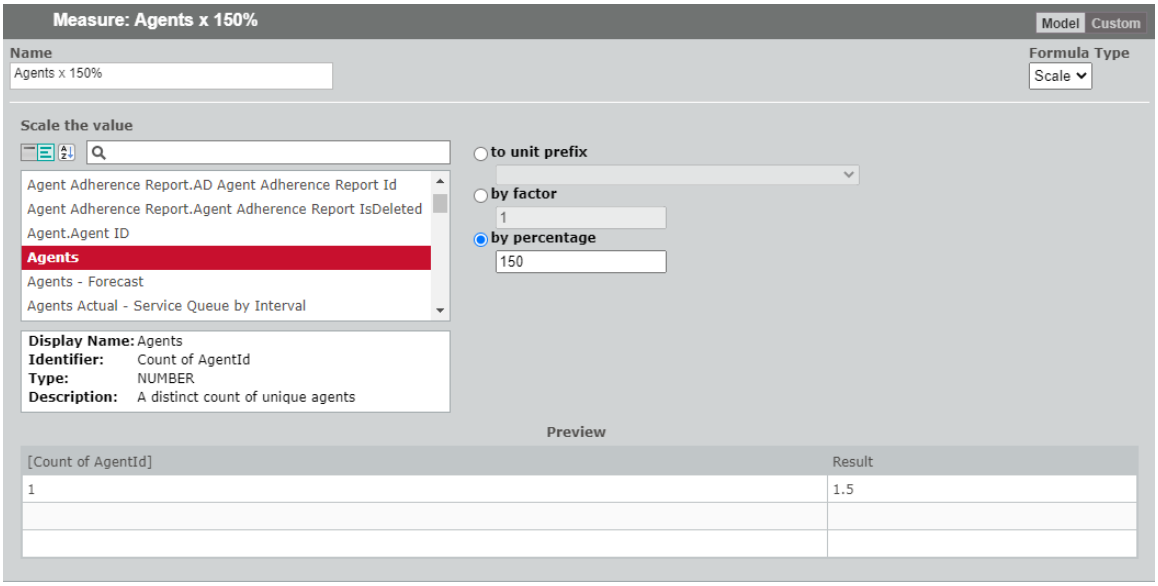
Select the first element of your ratio (the numerator) from the **Return the ratio of** pane and the second (the denominator) from the **by** pane ("Return the ratio of <your first selected measure> by <your second selected measure>"). You can choose the way you want a denominator of zero (dividing by zero) to be handled using the options at the right of the panel. By default, dividing by zero returns an error.

In the graphic above, we have divided the number of contacts put on hold (**# Contact put on Hold**) by the number of contacts taken (**# Contacts Taken**). When viewed in the Formula pane, the formula looks like this:

```
[# Paused Calls] / [# Calls Taken]
```

Scale assistant

The Scale assistant enables you to scale up or scale down a measure by unit prefix, factor, or percentage.



- **To unit prefix**—This means you can move the decimal place to the left or right of your measure's value. For example, if the value of the measure is **1**, and you select **Ten/deca** from the unit prefix drop-down list, the value appears as **10** in your report. If you select **Hundredth/centi** from the unit prefix drop-down list, the value appears as **0.01** in your report. Examples of the resulting formula are:

  ```
  [Count of AgentId] * 10 (for the Ten/deca option)
  [Count of AgentId] * 0.01 (for the Hundredth/centi option)
  ```

- **by factor**—This means you can increase the value of your measure by the specified factor. For example, if the value of the measure is **1**, and you enter **15** as the factor, the value appears as **15** in your report. You cannot apply a negative factor to your measure. An example of the resulting formula is:

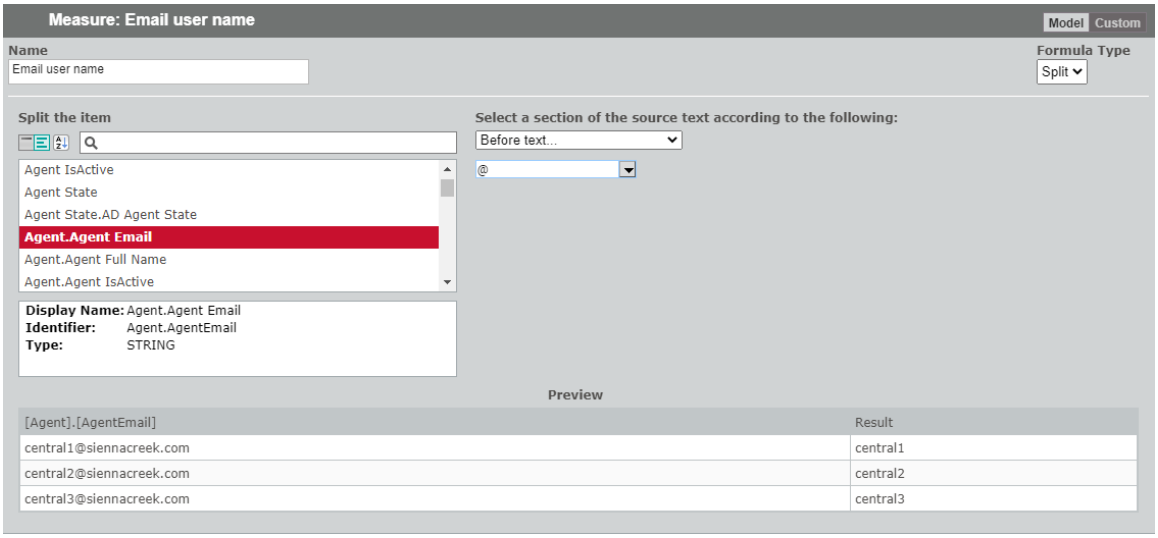
  ```
  [Count of AgentId] * 15
  ```

- **by percentage**—This means you can increase the value of your measure by the specified percentage. For example, if the value of the measure is **1**, and you enter **125** as the percentage, the value appears as **1.25** in your report. You cannot apply a negative percentage to your measure.

  ```
  [Count of AgentId] * 125 / 100.0
  ```

Split assistant

The Split assistant helps you select a portion of a measure's text value to display in a report.



Select how you want to split the text string from the **Select a section of the source text according to the following** drop-down list. Depending on your selection, one or two fields appear, which you use to define the split.

To illustrate how the split options work, let us assume you have a measure “AgentEmail”. The agent email values are:

```
agent1@siennacreek.com
agent2@siennacreek.com
agent3@siennacreek.com
```

Before text option

Split wanted	Show only the user name that appears before @ in the email address.
Enter	@

Result	`agent1`
	`agent2`
	`agent3`

Formula	`split([AgentEmail],“@”,1)`

After text option

Split wanted	Show only the domain name that appears after @ in the email address.

Enter	@
Result	siennacreek.com siennacreek.com siennacreek.com
Formula	split([AgentEmail],“@”,2)

Before character position option

Split wanted	Show only the portion of the email address that ends with and includes the agent ID number at character position 6.
Enter	6
Result	agent1 agent2 agent3
Formula	(TBD)

After character position option

Split wanted	Show only the portion of the email address that starts with and includes the agent ID number at character position 6.
Enter	6
Result	1@siennacreek.com 2@siennacreek.com 3@siennacreek.com
Formula	mid([AgentEmail],8,len([AgentEmail]))

Between text option

Split wanted	Show only the portion of the email address that is between and does not include the strings **agent** and **.com**.
Enter	agent in the first field .com in the second field

Result	1@siennacreek 2@siennacreek 3@siennacreek
Formula	`split(split([AgentEmail],“agent”,2),“.com”,1)`

Between character positions option

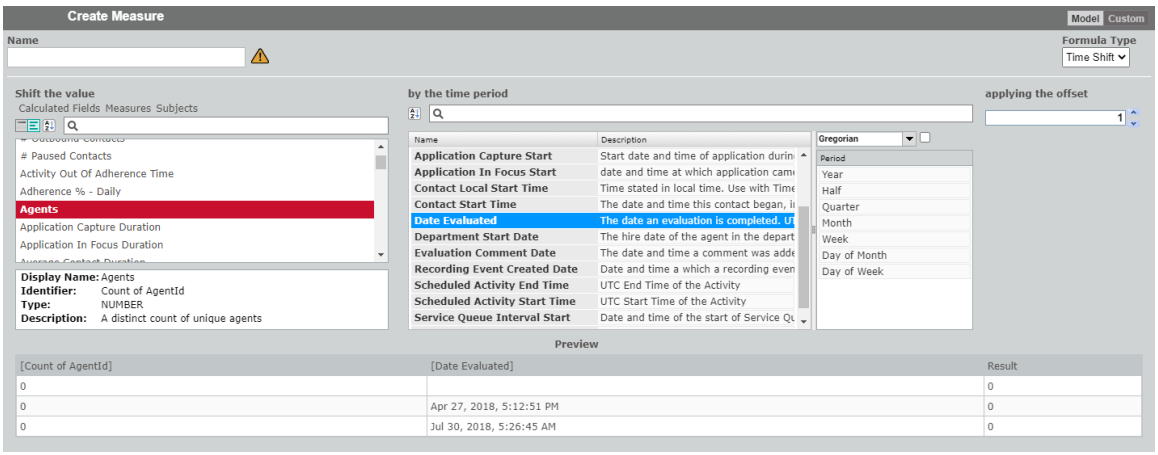
Split wanted	Show only the portion of the email address that is between and includes character position 6 and character position 19.
Enter	6 in the first field 19 in the second field
Result	1@siennacreek 2@siennacreek 3@siennacreek
Formula	`mid([AgentEmail],6,13)`

Time Shift assistant

A time shift returns a requested value that is shifted by the specified number of periods. This is useful in calculating period-to-period variances.

> **EXAMPLE** You want to compare 2 separate days of call volumes within the same formula in order to output an aggregate or comparison. Your goal is to understand the difference in the volume of calls on Mondays in Week 1 and Week 3. You find the difference in volume, which can tell you if your compared volumes are higher or lower than the expected norm, or against your forecast.

The Time Shift assistant helps you develop time shift elements of a more complex formula.



Select the value you want to shift from the **Shift the value** pane, choose the time period from the **by the time period** panes, and then enter the offset in the **applying the offset** field.

In the graphic above, we are shifting the number of agents by the date they were evaluated by 1 year. When viewed in the Formula pane, the formula looks like this:

```
timeshiftvalue( [Count of AgentId], [Date Evaluated],
"FiscalMonthly.Year", 1)
```

Create a view

Once you have created the question for your report, you are ready to customize how the data is visualized. You do this on the **View** tab in the Question panel.

By default, your report is presented as a table with your chosen measures as the columns and the data as the rows. This is what is displayed as you develop your question. On the View tab you can customize your table or select another view type.

When you select a view type, you can then select from a number of view options and styling choices. The options are dependent on the type of view you select. As you select options and customize your view, your choices are previewed in the report pane as you go.

Not all view types are appropriate for your report. You will need to consider what type of chart will work best with your data. Some charts are best at showing the relationship between several pieces of information, while others can better display trends over time. Some view types can handle multiple measures, while others can display only a single measure.

Available view types

The following are the currently available view types. Each view type has styling options to control labels, text, colors, and so on.

- Area chart
- Bar chart
- Column chart
- Compound chart
- Gauge chart
- Headline chart
- KPI Headline chart
- KPI Rank chart
- Line chart
- Pie chart
- Scatter chart
- Table view
- Word cloud view

Area chart

Area charts show data similar to a line chart, but with the area below the line filled. Area charts are often used to display:

- The composition of a total and which parts add up to the whole
- The magnitude of change
- The difference between two or more trends

Area charts can handle multiple measures.

You can choose from one of the following chart options for your visualization.

Option	Description
Overlay	(Default) Displays the area under multiple lines to show the

Option	Description
	relationship across categories.
Overlay with Markers	Overlays the chart with dots representing individual data points on the lines.
Stacked	Displays the area under multiple lines one on top of the other to show a comparison across categories.
Stacked with Markers	Overlays the chart with dots representing individual data points on the stacked lines.

Once you have selected the desired chart option, you can then customize your chart further using these controls:

- Legend
- Styling
- Titles
- Grid Options
- Axis Display
- Data Series Format
- Exception Display

Bar chart

Bar charts display information as horizontal bars along the Y axis, individually or stacked. This type of visualization can be used to effectively display:

- The distribution of data such as trends and ranges
- A comparison of value sets
- A trend that develops over time

Bar charts can handle multiple measures.

You can choose from one of the following chart options for your visualization.

Option	Description
2D	(Default) The bars are presented in two dimensions, one bar per measure.
2D Stacked	The bars are presented in two dimensions with multiple measures stacked to show the relationship of individual items to the whole.
Preserve Totals toggle	Displays the total value on the chart as an additional bar labeled "Total". **NOTE** To display the total value as an additional column, you must first select **with totals** in the Group section of the Question panel.

Once you have selected the desired chart option, you can then customize your chart further using these controls:

- Legend
- Styling
- Titles
- Grid Options
- Axis Display
- Data Series Format
- Exception Display

Column chart

Column charts display information as vertical bars along the horizontal X axis, individually or stacked. This type of visualization can be used to effectively display:

- The distribution of data such as trends and ranges
- A comparison of value sets
- A trend that develops over time

Column charts can handle multiple measures.

You can choose from one of the following chart options for your visualization.

Option	Description
2D	(Default) The columns are presented in two dimensions, one column per measure.
2D Stacked	The columns are presented in two dimensions with multiple measures stacked to show the relationship of individual items to the whole.
Preserve Totals toggle	Displays the total value on the chart as an additional column labeled “Total”. **NOTE** To display the total value as an additional column, you must first select **with totals** in the Group section of the Question panel.

Once you have selected the desired chart option, you can then customize your chart further using these controls:

- Legend
- Styling
- Titles
- Grid Options
- Axis Display
- Data Series Format
- Exception Display

Compound chart

Compound charts include both columns and lines. They are useful when comparing two sets of values such as predictions and actual values. They can handle multiple measures.

You can customize your chart using these controls:

- Legend
- Styling

- Titles
- Grid Options
- Axis Display
- Data Series Format
- Exception Display

Gauge chart

Gauge charts display the value of a single measure as a needle on a dial, like a speedometer. They are often used to display a single important measure or a trend that develops over time.

You can customize your chart using these controls:

- Styling
- Titles
- Gauge Options
- Ranges

Headline chart

Headline charts can be used to display an important measure as a single number, without any details or other distractions. They are often grouped with other such reports on a dashboard to give an instant snapshot of the current status of your organization.

You can customize your chart using these controls:

- Styling
- Titles
- Headline Options
- Ranges

KPI Headline chart

KPI Headline charts display a single value that represents a key performance indicator (KPI) that users would find useful to know. A KPI headline uses the KPIs configured on the KPI Configuration page (Application Management > Administration > Key Performance Indicators (KPIs)).

This chart allows you to gain insights from:

- A metric such as the average handle time, the first call resolution, and so on
- A KPI that is an aggregated set of values created from a custom formula
- Suggested thresholds that drive an action

You can customize your chart using:

- Styling
- Titles
- KPI Headline Options

KPI Rank chart

KPI Rank charts visualize data with several sub-groups included, such as members on a team or teams in a department. For example, this chart can illustrate how well agents are meeting their goals, using colors and arrows to indicate change.

This chart allows you to gain insights from:

- A metric such as the average handle time, first call resolution, and so on
- A KPI that is an aggregated set of values created from a custom formula
- Multiple variables in a group
- Suggested thresholds that drive an action

You can customize this chart using:

- Styling
- Titles
- KPI Rank Options

Line chart

Line charts display data in a series. This is the only chart type that can include a trendline. Line charts are often used to show the following information:

- The distribution of data such as trends, ranges, outliers, and tendencies
- A comparison of value sets
- A trend over time when using multiple axes
- The relationship between one measure and another

You can choose from one of the following chart options for your visualization.

Option	Description
Straight	(Default) Straight line from one data point to the next.
Straight with Markers	Straight line from one data point to the next with dots representing each data point.
Markers	Dots are displayed at each data point without a line connecting them.
Curved	Smooth curving line connects each data point to the next.
Curved with Markers	Smooth curving line connects each data point to the next with dots representing the data points.

Once you have selected the desired chart option, you can then customize your chart further using these controls:

- Legend
- Styling
- Titles
- Grid Options
- Axis Display
- Data Series Format
- Exception Display

Pie chart

Pie charts display the sum of a single measure as a complete circle, and show the size of the components that make up that circle. Pie charts are most effective when you have a limited number of data categories that are part of a single group.

You can customize your chart using these controls:

- Legend
- Styling
- Titles
- Pie Chart Options
- Exception Display

Scatter chart

Scatter charts show the correlations between sets of values that cannot be represented in a series or interval. They are useful for displaying:

- A comparison of value sets
- The distribution of trends, tendencies, ranges of information, and outliers
- The relationship between two measures

Scatter charts can handle multiple measures. If you have three measures, the scatter chart becomes a bubble chart. A bubble chart is an extension of a scatter chart used to look at relationships between three measures. Each dot in a bubble chart corresponds with a single data point, and the measures' values for each point are indicated by horizontal position, vertical position, and dot size.

You can customize your chart using these controls:

- Styling
- Titles
- Grid Options
- Axis Display
- Data Series Format

Table view

The table view is the default view type and the most basic visualization. Tables display numeric information and can be used with multiple measures. They can be sorted in ascending or descending order by any column by clicking that column's header.

You can choose from one of the following table options for your table visualization.

Option	Description
Full	(Default) Displays the table with column and row headers.
Column Header Only	Displays the table with just column headers.
Row Header Only	Displays the table with just row headers.
Compact	Displays the table with both column and row headers in the smallest possible area.
Compact (Column Header Only)	Displays the table with just column headers in the smallest possible area.
Cells Only	Displays your report data without column or row headers.

Once you have selected the desired table option, you can then customize your table further using these controls:

- Styling
- Titles
- Table Style
- Exception Display

Word cloud view

Word cloud views show the frequency of certain words by making the size of the word proportional to its frequency of use. This type of visualization is simple and easily understood, and provides specific information at a glance. However, word clouds should not be used for analysis that requires precision and accuracy. Often, the shape of the letters in the word (if they have ascenders or descenders) and the length of the word can cause some words to attract more attention than others.

NOTE The length of words and phrases displayed in the word cloud visualization can be configured based on your needs and business use cases. If you want to do so, contact the Cisco support team.

You can customize your word cloud using these controls:

- Styling
- Titles

- Exception Display

Styling Options

Once you have selected your view type and view option, you can further customize your chart with styling options. This section describes each available styling option.

NOTE Not all styling options are available for every type of chart.

- Axis Display
- Data Series Format
- Exception Display
- Gauge Options
- Grid Options
- Headline Options
- KPI Headline Options
- KPI Rank Options
- Legend
- Pie Chart Options
- Ranges
- Styling
- Table Style
- Titles

Axis Display

The Axis Display control includes tools for configuring the X- and Y-axes. You can configure multiple axes.

X axis

Field	Description
X Axis	Shows or hides the X axis in your chart. The controls are displayed only if you select to show the axis.

Field	Description
	Color—Select the color in which the X axis and its labels are displayed. **Tick Marks**—Select this check box to display tick marks beside the axis labels. **Grid Lines**—Select this check box to display vertical X axis grid lines within the chart.
Title	Shows or hides a title for the X axis data. The controls are displayed only if you select to show the title. **Text Box**—Enter the X axis title. **Font**—Select the font and font size for the X axis title. If you choose **Inherited**, the font you selected in the Styling section is used. **Orientation**—Choose the angle at which the X axis title is oriented. The default setting is **0** (no angle).
Labels	**Labels**—Select if and how X axis labels are displayed. The default, **Auto**, sets the labels vertically. If you select **On**, the labels are set horizontally. If you select **Off**, there are no labels displayed. **Font**—Select the font and font size for the X axis labels. If you choose **Inherited**, the font you selected in the Styling section is used.

Y axis (Primary, Secondary, 3, and 4)

Some charts can have multiple Y axes. In that case, there will be multiple Y axis show/hide toggles. The fields to configure these axes are the same for each.

Field	Description
Y Axis (Primary,	Shows or hides the Y axis in your chart. The controls are displayed

Field	Description
Secondary, 3, and 4)	only if you select to show the axis. **Color**—Select the color in which the Y axis and its labels are displayed. **Series Color**—Select the color in which Y axis series is displayed. **Tick Marks**—Select this check box to display tick marks beside the axis labels. **Grid Lines**—Select this check box to display horizontal Y axis grid lines within the chart. **Min**—Sets the minimum value for the axis. **Max**—Sets the maximum value for the axis. **Tick Interval**—Sets the value for the increments to be used on the axis. **Minor Ticks**—Determines how many ticks are displayed between each numbered tick interval on the axis.
Title	Shows or hides a title for the Y axis data. The controls are displayed only if you select to show the title. **Text Box**—Enter the Y axis title. **Font**—Select the font and font size for the X axis title. If you choose **Inherited**, the font you selected in the Styling section is used. **Orientation**—Choose the angle at which the Y axis title is oriented. The default setting is **270** (sideways).
Labels	**Labels**—Select if and how Y axis labels are displayed. The default, **Auto**, sets the labels horizontally. If you select **On**, the labels are set horizontally. If you select **Off**, there are no labels

Field	Description
	displayed. **Font**—Select the font and font size for the Y axis labels. If you choose **Inherited**, the font you selected in the Styling section is used. **Format**—Select the format for the Y axis labels. By default this is set to **Auto**, where the format of the label text is automatically detected. Otherwise, choose a currency symbol or percentage.

Data Series Format

The Data Series Format control allows you to customize the color and spacing of categories and series.

NOTE Not every control is available for every chart option.

Field	Description
All Series	**Bar Spacing**—Determines the amount of space between categories and series on the chart.
<Specified Measure>	**Axis**—Select the axis you want to format. **Color**—Choose the color for the bar/column/line/scatter chart markers on the specified axis. For area charts, this also determines the color of the area under the line. **Line Width**—Choose the width of the line that appears in the chart. **Markers**—Choose the type of marker to represent each individual data point. **Marker Size**—Choose the size of the selected marker. **Type**—Choose how to display data, as a column, line, or curved line.

Field	Description
Data Labels	Shows or hides data labels in the chart. These labels are displayed at the end of bars or columns, or next to data markers. The controls are displayed only if you select to show the labels. **Labels**—Choose to turn data labels on or off. **Font**—Select the font, font size, and font color in which to display the label text. If you choose **Inherited**, the font you selected in the Styling section is used. **Format**—Choose the format of the labels. If you select **Auto**, the format is determined by the measure. **Layout**—Choose how labels are displayed: straight, wrapped, truncated, or angled.

Exception Display

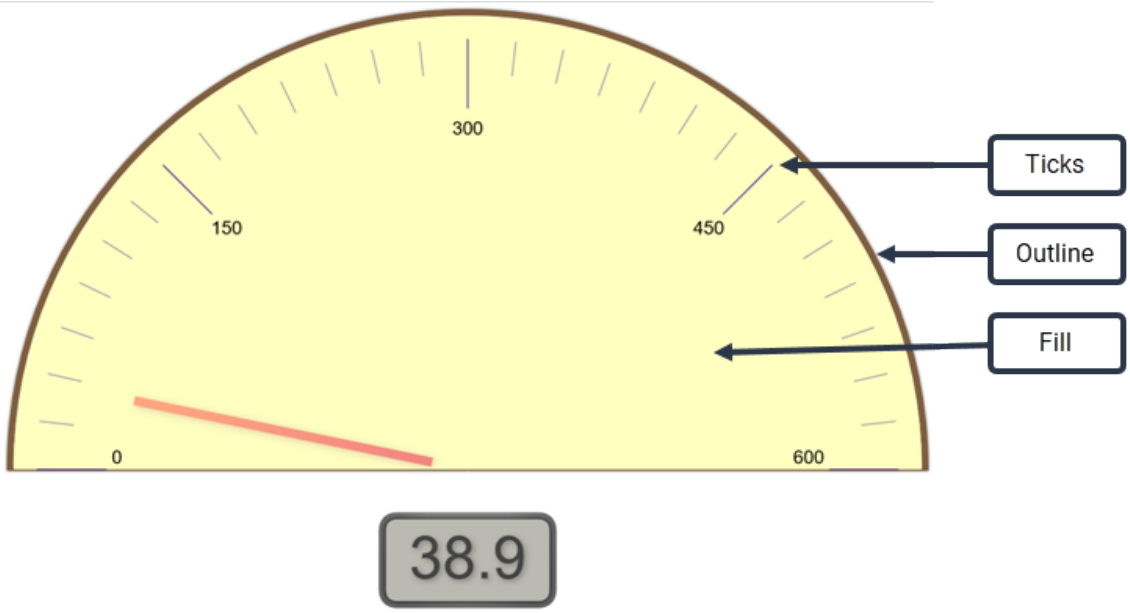
The Exception Display control configures how a result with no data is displayed in your report.

Field	Description
Display	Select either **Icon & Text** (the default) or **Text** from the drop-down list. If you choose Icon and Text, a blue bar graph is displayed with your desired text message, like this:  If you choose Text, just the text message you configure is displayed.

Field	Description
Text	Enter the text string you want displayed if there is no data.
Font	Select the font, font style, font size, and font color in which to display the text. If you choose **Inherited**, the font you selected in the Styling section is used.

Gauge Options

The Gauge Options section allows you to customize the gauge chart.



NOTE A gauge can also include range indicators. This is configured using the Ranges control.

Field	Description
Colors	Click the box to open the color palette. **Outline**—Choose the color for the gauge's outline. **Fill**—Choose the color for the gauge's face. **Ticks**—Choose the color for the gauge's tick marks.

Field	Description
Sizes	**Outline**—Configure the width of the arc that outlines the gauge. **Needle**—Configure the width of the needle.

Grid Options

The Grid Options control allows you to customize the color applied to the grid's background and to the lines of the grid.

Field	Description
Background Color	Click the box to choose a color for the grid's background from the color palette.
Line Color	Click the box to choose a color for the grid lines from the color palette.

Headline Options

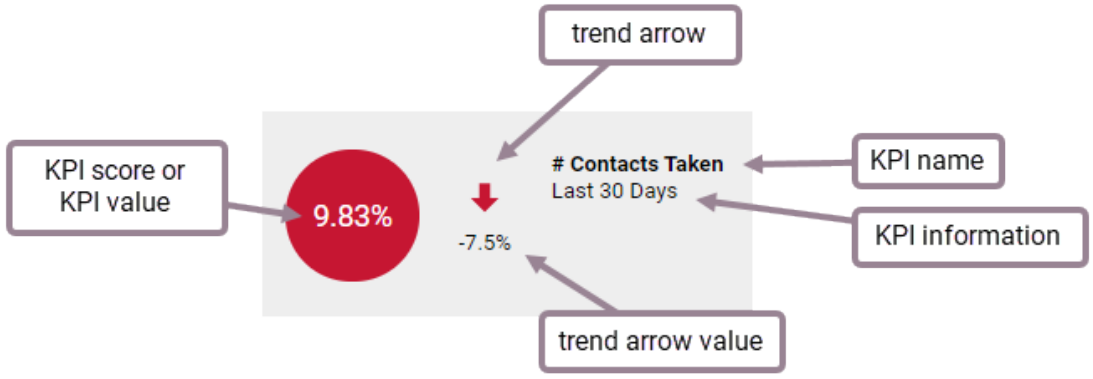
The Headline Options control allows you to customize how the headline looks, and to include the upper and lower limits of the value if desired.

Field	Description
Headline Font	Select the font, font style, font size, and color in which to display the headline. If you choose **Inherited**, the font and font style you selected in the Styling section are used. If you select **Auto** for the font size, the font is scaled to fit the available space. Click the color box to select a color for the headline text. By default, **Use inherited color** is selected. You must clear this check box to select a custom color.
Maximum Size	Allows you to specify a maximum size for the headline font. If you select a specific headline font size, this field defaults to **None**. If you select **Auto** for the headline font size, you can then specify a maximum size.

Field	Description
Show Limits	Shows or hides the minimum and maximum range limits for the headline value. These values are set in the Ranges control. If you opt to show the limits, you can then specify the font, font style, font size, and font color for the limits text. By default, the font and font style you selected in the Styling section are used. If you select **Auto** for the font size, the font is scaled to fit the available space. Click the color box to select a color for the limits text. By default, **Use inherited color** is selected. You must clear this check box to select a custom color.

KPI Headline Options

The KPI Headline Options control enables you to display or hide information about a KPI.



Field	Description
Headline Display	Choose to display the KPI score or KPI value in the colored circle. More details about the KPI score or value can be viewed by hovering over the number. The color of the circle is configured in the data model and is not

Field	Description
	something you can customize for your own reports. The circle can be red, yellow, or green, depending on the KPI's value.
Show KPI Name	Show or hide the KPI name.
Show KPI Information	Show or hide information about the KPI.
Show Trend Arrow	Show or hide an arrow indicating the KPI trend.
Show Trend Arrow Value	Show or hide the KPI trend value.

KPI Rank Options

The KPI Rank Options control enables you to display or hide information about multiple KPIs.



Field	Description
Headline Display	Choose to display the KPI score or KPI value in the colored circle. More details about the KPI score or value can be viewed by hovering over the number. The color of the circle is configured in the data model and is not something you can customize for your own reports. The circle can be red, yellow, or green, depending on the KPI's value.

Field	Description
Show KPI Name	Show or hide the KPI name.
Show KPI Information	Show or hide information about the KPI.
Show Trend Arrow	Show or hide an arrow indicating the KPI trend.
Show Trend Arrow Value	Show or hide the KPI trend value.

Legend

The Legend control enables you to configure where the chart's legend (the explanation of what metric a color represents) is located and the size of the legend font.

Field	Description
Location	Select where the legend is displayed, at the top, bottom, or to the right of the chart. If you choose to locate it at the top or bottom of the chart, the legend is arrayed horizontally; if you choose to locate it at the right side, it is arrayed vertically. You can also select **None** so no legend is displayed.
Size	Choose the point size for the legend font.

Pie Chart Options

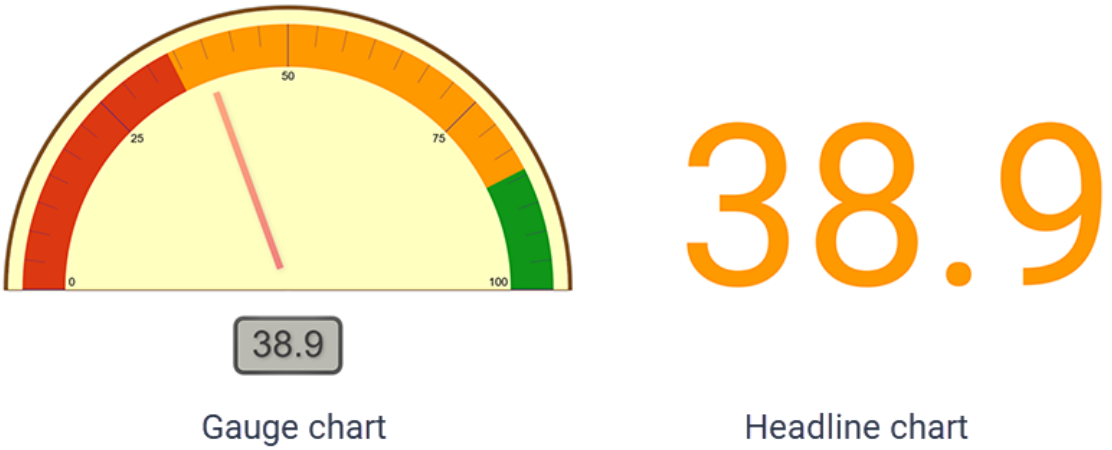
The Pie Chart Options control enables you to configure the labels applied to the pie chart.

Field	Description
Show Labels	Choose to show or hide labels. If you select **Auto**, the label position cannot be changed. If you select **On**, then all options can be configured.
Contents	Choose which information the label displays.
Color	Select the color for the label text.

Field	Description
Size	Configure the point size of the label text.
Position	Select the position of the label text relative to the edge of the pie chart. ■ If the position you select is 1.1 or greater, the label appears outside the edge of the pie chart. ■ If the position you select is 1, the label appears outside but almost touching the edge of the pie chart. ■ If the position you select is less than 1, the label appears inside the edge of the pie chart.

Ranges

The Ranges control allows you to customize the values and colors used to indicate ranges. This control applies to gauge and headline charts, as shown in this graphic:



In gauge charts, the range is indicated as a colored band on the gauge. In headline charts, the range is indicated by the color applied to the headline.

Field	Description
Minimum	Set the lowest value to include in the chart. This value is displayed in the Headline Options if that control's Show Limits is turned on.

Field	Description
Low	Set the value that separates the low range from the medium range.
High	Set the value that separates the medium range from the high range.
Maximum	Set the highest value to include in the chart. This value is displayed in the Headline Options if that control's Show Limits is turned on.
Colors check box	Select this check box to enable ranges on your chart. If you set range values and this check box is cleared, the ranges will not go into effect in the chart.
Color selection boxes	Choose the colors you want to represent the ranges you have configured. Note the position of the color boxes; they are positioned between the two values that act as the lower and upper range value the color is to represent. By default, the colors are red for low, yellow for medium, and green for high values. You can customize the colors to ones of your choosing.

Styling

The Styling control allows you to configure the default font and background color used in the chart.

Field	Description
Text	Select the font, font style, and color in which to display text in the chart. Click the color box to select a color for the text.
Background Color	Click the color box to choose the background color to be used in the chart.

Table Style

The Table Style control allows you to customize table headers and rows.

Field	Description
Fonts	**Table Font Size**—Choose the point size for all text in the table.

Field	Description
	Row Headings—Choose a font style and color for the row headings. If you choose **Inherited**, the style you selected in the Styling section is used. **Column Headings**—Choose a font style and color for the column headings. If you choose **Inherited**, the style you selected in the Styling section is used. **Cells**—Choose a font style and color for the individual table cells. If you choose **Inherited**, the style you selected in the Styling section is used. **Groupings**—Choose a font style and color for groupings. If you choose **Inherited**, the style you selected in the Styling section is used.
Colors	**Row Headings**—Change the background color for row headings. **Column Headings**—Change the background color for column headings. **Cells**—Change the background color for table cells.
Column Widths	**Row Headings**—Set the width in pixels of row headings. **Column Headings**—Set the width in pixels of column headings. **NOTE** You cannot set individual row or column headings to specific widths. All row and column headings are set to the same width with this control.
Column Header Height	**Number of rows**—Sets the height of the column heading row in terms of row height. For example, if you set this to 2, the column heading row will be two rows tall.
Position	**Horizontal**—Set the horizontal position of the table in the report

Field	Description
	viewer window. **Vertical**—Set the vertical position of the table in the report viewer window.

Titles

The Titles control allows you to customize the report title, the report subtitle, and the total text.

Field	Description
Show Title	Turns the chart title on and off. The title is positioned above the chart. When turned on, configuration options are displayed: **Title Font**—Select the font, font style, font size, and color in which to display the chart title. If you choose **Inherited**, the font and font style you selected in the Styling section are used. **Alignment**—Choose an alignment for the chart title. **Act as zoom/edit hyperlink in Dashboards**—Select this check box to make the chart title a hyperlink that opens the chart for detailed viewing.
Show Subtitle	Turns the chart subtitle on and off. The subtitle is positioned beneath the chart. When turned on, configuration options are displayed: **Subtitle Font**—Select the font, font style, font size, and color in which to display the chart subtitle. If you choose **Inherited**, the font and font style you selected in the Styling section are used. **Alignment**—Choose an alignment for the chart subtitle.
Override Default Total Text	Allows you to override the default Total text with a custom text string. Enter your custom text string in the text box.

Configure the report's default sort

You can configure how information in your report is sorted by default on the **Sorting** tab in the Question panel. You can sort by data or by categories, but not by both.

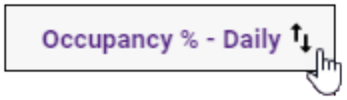
Sorting data

The Data Sorting control allows you to configure the way that a column is sorted in your table by default. You can configure only one column.

Even if you set a default sort direction, anyone viewing the table can reverse the sort by clicking the sort arrow in the column header. This control only sets the default sorting direction.

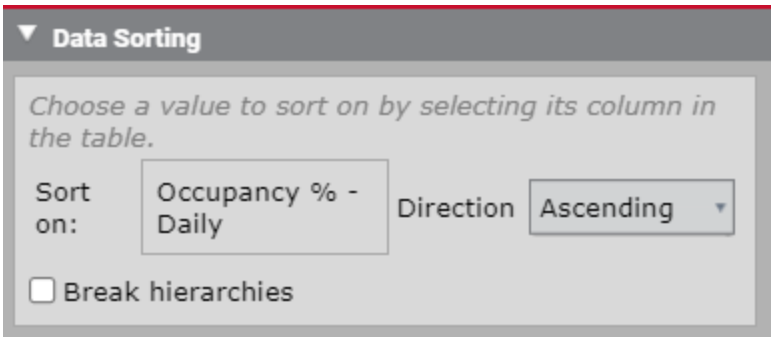
Configure a column's default sorting direction

1. In a report with a table view type, select the **Sorting** tab in the Question panel.
2. In the report preview pane, hover over the header of the column you want to sort the table by until the sort arrows appear.



3. Click the sort arrows. The first click results in an ascending sort (an up arrow). Click again to change the sort to descending (a down arrow). Your sort choice is reflected in the Data Sorting control fields.





4. You can change the direction of the sort either using the **Direction** drop-down field or clicking the sort arrow in the column header again.

5. (Optional) Select the Break Hierarchies check box to apply this sort order to the entire table without regard to other groupings.

Delete a column's default sorting direction

- In the **Data Sorting** control, select **None** from the **Direction** field to remove a default sorting direction from a column.

Ordering a category

The Category Ordering control allows you to sort the members in a group and designate certain members as exceptions to the sort order so that they are displayed at the top of the list.

> **NOTE** The Data Sorting control must be set to **None** in order to configure anything in the Category Ordering control.

Configure a category's default sorting order

1. In a report with a table view type, select the **Sorting** tab in the Question panel.
2. In the Category Ordering control, all available categories (groupings) are listed. Locate the category whose sorting direction you want to configure.
3. Select the sorting direction from the **Sort** field drop-down list.

Setting an exception

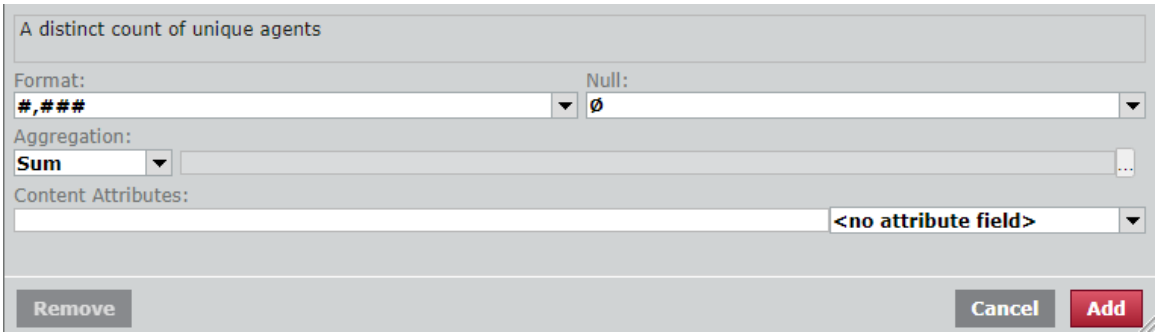
The **Exceptions** button allows you to remove one or more members of a category from the ascending or descending sorting order you configure in the Sort field. Any member designated as an exception remains at the top of the list.

Set exceptions to the category's sorting order

1. Click **Choose Exceptions**. The **Choose Sorting Exceptions** dialog box opens.
2. Clear the **All values** check box, and then select the one or more members of the category you want to make exceptions.
3. Click **Apply**.

Configure a measure's appearance

Use the fields at the bottom of the Measure dialog box to customize how a measure appears in a report. This panel is available for both model measures (measures that come pre-built in Data Explorer) and custom measures (measures that you create yourself).



Prerequisites

- You have the Content Creation permission.
- You have created a report that has at least one measure.

Page location

Data Explorer > open a report

Procedures

Format a measure

1. In the Question panel, click the measure. The **Measure** dialog box opens.
2. Configure the measure as needed using the drop-down lists and fields at the bottom of the dialog. The table below defines the different fields.

Formatting fields in the Measure dialog box

Field	Definition
Format	The format in which to display numbers, dates, and times. You can select a format or enter the format syntax.
Null	What appears in a report when the value returned is null (blank).

Field	Definition
Aggregation	The consolidation method for values. For example, average, maximum, or minimum.
Content Attributes	The content attributes string that determines the measure's appearance. See About content attributes for examples and further information.
Content Attributes drop-down list	You can use the drop-down list to the right of the Content Attributes field to apply preconfigured content attributes to the measure without having to enter anything in the Content Attributes field itself. **BEST PRACTICE** Use only one of the two content attribute fields at a time. Using both fields at the same time could lead to unexpected results. Your options vary by data model and could include the following: ■ <no attribute field>—The default value. No preconfigured attributes are applied. ■ ATTR_CCRID_Link—Turns the contact recording ID measure into a link to the recording and colors the text blue. ■ ATTR_DURATION—Applies the duration format associated with the measure. ■ ATTR_DURATION_hhmmss—Applies the HH:MM:SS format to the measure. ■ ATTR_kpiScoreColor—Turns text to white against a background of red (#A6192E) for KPIs of 0.7 and below, yellow (#FFC72C) for KPIs between 0.7 and 1.0, and green (#279989) for KPIs 1.0 and above. ■ ATTR_NPS_ChartColors—Applies red (#A6192E) to NPS

Field	Definition
	scores of 0 to 6, yellow (#FFC72C) to NPS scores of 7 and 8, and green (#279989) to NPS scores of 9 and 10. ■ ATTR_NPSColours—Applies red (#A6192E) to NPS scores of –100 to 0, yellow (#FFC72C) to NPS scores of 1 to 50, and green (#279989) to NPS scores 51 to 100. ■ ATTR_PredictiveNPS_ChartColors—Applies red (#A6192E) to NPS scores of 0 to 6, yellow (#FFC72C) to NPS scores of 7 and 8, and green (#279989) to NPS scores of 9 and 10. ■ ATTR_Quartile_Colors—Turns text to white against a background of teal (#279989) for the first quartile, yellow (#FFC72C) for the second quartile, dark yellow (#FF9D00) for the third quartile, and maroon (#A61923) for the fourth quartile.

3. Click **Apply**. The **Measure** window closes.

Related topics

- About content attributes—A full list of all content attributes and the syntax to use them

About content attributes

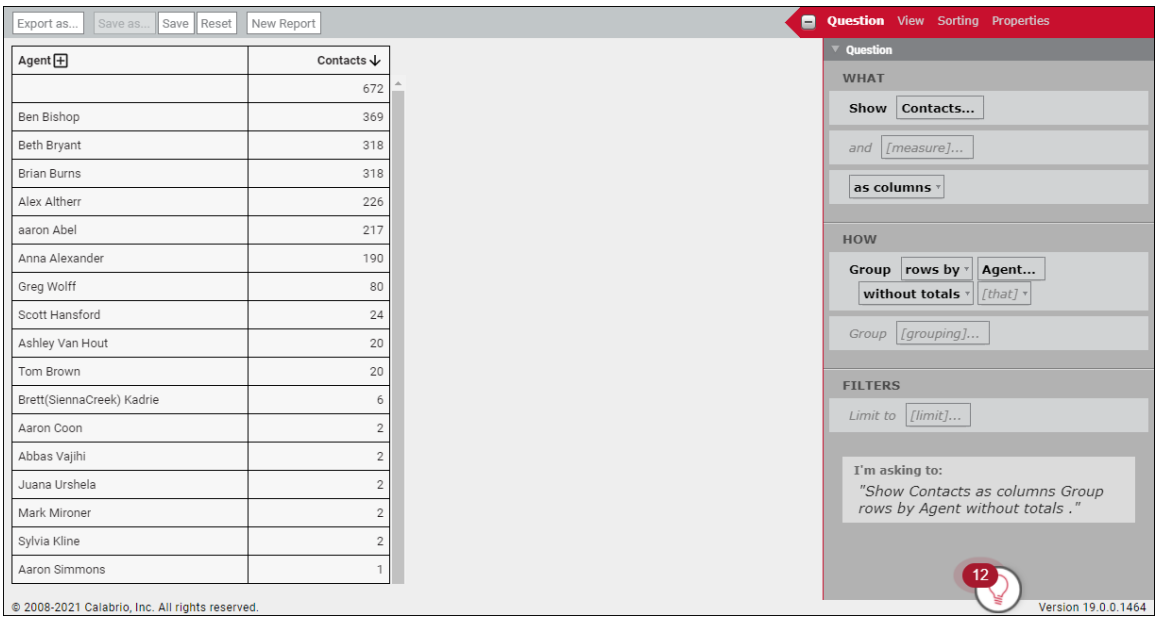
Content attributes apply static or conditional changes to specific measures in a report.

A **static change** always affects how a measure is displayed. For example, you can apply attributes to a measure so that it always appears in bold text.

A **conditional change** applies only when the measure's value meets certain criteria. For example, you can set a condition so that a measure appears in red whenever it is a negative number.

Example 1: Make numbers from 20 to 200 bold and blue

You create a report that shows how many contacts each agent has handled. You want to easily identify the agents who have handled between 20 and 200 contacts. Without applying any content attributes, the report looks like this:



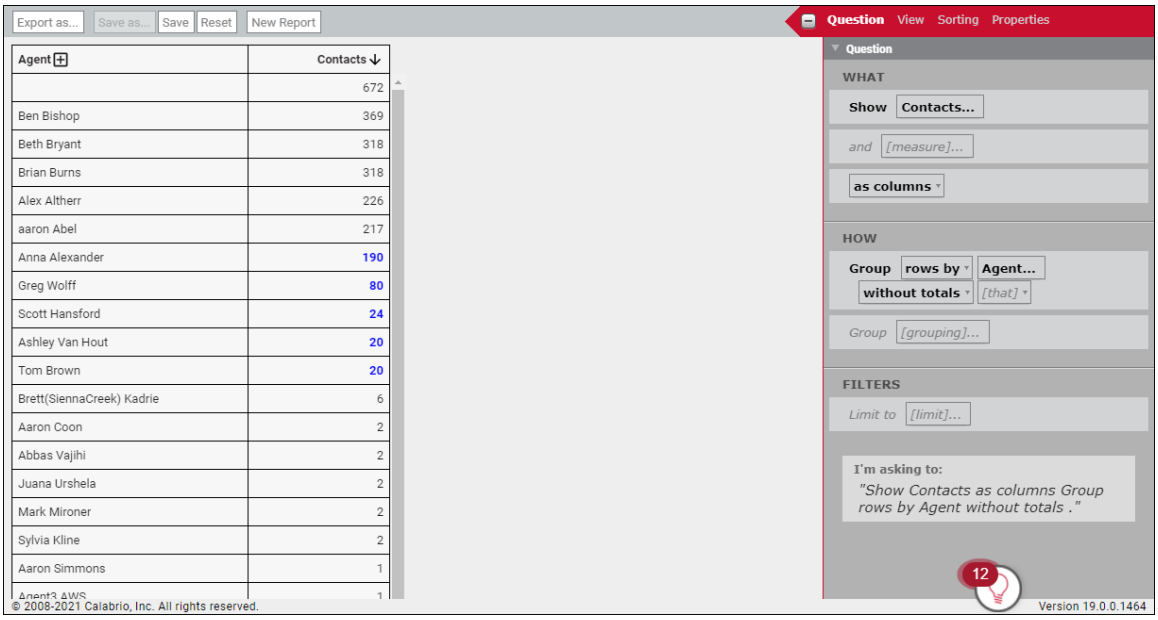
You want contact totals from 20 to 200 to be blue and bold. To do this, use the RANGE keyword and the FORECOLOR and BOLD attributes.

1. In the **Question** panel, click **Contacts**. The **Measure: Contacts** dialog box opens.
2. In the **Content Attributes** field, enter the following text:

   ```
   <RANGE 20:200 <BOLD; FORECOLOR blue>>
   ```



3. Click **Apply**. Numbers from 20 to 200 in the report's Contacts column appear in bold blue text.



Example 2: Color-code numbers as low, medium, or high

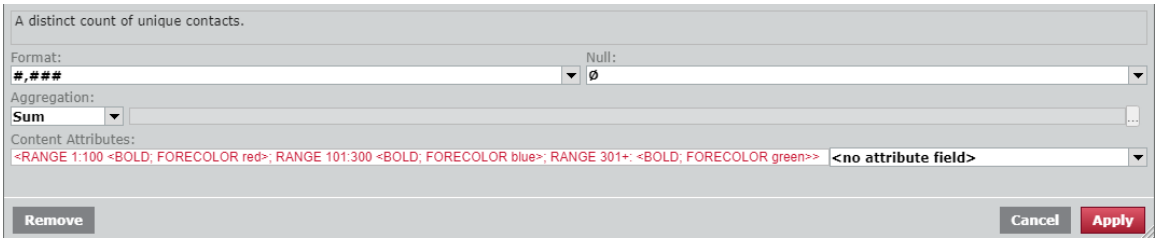
You revise the report you created in Example 1 to use more ranges and colors that indicate how agents are performing. You want to see agents in three ranges:

- Low performing (red): Agents who handled between 1 and 100 contacts
- Average performing (blue): Agents who handled between 101 and 300 contacts
- High performing (green): Agents who handled 301 contacts and up

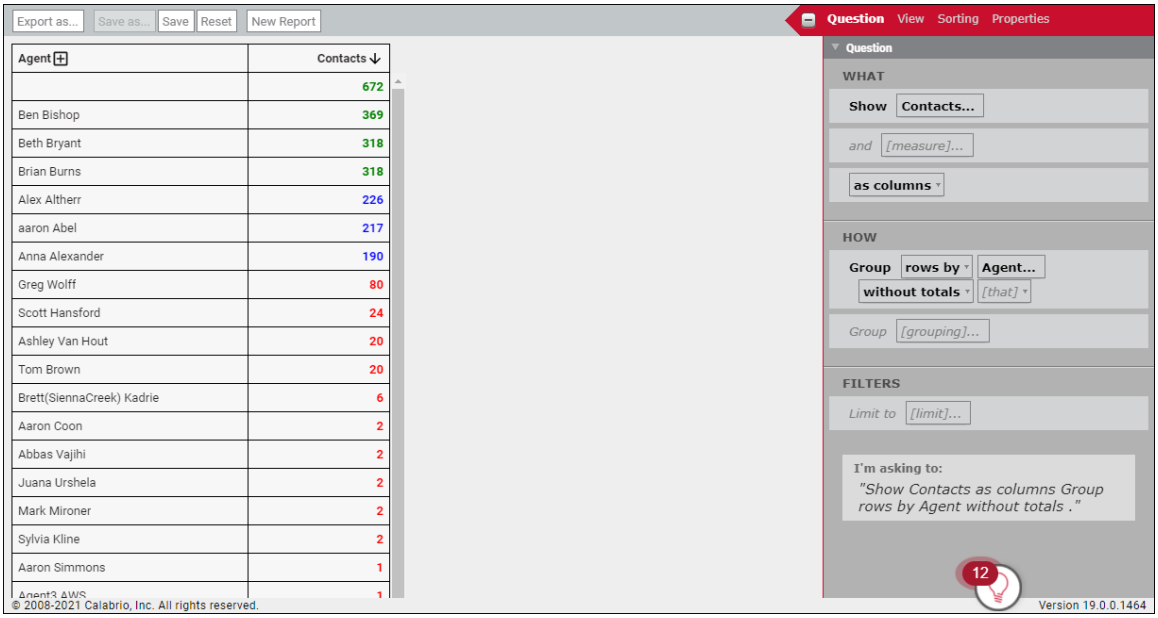
To do this, nest multiple RANGE conditions. The colors you specify for each range appear if any of the conditions are met.

1. In the **Question** panel, click **Contacts**. The **Measure: Contacts** dialog box opens.
2. In the **Content Attributes** field, enter the following text:

```
BOLD;<RANGE 1:100 <FORECOLOR red>; RANGE 101:300 <FORECOLOR blue>; RANGE
   301+: <FORECOLOR green>>
```



3. Click **Apply**. Numbers in the report's Contacts column appear in red, blue, or green, depending on where they fall in the three ranges.

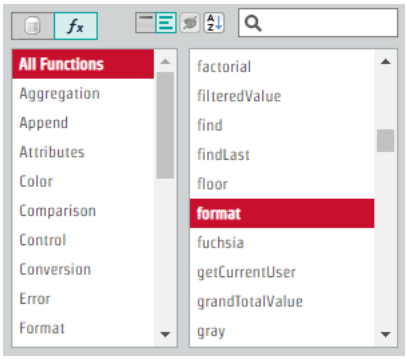


Example 3: Preserve the formatting for time fields when you export a report

You create a report that shows the duration of contacts in seconds, and you select ATTR_DURATION_ hhmmss from the Content Attribute drop-down list to format these seconds into hours and minutes. However, when you export the report, the duration values in the export appear as seconds. Webex WFO does this so that you can easily import reports into other databases or spreadsheets. If you want to preserve the hours-and-minutes formatting in the export, create a custom measure and use the DURATION and PATTERN content attributes.

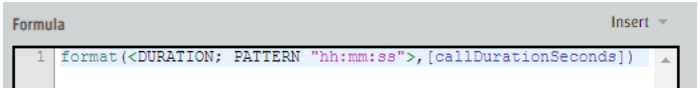
1. (Optional) Remove the original duration measure from the report. If you need both the formatted and unformatted data in your export, skip this step.
2. In the **Question** panel, click ***[measure]***. The **Select Measure** dialog opens.
3. Click **Custom**.

4. Enter a name for the custom measure in the **Name** field.
5. Click ***fx***.
6. Select **All Functions**.
7. Select **format**.



8. In the **Formula** field, enter the following text:

```
format(<DURATION; PATTERN “hh:mm:ss”>,[callDurationSeconds])
```



9. Click **Add**. Call durations in the exported report now preserve their time formatting.

Content attribute syntax

This section defines the text to enter in the Content Attribute field in the Measure panel.

BEST PRACTICE Not all content attributes are appropriate for all types of data. For example, the Maximum Decimal Places attribute, which specifies the maximum number of decimal places to display in a value, has no effect on a report that returns only whole numbers.

NOTE All time data available for reporting in Data Explorer is in UTC format. To use a different time format, add a time subject as a custom measure and apply the Time Zone content attribute.

Syntax element	Purpose	Example
angle brackets	Use angle brackets to enclose the attribute content.	`<BOLD>`
uppercase text	Use uppercase text to specify the name of the attribute.	`<ITALIC>`

Syntax element	Purpose	Example

true / false	For Boolean attributes, specify **true** to enable them and **false** to disable them. A Boolean attribute that does not specify true or false is by default true.	`<BOLD true>` or `<BOLD>`
		`<BOLD false>`
		Applies or removes bold formatting.

semicolons	Separate multiple attribute declarations with a semicolon.	`<ITALIC; BOLD>` Applies italic and bold formatting.

static value declaration, with a space or an equal sign	For attributes that require a value assignment, enter the static value declaration after the attribute and inside the angle brackets. The static value can be separated from the attribute by a space or an equal sign.	`<FORECOLOR blue>`
		`<FORECOLOR=blue>`
		Applies the color blue to the text.

double quotation marks	Enclose text values in double quotation marks.	`<FONT_FACE "Arial">` Applies the font Arial to the text.
no	Prefix an attribute with **no** to unset its value and force the use of the default. This can be used to override any attribute.	`<no FONT_FACE>` Overrides any custom font styles that might have been specified elsewhere.

Keywords

Data Explorer uses the following three keywords to amend content attributes.

- **ERROR**—Identifies if a problem occurs with the measure. (For example, when a formula results in a number being divided by zero.)
- **NULL**—Identifies a measure that returns no value.
- **RANGE**—Identifies measures between two specified bounds.

Use these keywords to set conditions for content attributes. The following syntax rules apply when working with keywords.

Syntax element	Purpose	Example
RANGE n:n	Use the keyword condition RANGE followed by the lower and upper bounds of the range, separated by a colon.	`<RANGE 0:100 <BOLD>>` Displays the values in the range of 0–100 inclusive in bold text.

RANGE n:
RANGE :n
	Use the keyword condition RANGE followed by either only the lower or only the upper bound to indicate that the bound is not inclusive.
	You can apply multiple attributes to the range.
		`<RANGE 0: <UNDERLINE>>`
		Underlines values greater than 0.
		`<RANGE 0: <BOLD; ITALIC>>`
		Applies bold and italic formatting to values greater than 0.

RANGE n+:	Use the keyword condition RANGE followed by the lower bound and a plus sign to indicate that the lower bound is not inclusive.	`<RANGE 0+: <UNDERLINE>>` Applies an underline to values greater than but not including 0.
RANGE :n-	Use the keyword condition RANGE followed by the upper bound and a minus sign to	`<RANGE :0- <BOLD>>` Applies bolding to values less

Syntax element	Purpose	Example
	indicate that the upper bound is not inclusive.	than but not including 0.
NULL ERROR NULL, ERROR	Use the keyword conditions NULL, ERROR, or both to test if a value is null or an error value. When using both, separate the keywords with a comma.	`<NULL, ERROR <BACKCOLOR red>>` Displays a background color of red if there is a null or error condition.
Multiple keyword conditions with a single attribute	When assigning a single attribute to multiple keyword conditions (RANGE, NULL, ERROR), separate the conditions with a comma.	`<NULL, RANGE 1:100<ITALIC>>` Italicizes nulls and values between 1–100 inclusive.
Multiple keyword conditions with multiple attributes	When assigning different attributes for multiple keyword conditions (RANGE, NULL, ERROR), separate the conditions with a semicolon.	`<NULL <UNDERLINE>; RANGE 1:100<ITALIC>>` Underlines nulls and italicizes values between 1–100 inclusive.
Nested multiple keyword conditions	When nesting multiple keyword conditions, the specified attributes apply if any of the conditions are met.	`<NULL <UNDERLINE>; RANGE 0+: <ITALIC>, RANGE 0:100 <FORECOLOR red>; RANGE 101:200 <FORECOLOR yellow>; RANGE 201+: <FORECOLOR green>; RANGE 201+: <BOLD>>`

Syntax element	Purpose	Example
		Displays all values greater than zero in italics. Displays all values in red, yellow, or green, based on the defined ranges. If the value falls above 200, applies both the color green and bolding.

Additional syntax considerations

- Most attribute names are case sensitive. It is best to use uppercase for all attribute names.
- Three keywords, RANGE, NULL, and ERROR, help test values and apply conditional formatting based on the results.
- When using attribute values in a formula, literal values are considered constants.

Content attributes for all data types

The content attributes in this table can be used for all data types.

Attribute	Description	Example
LOCALE	Configures the name of a locale as defined in ISO-639 language codes and ISO-3166 country codes. Default format settings are derived from the locale.	<LOCALE "en"> <LOCALE "fr_CA">
NULL_TEXT	Specifies the text to be displayed for null values.	<NULL_TEXT "No data available.">
PREFIX	Prepends specified text to a value. The prefix text is added after other formatting has been applied. A prefix can be added to formatted values of any type. Prefixes are not added to	<PREFIX "Dr.">

Attribute	Description	Example
	null or error values, or to values assigned using the REPLACE attribute.	
REPLACE	Replaces the value with the specified text, even if the value is null or error. No other text formatting attributes, including PREFIX and SUFFIX, are applied if a REPLACE value is specified.	<REPLACE "CONFIDENTIAL INFORMATION”>
SUFFIX	Appends the specified text to a value. The suffix text is added after other formatting has been applied. A suffix can be added to formatted values of any type. Suffixes are not added to null or error values, or to values assigned using the REPLACE attribute.	

Content attributes for text data types

The content attributes in this table can be used for text data types.

Attribute	Description	Example
BACKCOLOR	Uses the specified color to fill the background.	<BACKCOLOR "white">
BOLD	Displays the specified text as bolded.	<BOLD>
DISPLAY_NAME	Uses the specified text to replace the name of the measure for headings. This is similar to the HEADING attribute. However, DISPLAY_NAME can include filter text and other variable content. This attribute	<DISPLAY_NAME "Maximum Sale Value">

Attribute	Description	Example
	cannot be used on custom measures.	
DROP_HEADING_PREFIX	Trims the display of the specified characters from the left side of the value. This attribute can be specified as a value or as a control character such as the minus sign (-). This specifies that everything to the left of and including the minus sign should be stripped for display. This attribute is useful for preventing the display of prefixes that might have been added to control sort orders for text values in cohorts.	<DROP_HEADING_PREFIX 4> <DROP_HEADING_PREFIX "-">
FONT_FACE	Controls the font that is to be used for text. Data Explorer supports common font faces, using common web-safe CSS font stacks. If an unrecognized font is specified, the content will be displayed following the CSS font stack rules, often using a basic serif font face.	<FONT_FACE "Arial">
FORECOLOR	Uses the specified color to display text. Data Explorer supports the following common color values: aqua, black, blue, color, fuchsia, gray, green, lime, maroon, navy, olive, orange, purple, red, silver, teal, white, and yellow. **NOTE** You can also specify any RGBa value by using the COLOR ( ) function in a formula.	<FORECOLOR teal>

Attribute	Description	Example
HEADING	Uses the specified text to replace the name of the measure for headings. This is similar to the DISPLAY_NAME attribute. However, HEADING cannot include filter text and other variable content. This attribute can be used on all measure, including custom measures.	<HEADING "Maximum Sale Value">
ITALIC	Displays the specified text in italics.	<ITALIC>
LINK	Adds a hyperlink to the specified URL. **NOTE** When this attribute is specified on a measure, it adds a link to the measure heading.	<LINK "https://www.calabrio.com">
NOTE	Attaches a note with the specified text to the current measure. The note appears in the tooltip that is shown when hovering over the measure heading or any value for that measure.	<NOTE "Ask Accounts Payable for more details.">
STRIKETHROUGH	Displays the specified text with a strikethrough.	<STRIKETHROUGH>
UNDERLINE	Displays the specified text with an underline.	<UNDERLINE>

Content attributes for numeric data types

The content attributes in this table can be used for numeric data types.

Attribute	Description	Example
BYTE_SCALE	Specifies what scale the desired byte output	<BYTE_SCALE "kB">

Attribute	Description	Example
	should use, in increments of 1024. The range is from bytes (B) to yottabytes (YB). Also has an auto option to automatically choose the best scale.	■ If the value “3287040” is to be formatted, “3,210 kB” is displayed because 287040 ÷ 1024 = 3210 <BYTE_SCALE "auto"> ■ If the value “9876543210” is formatted with <BYTE_ SCALE "auto">, “9.198 GB” is displayed because it cannot be further reduced.
CURRENCY_ CODE	Specifies the currency code as defined in ISO-4217. If a CURRENCY_SYMBOL is also specified, that attribute takes precedence.	<CURRENCY_CODE "EUR">
CURRENCY_ SYMBOL	Specifies the symbol to use when formatting. **NOTE** For the symbol to appear, you must also select <no formatting> in the Format selection list of the select measure dialog box.	<CURRENCY_SYMBOL "$">
DURATION	Specifies the value should be displayed as a time duration. This attribute uses the mm:ss pattern by default. It can be combined with the PATTERN attribute to specify alternate formats.	<DURATION> <DURATION; PATTERN "h:mm:ss"> <DURATION; PATTERN “mm.##”> ■ Displays a number of minutes with up to two decimals for a fraction of a minute. <DURATION; PATTERN

Attribute	Description	Example
		“mm:ss.00”> ■ Displays minutes, seconds, and exactly two decimals for a fraction of a second.
FIXED	Specifies the number of decimal places to display for a value. If necessary, the value is rounded to the specified number of decimal places.	<FIXED 4>
INPUT_BYTE_SCALE	Specifies what byte scale the input number is. If not specified, then the input value is assumed to be in bytes.	<INPUT_BYTE_SCALE "MB"> ■ If the value “2” is to be formatted with <BYTE_SCALE "MB">, “2,048 kB” is displayed because there are 1024 kB in 1 MB.
INPUT_METRIC_SCALE	Specifies what metric scale the input number is.	<INPUT_METRIC_SCALE "k"> ■ If the value “123456.789” accompanied with <METRIC_SCALE "M"> and <METRIC_UNIT "J"> is to be formatted, “123.457 MJ” is displayed because there are 1000 kJ in 1 MJ.
INTEGER	Formats the value as an integer, rounding it to the nearest whole number.	<INTEGER>
MAX_DP	Specifies the maximum number of decimal	<MAX_DP 2>

Attribute	Description	Example
	places to be included in the fraction part of a formatted number. If the specified number of digits exceeds the number of digits in the fraction value, all available digits are displayed. **NOTE** This value is ignored if the FIXED attribute is specified.	■ If the value “1.23” is formatted with <MAX_DP 1>, “1.2” is displayed. ■ If the value “1.23” is formatted with <MAX_DP 2>, “1.23” is displayed. ■ If the value “1.23” is formatted with <MAX_DP 3>, “1.23” is displayed.
METRIC_ SCALE	Specifies what scale the desired metric output should use. Uses increments of 1000. The range is from pico (p) to yotta (Y). Also has an auto option to automatically choose the best scale. METRIC_SCALE should always be accompanied by METRIC_UNIT. Available scales: ■ p—pico ■ n—nano ■ u—micro ■ m—milli ■ k—kilo ■ M—mega ■ G—giga ■ T—tera ■ P—peta ■ E—exa	<METRIC_SCALE "k"> ■ If the value “123456789” accompanied with a <METRIC_UNIT "J"> is to be formatted, “123,456.789 kJ” is displayed. <METRIC_SCALE "auto">■ If the value “0.0008” accompanied with a <METRIC_UNIT "W"> is to be formatted, “800 uW” is displayed.

Attribute	Description	Example
	■ Z—zetta ■ Y—yotta ■ auto—automatically chooses the best scale. ■ ‘ ‘—empty quotes for the base metric unit. For example, meters instead of kilometers. **NOTE** Instead of specifying the prefix letter, you can also use the spelled out scale.	
METRIC_UNIT	Specifies what unit is displayed in the output. METRIC_UNIT is should always be accompanied by METRIC_SCALE.	See the examples for METRIC_SCALE.
MIN_DP	Specifies the minimum number of decimal places to be included in the fraction part of a formatted number. If the number of digits specified exceeds the number of digits in the fraction value, all available digits are displayed followed by zeros to achieve the specified number of digits. **NOTE** This value is ignored if the FIXED attribute is specified.	<MIN_DP 3> ■ If the value “1.2” is formatted with <MIN_DP 1>, “1.2” is displayed. ■ If the value “1.2” is formatted with <MIN_DP 2>, “1.20” is displayed. ■ If the value “1.2” is formatted with <MIN_DP 3>, “1.200” is displayed.
MIN_INT_ DIGITS	Specifies the minimum number of integer digits to be included in the whole number part of a formatted number. If the number of digits specified exceeds	<MIN_INT_DIGITS 3> ■ If the value “.123” is formatted with <MIN_ INT_DIGITS 0>, “.123” is

Attribute	Description	Example
	the number of digits in the integer value, all available digits are preceded by zeros to achieve the specified number of digits.	displayed. ■ If the value ".123" is formatted with <MIN_ INT_DIGITS 1>, "0.123" is displayed. ■ If the value ".123" is formatted with <MIN_ INT_DIGITS 3>, "000.123" is displayed.
PATTERN	Specifies the formatting pattern to use. **NOTE** For the attribute to appear correctly, you must also select **<no formatting>** from the **Format** drop-down list in the **Select Measure** dialog box.	<PATTERN "#,###.00">
PERCENT	Formats the value as a percentage, displaying a % symbol and scaling it by 100. This attribute is most useful for displaying fractional values.	<PERCENT>
RADIX_CHAR	Specifies the character to use for the decimal separator in numbers. This must be a single-character string value.	<RADIX_CHAR ",">
TRIPLE_CHAR	Specifies the character to use for the grouping separator (typically thousands) in numbers. This must be a single-character string value.	<TRIPLE_CHAR ".">

Attribute	Description	Example
	NOTE To prevent any character from appearing, specify an empty string to suppress it.	

Content attributes for date/time data types

The content attributes in this table can be used for date/time data types.

Attribute	Description	Example
DATE_STYLE	Specifies the date formatting style to apply. Options include the following: short, medium, long, full, default, and none.	<DATE_STYLE "full">
PATTERN	Specifies the formatting pattern to use. This attribute can be combined with other attributes, such as DURATION to control the display of numerically-stored time durations. **NOTE** For the attribute to appear correctly, you must also select <no formatting> in the Format selection list of the select measure dialog box.	<PATTERN "#,###.00">
TIME_STYLE	Specifies the formatting style to apply to the time portion of a date/time value. Options include the following: short, medium, long, full, default, and none.	<TIME_STYLE "short">
TIME_ZONE	Specifies the time zone to use for interpreting date and time values.	<TIME_ZONE "America/Vancouver">

Content attributes for Boolean-like data types

Data Explorer does not use “Boolean” as a data type. However, it does support handling numeric data values of 0 and 1 as false/no and true/yes values. The content attributes in this table can be used for numeric data types that contain values of 0 or 1.

Attribute	Description	Example
FALSE_TEXT	Specifies the string to display for false values.	<FALSE_TEXT "Out of stock.">
TRUE_TEXT	Specifies the string to display for true values.	TRUE_TEXT "In stock.">

Configure enterprise KPIs

An enterprise key performance indicator (KPI) is more than just a single metric or measure, such as Average Handle Time, Adherence, or Calls Taken. To be a KPI, those numbers must be given further definition in order to tell their story and make an impact on enterprise performance management. KPIs require the following to be meaningful:

- A **goal**, so that you understand what the organization is trying to achieve.
- A **score**, so that you understand whether the goal was attained. Very often, scores are derived by using a simple ratio of metric divided by goal, but in other cases a more complex formula is required to assess achievement. For example, sometimes a curved rather than linear scale aligns better with the reality of performance and what is considered a “good” or “bad” score.
- A **prior period**, against which to evaluate performance over time. Are we doing better or worse than we did last month?
- A **dimensional context in which to be evaluated**. Is this for a group? A team? A service queue? An agent?

Each of these things, when properly configured, can quickly answer questions like, “Did the Eastern Team meet the company’s adherence goals for last month? Have they improved from the previous month?” or “Last month was tough on quality for the Database service queue due to storms in the Northeast. Now that the weather has settled down, how have they improved?”

KPI properties

There are nine properties configured that contribute to an enterprise KPI.

Property	Description
KPI Actual	The actual measure value. This is the same value that is returned if the measure is used without the KPI visualizations.
KPI Goal	The goal for the KPI, as defined on the Key Performance Indicators (KPIs) page (see Configure KPIs).

Property	Description
KPI Score	The score for the KPI, based on the actual and goal values. The specific formula that governs this is built directly into the data model and cannot be changed.
KPI Actual Delta %	The percentage of change between the actual value of the measure specified in the report and the actual value of the measure from the prior period.
KPI Actual Delta	The difference in value between the actual value of the measure specified in the report and the actual value of the measure from the prior period.
KPI Prior Actual	The prior value of the measure or metric at the time specified by the KPI Time Period Display property.
KPI Prior Score	The score attained by the prior actual value in comparison to the goal.
KPI Score Delta	The actual variance between the prior score and the current score.
KPI Time Period Display	The time period configured on the Key Performance Indicators (KPIs) page (see Configure KPIs).

Configure the settings

KPIs are configured at the company level on the **Key Performance Indicators (KPIs)** page in Application Management by an administrator (see Configure KPIs). This is done so that all KPIs can be compared on an even scale—the ones defined by the company for goals, dimensions, and time. That way, all results can be compared to one another with some certainty.

The Key Performance Indicators page is connected to the Data Explorer data library, from which it gets its list of available KPIs, their default values, and the groups, teams, and service queues associated with them. Once configured, those settings are read by any Data Explorer report that uses KPIs. If the KPI settings are changed, all KPI reports and dashboards are automatically updated to reflect those changes.

A KPI is hierarchical in nature. That is, when you set a goal and do not specify a group, team, or service queue, the goal applies to all groups, teams, and service queues in your entire contact center. If you specify a group, the goal applies only to that group and the teams that belong to it. If you specify a group, team, and service queue, the goal applies to the team belonging to the group and to the service queue, as they do not have a direct relationship. A more specific goal overrides a less specific goal.

NOTE Not all KPIs can be configured for all three available dimensions.

KPIs all come with default goals and time periods so that they will work without error. Those goals should be changed to suit your business' unique requirements and business goals.

Implement the reports

Any report can be a KPI report, as long as it uses one or more measures that have been configured to be KPIs. When configuring the report, you can choose to group by KPI Values (available in the Subject view) to show all of the configured properties for each KPI. The properties can be filtered so only selected properties are shown in the report.

KPI reports can be filtered like any other report and can be grouped by any of the dimensions that were configured on the Key Performance Indicators page.

Available KPI measures

The following KPI measures are available to be used in Data Explorer reports. You can filter the list of measures by the KPI tag to locate them easily when adding a new report in Data Explorer.

KPI	Description
# Contacts Taken	A count of the number of contacts that were answered.
Adherence %—Daily	Percentage of time agents are in adherence to their planned work schedules.
Average Contact Time	The sum of contact seconds divided by the number of contacts.
Average Handle Time—Agent by Interval and Service Queue	Average handle (contact, hold, and work) time for contacts handled this interval for the agent/queue.
Average Speed of Answer—Service Queue by	Average speed of calls answered in seconds by service queue by interval.

KPI	Description
Interval	
Conformance %—Daily	The conformance percentage that indicates how closely the agent conforms to the scheduled amount of time for the day.
Contacts Abandoned—Service Queue by Interval	The total number of contacts abandoned for the service queue.
Evaluation Score—Average	The average of the score per evaluation as a key performance indicator.
NPS	The computed net promoter score, where results can range from –100 to 100. The score comes from the NPS question, “On a scale of 1 to 10, how likely is it that you would recommend our organization to a friend or colleague?” 0–6 range = detractors 7–8 range = passives 9–10 range = promoters `NPS = (number of promoters – number of detractors) ÷ (number of respondents) × 100`
Utilization %—Daily	The average percentage of processing time per day for the agent.

Data Explorer formula language reference

Data Explorer allows you to use predefined functions in formulas. These functions can be used to alter measures when creating a report, or they can be used in formulas when creating a custom measure.

This reference describes all available functions. Functions are also described in the Data Explorer interface in the Data Element/Function Description pane in the Custom Measure dialog box.

Formula operators

The following table summarizes the available formula operators. They are listed in high to low precedence order. The precedence order is the sequence in which they are evaluated when included in a formula.

Operator	Category	No. Arguments Allowed	Description	Example
! (exclamation point)	Comparison, Logical	1	Unary logical NOT	
– (minus sign)	Arithmetic	1	Unary minus (negative number literal)	–1
* (asterisk)	Arithmetic	2	Product (multiply)	2*2
/ (forward slash)	Arithmetic	2	Division	2/2
+ (plus sign)	Arithmetic	2	Addition	2+2
– (minus sign)	Arithmetic	2	Subtraction	2–2
& (ampersand)	Concatenation	2	Joins two text values to produce one continuous text value. It can also combine attributes and append List values.	“Sales”&”force” attribute("BOLD", true) & attribute ("FORECOLOR", green) {1, 2, 3} & {4, 5, 6}
<=	Comparison	2	Less than or equal to	[Sales2020]<= [Sales2021]
<	Comparison	2	Less than	[Sales2020]< [Sales2021]
>	Comparison	2	Greater than	[Sales2020]>

Operator	Category	No. Arguments Allowed	Description	Example
				[Sales2021]
=	Comparison	2	Equal to	[Sales2020]= [Sales2021]
<>	Comparison	2	Not equal to	[Sales2020]<> [Sales2021]
&&	Concatenation, Logical	2	Logical AND, indicates whether both operands are true	IF [Customer]=”Jones” && [City]=”New York”
||	Concatenation, Logical	2	Logical OR, indicates whether either operand is true	IF [Customer]=”Jones” || [City]=”New York”

IF expression

IF expressions are used when you want to compare two values and then take action based on the result. You can use IF expressions to evaluate a series of complex conditions by nesting.

When building your formulas, you can use an IF function or an IF expression. They have similar purposes; however, the IF expression, because of its sentence-like structure, is easier to maintain when working with more complex, nested logic in formulas.

NOTE ELSE is required in an IF expression.

Examples

The following is an example of a simple IF expression. It compares the value of state to CA (California) and then provides a textual categorization based on the result.

```
IF [state]="CA" THEN "Western Region" ELSE "Eastern Region"
```

The following is an example of a nested IF expression. First, it compares hair_color to brown. Then it compares the value of gender to first male, then female. Based on the result of each comparison, it returns a descriptive value (brunet male or brunette female). If neither of the comparisons match, it provides a results of not brown.

```
IF [hair_color]="brown"
   THEN
   IF [gender]="male"
      THEN "brunet male"
   ELSE "brunette female"
ELSE "not brown"
```

NOTE If you are using a lot of nested IF statements, consider using the INSPECT statement as an alternative.

INSPECT expression

INSPECT expressions (blocks) are used when multiple cases or conditions are required to determine an output result. They function much like CASE or SWITCH blocks in other languages.

You can use INSPECT to evaluate conditions with different outcomes. For example, you could use an INSPECT expression to create cohort bucketing, grouping of product price ranges, and other types of categorizations.

With INSPECT, you can run a sequence of tests on a result until a matching case is found. The result value for the matching test is returned.

Each test clause can be either a CASE that matches against a list of values, or a WHEN that tests with a conditional expression. The required ELSE acts as a catch-all to return values that do not match any of the CASE or WHEN clauses.

Example

This example shows an INSPECT block that returns a bucketing of age based on defined ranges. It uses a CASE clause to match NULL and 0 conditions, WHEN clauses to identify and assign age categories, and append a suffix value to valid age ranges.

In the event that [Age] is ever rendered as any other value (such as a negative or error value), the ELSE clause is prepared to return a summary of “INVALID age” for that case.

```
INSPECT [Age]
CASE NULL, 0 THEN "Age not available"
```

```
WHEN [] < 21 THEN "Under 21"
WHEN [] < 35 THEN "21-34"
WHEN [] < 50 THEN "35-49"
WHEN [] < 65 THEN "50-64"
WHEN [] < 101 THEN "65-100"
WHEN [] >=101 THEN "Over 100"
WHEN [] > 1 THEN text([]) & " years"
ELSE "INVALID age"
```

The empty square brackets [] in the example refer to the concept of the unnamed field used to represent the actual value being inspected. This structure can be used in both the condition and result expressions in any INSPECT clause.

Clauses are tested in strict top-to-bottom order. The first clause that matches (or evaluates to true) returns its result from the INSPECT block. If clauses might overlap (as they commonly do), write them in the order of narrowest (most discriminating) to broadest (least discriminating).

LET expression

LET expressions are used at the beginning of a formula to provide it with local variables. By defining your LET expressions at the beginning of your formula, you can reference them as many times as needed within the local scope of the formula. LET functions much like the variable declarations available in other languages.

NOTE LET expressions cannot be updated or reassigned in a formula.

Examples

Your variable declaration can be very simple assignments. The following example creates a variable called **Regions** and assignes it a value of **42**.

```
LET [Regions]=42
```

Your LET statement can also call upon data elements to assign values. The following example assigns the results of the **Sales–Cost** calculation to a variable named **Margin**.

```
LET [Margin]=[Sales]-[Cost]
```

After including these expressions at the beginning of your formula, you can now call **Regions** and **Margin** later in the formula.

Complex data element references in formulas

When working with formulas, you reference data elements from your library directly by name. However, you can add controls to your data element references to control aggregation, locally filter data, group data, and apply ranking and trending logic within the data element reference.

Aggregate

You can specify aggregation within your element reference to control how the value will be consolidated. This overrides any default aggregation that was configured during data modeling. Optionally, you can also specify parameters for the aggregator, as shown in the percentile example below.

Example

```
[AVG of [Sales]]
[Max of [Sales]]
[DistinctCount of [Product]]
[MAX OF [Product].[Price]]
[Percentile(95) of [Sales]]
```

For more information about aggregators, see Field aggregators.

Cumulative aggregation (running totals)

You can use cumulative aggregation to calculate running totals over a specified grouping, including time groupings. With time groupings, you can also reset values on the change of a given time period.

Examples

```
[[Amount] CUMULATIVE OVER [Version]]

[[Amount] CUMULATIVE OER [Date]]

[[Amount] CUMULATIVE OVER [Date] RESET ON Year]
```

Filter

You can include one or more filters in your reference. Filters allow you to constrain the values included within the formula itself.

Examples

```
[[Sales] WHERE [Product] = "Bike"]

[AVG OF [Sales] WHERE isElem([Customer].[Country], 'Canada', 'USA', 'Mexico')]
```

Group

You can group value references using the BY keyword. This is useful for nesting aggregated values to provide multiple levels of aggregation.

Examples

```
[AVG OF [SUM OF [Sales] BY [Country]] ]

[AVG OF [SUM OF [Amount] BY [Product] ]
   WHERE [SUM OF [Amount] BY [Product] ] > 400 ]
```

Rank

You can calculate the rank of values within a grouping, and even plan for tied values, using SPARSE and DENSE options to specify whether the inclusion of gaps are to be left in the rank numbering and using PREFER GREATER and PREFER LESSER options to apply the ranking in an ascending or descending order. By default, the greatest ranked value is ranked 1, but this can be reversed.

Examples

```
[[Amount] RANK OVER [Region]]

[[Amount] SPARSE RANK OVER [Region]]

[[Amount] DENSE RANK OVER [Region]]

[[Amount] RANK OVER [Region] PREFER GREATER]

[[Amount] RANK OVER [Region] PREFER LESSER]
```

NOTE DENSE and SPARSE ranking handle tied values differently. For example, let us assume that there are three items tied for the second position. With DENSE ranking, you end up with rankings 1, 2, 2, 2, 3, 4, 5. With SPARSE ranking, you get 1, 2, 2, 2, 5, 6, 7. Unless SPARSE is specified, DENSE ranking is used as the default for ranking.

NOTE Group filters are applied to the entire grouped set of data prior to filtering. This means that filtering out some of these results can result in gaps in your ranking as the rank values reflect the rank across the entire data set. For example, if you have 10 ranked items in the full set and filter out items ranked 5–7 and 9, your results show ranked values of 1–4, 8, and 10. The relative ranking will be correct for sorting across the filtered items but will not be ranked exclusively across the filtered items.

Percentile and quartile ranking

You can calculate percentile and quartile ranking. In percentile ranking, 0 (zero) is the lowest value and 100 is the highest. In quartile ranking, 1 is the lowest value and 4 is the highest.

Examples

```
[[Amount] PERCENTILE RANK OVER [Date]]

[[Amount] QUARTILE RANK OVER [Date]]
```

Trending

You can include trending logic in your complex value reference. Simple linear trend values can be computed over time or numeric values.

Examples

```
[[Amount] TREND OVER [Date]]

[[Amount] TREND OVER [Version]]
```

Field aggregators

Field aggregators specify how Data Explorer interprets the data to apply a default mathematical operation to consolidate the data. This is helpful when the data in a field is processed in the same manner, such as calculating sums of Sales.

The available aggregators for a field depend on the type of data it contains, such as text or number. Data Explorer automatically applies an aggregator to each data type, using Latest for text and date, and Sum for number fields. You can change the default aggregator when mapping or editing your fields.

Aggregation can also be specified when selecting a measure for a report.

Aggregator options

Data Explorer currently includes the aggregators in this table.

Aggregator	Compatible Field Type	Description
Avg	Number	The average/arithmetic mean of all the values. Null values are not

Aggregator	Compatible Field Type	Description
		included in the calculation.
Count	Number, text, date	The count of all the available data. Null values are not included in the count.
DistinctCount	Number, text, date	The count of all the unique values.
DistinctValues	Number, text, date	The list of unique values.
Latest	Number, text, date	The last recorded value. This is the default aggregator used for text and date fields.
Max	Number, text, date	The largest value. ■ Number—the highest numerical value ■ Text—the lexicographically sorted last value ■ Date—the latest date
Median	Number	The arithmetic middle of all the values.
Min	Number, text, date	The smallest value. ■ Number—the lowest numerical value ■ Text—the lexicographically sorted first value ■ Date—the earliest date
StdDev	Number	Standard deviation. The measure of the extent of variation or dispersion

Aggregator	Compatible Field Type	Description
		within the data, or how spread out numbers are within the data.
Sum	Number	The sum of the values. This is the default aggregator used for number fields.

Function dictionary

A – B – C – D – E – F – G – H – I – J – K – L – M – N – O – P – Q – R – S – T – U – V – W – Y

A

abs

Syntax	`abs(number) : number`
Arguments	value: The value for which find the absolute value.
Category	Numeric
Context	All
	Returns the absolute value of the given number.

Example Expression	Expected Result
`abs(-12.34)`	`12.34`

add

Syntax	`add(number,number) : number`
Arguments	val1: The first value to add
	val2: The second value to add

Category	Numeric
Context	All Adds 2 number values. Note that a number added to null returns the original value.

Example Expression	Expected Result
`1 + 2`	`3`
`1 + NULL`	`1`

addAttribute

Syntax	`addAttribute(attributes,text,a) : attributes`
Arguments	attributes: The set of content attributes attrName: The name of the attribute attrValue: The attribute value
Category	Attributes
Context	All Adds an additional attribute with no condition to a set of content attributes with the specified name and value. This function is similar to the attribute() function, except that it adds the attribute to the set specified in the first argument instead of returning a new set.

Example Expression	Expected Result
`addAttribute(<FIXED 1>, “FONT_FACE”, “Arial”)`	`<FIXED 1; FONT_FACE “Arial”>`

addDays

Syntax	`addDays(time,number) : time`
Arguments	timeVal: The time value to be shifted

	nDayofmonth: The number of days to shift the time value
Category	Time
Context	All
	Adds a number of days to a time value. A negative shift value can be used to shift the time to a previous day. The shifting is sensitive to the user's time zone (where the shift crosses a DST boundary).

Example Expression	Expected Result
`addDays(toDate(2010,7,15), 2)`	`2010/07/17`
`addDays(toDate(2012,03,01), -1)`	`2012/02/29`

addErrorConditionAttribute

Syntax	`addErrorConditionAttribute(attributes,text,a) : attributes`
Arguments	attributes: The set of content attributes attrName: The name of the attribute attrValue: The attribute value
Category	Attributes
Context	All
	Adds an attribute with an "Is Error" value condition to a set of content attributes. The attribute will apply when the current data has an error value.

Example Expression	Expected Result
`addErrorConditionAttribute(<FIXED 1>, "FONT_FACE", "Arial")`	`<FIXED 1; Error<FONT_FACE "Arial">>`

addMonths

Syntax	`addMonths(time,number) : time`
Arguments	timeVal: The time value to be shifted. nMonth: The number of months to shift the time value.
Category	Time
Context	All Adds a number of months to a time value. A negative shift value can be used to shift the time to a previous month. The shifting is sensitive to the user's time zone (where the shift crosses a DST boundary).

Example Expression	Expected Result
`addMonths(toDate(2010,7,15), 2)`	`2010/09/15`
`addMonths(toDate (2012,03,30), -1)`	`2012/02/29`

addNullConditionAttribute

Syntax	`addNullConditionAttribute(attributes,text,a) : attributes`
Arguments	attributes: The set of content attributes attrName: The name of the attribute attrValue: The attribute value
Category	Attributes
Context	All Adds an attribute with an "Is Null" value condition to a set of content attributes. The attribute will apply when the current data has a Null value.

Example Expression	Expected Result

`addNullConditionAttribute(<FIXED 1>, “FONT_FACE”, “Arial”)`	`<FIXED 1; Null<FONT_FACE “Arial”>>`

addRangeConditionAttribute

Syntax	`addRangeConditionAttribute(attributes,text,a,number,number) : attributes`
Arguments	attributes: The set of content attributes attrName: The name of the attribute attrValue: The attribute value rangestart: The lower bound of the range condition, or Null for no lower bound rangeEnd: The upper bound of the range condition, or Null for no upper bound
Category	Attributes
Context	All Adds an attribute with a range condition to a set of content attributes. The attribute will apply when the current data value falls within the value range specified. Null values can be specified for the start or end of the range to indicate no lower or upper bound. If specified, the range start and end values are inclusive.

Example Expression	Expected Result
`addRangeConditionAttribute(<FIXED 1>, “FONT_FACE”, “Arial”, 3, 5)`	`<FIXED 1; Range 3:5<FONT_FACE “Arial”>>`
`addRangeConditionAttribute(<FIXED 1>, “FONT_FACE”, “Arial”, 3, Null)`	`<FIXED 1; Range 3:<FONT_FACE “Arial”>>`

addSeconds

Syntax	`addSeconds(time,number) : time`
Arguments	timeVal: The time value to be shifted

	nSecond: The number of seconds to shift the time value
Category	Time
Context	All Adds a number of seconds to a time value. A negative shift value can be used to shift the time to a previous second. The shifting is sensitive to the user's time zone (where the shift crosses a DST boundary).

Example Expression	Expected Result
`addSeconds(toDate(2010,7,15), 2)`	`2010/07/15 00:00:02`
`addSeconds(toDate (2012,3,1), -3600)`	`2012/02/29 23:00:00`

addYears

Syntax	`addYears(time,number) : time`
Arguments	timeVal: The time value to be shifted. nYear: The number of years to shift the time value.
Category	Time
Context	All Adds a number of years to a time value. A negative shift value can be used to shift the time to a previous year. The shifting is sensitive to the user's time zone (where the shift crosses a DST boundary).

Example Expression	Expected Result
`addYears(toDate(2010,7,15), 2`	`2012/07/15`
`addYears(toDate (2012,02,29), -1)`	`2011/02/28`

adjustTimeFilterPeriod

Syntax	`adjustTimeFilterPeriod(a, time, text, number, number) : a`
Arguments	val: The value expression to be computed. filterTime: The time value for which the filter will be added/updated. timePeriod: The name of the time period to be used for constructing the new filter time range. nPeriodsStartOffset: The time period offset start. nPeriods: The number of periods. This must be greater or equal to 1.
Category	Reference, Time
Context	field, query, report Computes values for time ranges that are relative to a time filter in the current query.

Example Expression	Expected Result
`adjustTimeFilterPeriod( [Sum OF [Sales]], [Order Date], 'Month', -1, 1)`	`1000`

and

Syntax	`and(bool,bool) : bool`
Arguments	bool1: The first Boolean argument bool2: The second Boolean argument
Category	Logical
Context	All Returns True if both of the argument values are True. Otherwise it returns False.

Example Expression	Expected Result

`and(true, false)`	`false (0)`
`and(true, true)`	`true (1)`

append

Syntax	`append(text,text) : text` `append(attributes,attributes) : attributes`
Arguments	val1: The first value to append val2: The second value to append
Category	Append
Context	All Concatenates 2 values (text, attributes, lists, and so on). Note that Null values will be ignored when appended to other values.

Example Expression	Expected Result
`'testing' & '123'`	`'testing123'`
NULL & 'abc'	'abc'
{1, 2, 3} & {3, 4, 5}	{1, 2, 3, 3, 4, 5}
<BOLD; FORECOLOR red> & <UNDERLINE>	<BOLD; FORECOLOR red; UNDERLINE>

aqua

Syntax	`aqua() : color`
Category	Color
Context	All The color aqua.

attribute

Syntax	`attribute(text,a) : attributes`
Arguments	attrName: The name of the attribute attrValue: The attribute value
Category	Attributes
Context	All Returns a single, unconditional attribute with the specified name and value.

Example Expression	Expected Result
`attribute(“FONT_FACE”, “Arial”)`	`<FONT_FACE “Arial”>`
`attribute(“FIXED”, 1)`	`<FIXED 1>`
`attribute(“FORECOLOR”, blue)`	`<FORECOLOR blue>`

avg

Syntax	`avg(number) : number`
Arguments	val: The values to aggregate
Category	Aggregation
Context	field, query, report Returns the arithmetic mean of all of the data values for a given field.

Example Expression	Expected Result
`avg([Salary])`	`65000.0`

avgOfList

Syntax	`avgOfList(list<number>) : number`
Arguments	list: The list of values whose average to find
Category	List
Context	All Returns the average of the non-null values in a given list. The list can be passed to the function as a literal list enclosed in braces or as a sequence of arguments.

Example Expression	Expected Result
`avgOfList({1,null,2})`	`1.50`
`avgOfList(1,null,2)`	`1.50`

B

black

Syntax	`black() : color`
Category	Color
Context	All The color black.

blue

Syntax	`blue() : color`
Category	Color
Context	All The color blue.

C

capture

Syntax	`capture(text,text,number) : text`
Arguments	regex: The regular expression pattern (with required capture pattern). text: The body text to scan for the pattern match. index: The capture pattern index indicating which text to return.
Category	Text
Context	All Returns the text that matches a given regular expression.

Example Expression	Expected Result
`capture("(\d+)-(\d+)-(\d+)", "123-456-789", 2)`	`456`
`capture(".*(foo).*", "myfoo2", 0)`	`myfoo2`
`capture(".*(foo).*", "myfoo2", 1)`	`foo`

ceiling

Syntax	`ceiling(number) : number`
Arguments	value: The numeric value to be rounded.
Category	Numeric
Context	All Returns the smallest integer value that is greater than or equal to the argument.

Example Expression	Expected Result
`ceiling(1.9)`	`2`
`ceiling(-1.9)`	`-1`

char

Syntax	`char(number) : text`
Arguments	code: Unicode character value
Category	Text
Context	All
	The character representing the given unicode value.

Example Expression	Expected Result
`char(65)`	`A`

charCode

Syntax	`charCode(text) : number`
Arguments	text: The text.
Category	Text
Context	All
	Returns the unicode character value of the first character in the given text.

Example Expression	Expected Result
`charCode(“ABC”)`	`65`

clean

Syntax	`clean(text) : text`
Arguments	text: The original text.
Category	Text
Context	All
	Removes all of the non-printable characters from a specified text.

Example Expression	Expected Result
`clean([Description Text])`	`Nice text`

coalesce

Syntax	`coalesce(list<a>) : a`
Arguments	vals: A list of values.
Category	Value
Context	All
	Returns the value of the first non-null, non-error argument.

Example Expression	Expected Result
`coalesce(null, null, 1, null, 2)`	`1`
`coalesce(null, null)`	`null`

color

Syntax	`color(text) : color`
	`color(number,number,number) : color`
	`color(number,number,number,number) : color`

Argument	color: A color string. R: The red component value (0–255). G: The green component value (0–255). B: The blue component value (0–255). alpha: The alpha component value (0–255).
Category	Color
Context	All Construct a color value. The arguments can be red, green, blue, and optionally alpha component values (0–255). Alternatively, a color string can be specified containing: ■ Comma-separated RGB values (with or without an alpha value) ■ Hex color string ■ X11 color name

Example Expression	Expected Result
color(0 , 255, 0)	
`color(255, 0, 0, 128)`	
`color("255,0,255")`	
`color("#00FF00")`	
`color("Dark Orange")`	

contains

Syntax	`contains(text,text) : bool`
Arguments	regex: The regular expression pattern.

	text: The body text to scan for the pattern match.
Category	Text
Context	All Determines if a pattern of text occurs within the given source text.

Example Expression	Expected Result
`contains("o*b", "foobar")`	`true (1)`
`contains("o", "foobar")`	`true (1)`
`contains("oa", "foobar")`	`false (0)`

containsAll

Syntax	`containsAll(list<a>,list<a>) : bool`
Arguments	list1: The first list. list2: The second list.
Syntax	containsAll(set<a>,set<a>) : bool
Arguments	set1: The first set. set2: The second set.
Category	List
Context	All Checks if the first list contains all values in the second list.

Example Expression	Expected Result
`containsAll({1, 2, 3, 4} {2, 4})`	`True`
`containsAll({1, 2, 3, 4}`	`False`

```
{3, 5})
```

containsAny

Syntax	`containsAny(list<a>,list<a>) : bool`
Arguments	list1: The first list list2: The second list
Syntax	containsAny(set<a>,set<a>) : bool
Arguments	set1: The first set set2: The second set
Category	List
Context	All Checks if the first list contains any of the values in the second list.

Example Expression	Expected Result
`containsAny({1, 2, 3, 4} {2, 5})`	`True`
`containsAll({1, 2, 3, 4} {5, 7})`	`False`

containsAttribute

Syntax	`containsAttribute(attributes,text) : bool`
Arguments	attributes: The set of content attributes (conditional and/or unconditional). attrName: The name of the attribute to check for.
Category	Attributes
Context	All

Checks whether the specified attribute appears in the set of content attributes (with or without a condition).

Example Expression	Expected Result
`containsAttribute(<FIXED 1; Error<FONT_FACE "Arial";>>, "FIXED")`	`True`
`containsAttribute(<FIXED 1; Error<FONT_FACE "Arial";>>, "FONT_FACE")`	`True`
`containsAttribute(<FIXED 1; Error<FONT_FACE "Arial";>>, "ABC")`	`False`

continuousValueFeature

Syntax	`continuousValueFeature(number,number) : number` `continuousValueFeature(time,number) : number`
Arguments	featureProp: The continuous (number or time) value property on which the feature is based weighting: A weighting factor that will give more influence to features with higher weighting values (default =- 1)
Category	Reference
Context	field, query, report Specifies the configuration for a continuous (number or time) value feature to be used when querying similar values.

Example Expression	Expected Result
`continuousValueFeature ([Contact].[Duration], 0.5)`	`null`
continuousValueFeature([Country].[Population], 1.0)	null

continuousValueFeature([Contact].[StartTime], 0.5)	null

contributionDate

Syntax	`contributionDate() : time`
Arguments	—
Category	System
Context	Column Returns the date/time associated with the data contribution containing the current row. The default is the date on which the data containing the row was uploaded. The official contribution date can also be provided by the user or via the program interface.

Example Expression	Expected Result
`contributionDate())`	`2011`

contributionId

Syntax	`contributionId() : number`
Arguments	—
Category	System
Context	Column Returns a unique ID for the data contribution containing the current row.

Example Expression	Expected Result
`contributionId()`	`123456`

contributionRowId

Syntax	`contributionRowId() : number`
Arguments	—
Category	System
Context	Column Returns the row number for the current row within its data contribution.

Example Expression	Expected Result
`contributionRowId()`	`1`

contributionSecondaryRowId

Syntax	`contributionSecondaryRowId() : number`
Arguments	—
Category	System
Context	Column Returns the row number for the current row within its secondary division in the data contribution. Used for differentiating row count for nested XPaths.

Example Expression	Expected Result
`contributionSecondaryRowId()`	`1`

count

Syntax	`count(a) : number`
Arguments	val: The values to aggregate
Category	Aggregation
Contexts	Field, query, report

Returns the total number of non-null and non-error data values for a given field, even if some records are not unique.

To count the number of unique records instead, use the distinctCount function.

Example Expression	Expected Result
`count({Employee})`	`43`

countOfList

Syntax	`countOfList(list<a>) : number`
Arguments	list: The list of values to find the count.
Category	List
Context	All

Returns the count of the non-null values in a given list. The list can be passed to the function as a literal list enclosed in braces or as a sequence of arguments.

Example Expression	Expected Result
`countOfList({1,null,2})`	`2`
`countOfList(1,null,2)`	`2`
`countOfList('c', 'a', 't')`	`3`

currentMeasureValue

Syntax	`currentMeasureValue() : number`
Arguments	
Category	Reference
Context	All

A placeholder for the value of the current measure.

Example Expression	Expected Result
`currentMeasureValue() + 1`	`7`

D

datasetName

Syntax	`datasetName() : text`
Arguments	—
Category	System
Contexts	Column Returns the name of the data set containing the current row.

Example Expression	Expected Result
`datasetName()`	`UK Division`

dateToUnixTimeSeconds

Syntax	`dateToUnixTimeSeconds(time) : number`
Arguments	date: The date to convert to a Unix time value in seconds
Categories	Conversion, Time
Contexts	All Converts a date-time value to the Unix timestamp value (number of seconds since Jan 1, 1970 UTC)

Example Expression	Expected Result
`dateToUnixTimeSeconds(toDate (2015, 1, 1)))`	`1420070400`

dateTrim

Syntax	`dateTrim(time,text) : time`
Arguments	date: The time to trim. timePeriod: The name of the time period to trim to.
Category	Time
Context	All Returns a data value that is trimmed to the specified precision. The date can be trimmed to the minute, hour, day, month, or year. The second argument controls how the date value is trimmed. Works with the name of the time period: year, month, quarter, week.

Example Expression	Expected Result
month(dateTrim({GoodsIn}, “dayOfMonth”))	3
`month(dateTrim({GoodsIn}, “year”))`	`1`

dateTrimSecondsUTC

Syntax	`dateTrimSecondsUTC(time,number) : time`
Arguments	time: The time to trim seconds: The number of seconds used to trim to
Category	Time
Context	All Truncates time values to a given interval in seconds

Example Expression	Expected Result
`dateTrimSecondsUTC(toDate(2015, 3, 10, 20, 4), 1800)`	`2015-03-10 20:00:00 UTC`
`dateTrimSecondsUTC(toDate(2015, 3, 10, 20, 38), 1800)`	`2015-03-10 20:30:00 UTC`
`dateTrimSecondsUTC(toDate(2015, 3, 10, 20, 38), 1200)`	`2015-03-10 20:20:00 UTC`

day

Syntax	`day(time) : number`
Arguments	time: The time from which to extract the day
Category	Time
Contexts	All
	Returns the day of the given date-time value

Example Expression	Expected Result
`day([BonusDate])`	`1`

deleteAll

Syntax	`deleteAll(list<a>,list<a>) : list<a>`
Arguments	list: The list to delete elements from
	elements to delete: The elements to delete from the list
Categories	List
Contexts	All
	Deletes all specified elements from a list.

Example Expression	Expected Result
`deleteAll({1,2,3},{2})`	`{1,3}`
`deleteAll({1,2,3,4,5},{1,5})`	`{2,3,4}`
`deleteAll({1,1,1,1,1},{1})`	`{}`
`deleteAll({},{1,2,3})`	`{}`

deleteAt

Syntax	`deleteAt(list<a>,number) : list<a>`
Arguments	list: The list to delete elements from index: The index of the element to delete
Categories	List
Contexts	All Returns the list without the specified element.

Example Expression	Expected Result
`deleteAt({1,2},{1})`	`{2}`
`deleteAt({1,2},2)`	`{1}`
`deleteAt({},50)`	`{}`
`deleteAt({1, 2, 3},-1)`	`{1, 2, 3}`

diffDays

Syntax	`diffDays(time,time) : number`
Arguments	time1: The first date-time value

	time1: The second date-time value
Category	Time
Context	All
	Returns the number of days between two dates. If the first date is after the second date then the return value will be positive, otherwise it will be negative.

Example Expression	Expected Result
`diffDays(toDate("yyyy", "2001"), toDate ("yyyy", "2000"))`	`366`
`diffDays(toDate("yyyy", "2002"), toDate ("yyyy", "2001"))`	`365`

diffSeconds

Syntax	`diffSeconds(time,time) : number`
Arguments	time1: The first date-time value time2: The second date-time value
Category	Time
Contexts	All
	Returns the number of seconds between two given time values. If the first time is after the second time, then the returned value is positive, otherwise it is negative.

Example Expression	Expected Result
`diffSeconds(toDate("yyyy-hhmm", "2001-1030"), toDate ("yyyy-hhmm", "2001-1029"))`	`60`

discreteValueFeature

Syntax	`discreteValueFeature(a,number) : number`
Arguments	featureProp: The discrete value property on which the feature is based weighting: A weighting factor which will give more influence to features with higher weighting values (default = 1)
Category	Reference
Context	field, query, report Specifies the configuration for a discrete value feature to be used when querying similar values.

Example Expression	Expected Result
`discreteValueFeature ([Contact].[Agent], 1.0)`	`null`
discreteValueFeature([Country].[Language], 0.5)	null

distinctCount

Syntax	`distinctCount(a) : number`
Arguments	val: The values to aggregate.
Category	Aggregation
Contexts	field, query, report Returns the number of unique non-null and non-error data values for a given field. To count the total number of records instead, use the count function.

Example Expression	Expected Result
`distinctCount([Employee])`	`14.0`

distinctCountOfList

Syntax	`distinctCountOfList(list<a>) : number`
Arguments	list: The list of values to find the distinct count
Category	List
Context	All Returns the distinct count of the non-null values in a given list. The list can be passed to the function as a literal list enclosed in braces or as a sequence of arguments.

Example Expression	Expected Result
`distinctCountOfList ({1,null,1,2})`	`2`
`distinctCountOfList (1,null,1,2)`	`2`

divide

Syntax	`divide(number,number) : number`
	
	`divide(number,number,number) : number`

Arguments	num: The numerator value denom: The denominator value fallback: The fallback value
Category	Numeric
Context	All Divides one number by another. If either value is null, then the result is null. An error value is returned if the divisor is zero. Instead of returning an error, an optional third argument representing a fallback value can be specified. If the divisor is zero, the fallback value is returned.

Example Expression	Expected Result

`6 / 2`	`3`
`6 / NULL`	`NULL`
`6 / (1 - 1)`	`ERR{DivideByZero}`
`divide(5, 1, NULL)`	`5`
divide(5, 1, error('fallback error'))	`5`
divide(error('a'), error('b'), 3)	ERR{a, b}
divide(NULL, 0, 3)	`NULL`
divide(0, NULL, 3)	`NULL`

drop

Syntax	`drop(number,list<a>) : list<a>`
Arguments	number: The number of values to drop from the provided list list: The list to discard values from
Category	List
Context	All Returns the given list with a number of values discarded from the start of the list.

Example Expression	Expected Result
`drop(2, {"do", "not", "never", "do"})`	`{"never", "do"}`
drop(3, {1,2})	`{}`
drop(3, {})	`{}`

dropLast

Syntax	`dropLast(list<a>) : list<a>`
Arguments	list: The list to discard the last value from.
Category	List
Context	All Returns the given list with the last value discarded.

Example Expression	Expected Result
`dropLast({"do", "not", "never", "do"})`	`{"do", "not", "never"}`
dropLast({1,2})	{1}
dropLast({})	{}

dropPrefix

Syntax	`dropPrefix(text,text) : text`
Arguments	prefix: The prefix to remove text: The text to remove the prefix from
Category	Text
Context	All Drops a specified prefix from a text value if it exists. If the prefix does not exist, the text is returned unmodified.

Example Expression	Expected Result
`dropPrefix("The ", "The Fox")`	`"Fox"`
dropPrefix("The ", "A Fox")	"A Fox"

dropSuffix

Syntax	`dropSuffix(text,text) : text`
Arguments	suffix: The suffix to remove text: The text to remove the suffix from
Category	Text
Context	All Drops a specified suffix from a text value if it exists. If the suffix does not exist, the text is returned unmodified.

Example Expression	Expected Result
`dropSuffix(" Fox", "The Fox")`	`"The"`
dropSuffix(" Dog", "The Fox")	"The Fox"

E

each

Syntax	`each(list<a>) : a`
Arguments	list: The list of values to be expanded.
Category	List
Contexts	field, query Expands a list value into multiple rows of data.

endsWith

Syntax	`endsWith(list<a>,list<a>) : bool`
Arguments	possibleSuffix: The list to be checked for at the end of the list. list: The list that might contain the suffix list.

Category	List
Context	All Returns True if the first list is a suffix of the second list.

Example Expression	Expected Result
`endsWith({3}, {1, 2, 3})`	`True`
`endsWith({5, 6, 7}, {1, 2, 3})`	`False`

endsWith

Syntax	`endsWith(list<a>,list<a>) : bool`
Arguments	possibleSuffix: The list to be checked for at the end of the list. list: The list that might contain the suffix list.
Category	List
Context	All Returns True if the first list is a suffix of the second list.

Example Expression	Expected Result
`endsWith({3}, {1, 2, 3})`	`True`
`endsWith({5, 6, 7}, {1, 2, 3})`	`False`

equals

Syntax	`equals(a,a) : bool`
Arguments	val1: The first value to compare val2: The second value to compare
Category	Comparison

Context	All Returns True if the first value is equal to the second value. Note that comparing against Null is allowed.

Example Expression	Expected Result
`5 = 10`	`false`
`5 = 5`	`true`
`Null = 5`	`false`
`Null = Null`	`true`

errorConditionAttribute

Syntax	`errorConditionAttribute(text,a) : attributes`
Arguments	attrName: The name of the attribute attrValue: The attribute value
Category	Attributes
Contexts	All Construct a content attribute containing a single attribute with an “Is Error” condition.

Example Expression	Expected Result
`errorConditionAttribute ("FIXED", 1)`	`<Error<FIXED 1>>`

F

factorial

Syntax	`factorial(number) : number`
Arguments	value: The numeric value to evaluate the factorial function at
Category	Numeric
Context	All Returns the factorial of a given value. Due to imprecision of floating point numbers, this loses some precision after factorial (18).

Example Expression	Expected Result
`factorial(3)`	`6`
`factorial(0)`	`1`
`factorial(-1)`	`1`
`factorial(3.5)`	`6`

filteredValue

Syntax	`filteredValue(a,bool) : a`
Arguments	val: The expression to evaluate with the modified filter filter: A filter to be applied to the specified value
Category	field, query, report Returns the value of the first argument with the specified filter applied.
Context	

Example Expression	Expected Result
`filteredValue([Sales], [Product].[Size] > 7)`	`4000`
filteredValue([SUM OF [Sales]] - [SUM OF [Costs]], [Country] = 'Canada')	`2000`

find

Syntax	`find(a,list<a>) : number`
Arguments	x: The item to find in the list List: The list that might contain the item
Syntax	`find(text,text) : number`
Arguments	searchText: The text to search for text: The body text in which to locate searchText
Syntax	`find(text,text,number) : number`
Arguments	searchText: The text to search for text: The body text in which to locate searchText start: The character location in text at which to start searching
Category	List
Context	All Find the index of the given item in the given list starting at the beginning of the list or 0 if the item is not found in the list

Example Expression	Expected Result
`find("a",{"a","b","a","b"})`	`1`
`find("z",{"a","b","a","b"})`	`0`

findLast

Syntax	`findLast(a,list<a>) : number`
Arguments	x: The item to find in the list

	List: The list that might contain the item
Syntax	`findLast(text,text) : number`
Arguments	searchText: The text to search for text: The body text in which to locate searchText
Syntax	`findLast(text,text,number) : number`
Arguments	searchText: The text to search for text: The body text in which to locate searchText start: The character location in text at which to start searching
Category	List
Context	All Find the index of the given item in the given list starting at the end of the list.

Example Expression	Expected Result
`findLast("a", {"a","b","a","b"})`	`3`

floor

Syntax	`floor(number) : number`
Arguments	value: he numeric value to be rounded
Category	Numeric
Context	All Returns the smallest integer value that is less than or equal to the argument.

Example Expression	Expected Result

`floor(1.9)`	`1`
`floor(-1.9)`	`-2`

format

Syntax	`format(attributes,a) : text`
Arguments	attributes: The attributes to format the value with value: The value to be formatted
Category	Format
Context	All Returns the formatted text for the given value and formatting attributes set.

Example Expression	Expected Result
`format(<FIXED> 3>, 1)`	`1.000`

fuchsia

Syntax	`fuchsia() : color`
Category	Color
Context	All The color fuchsia.

G

getCurrentUser

Syntax	`getCurrentUser() : text`

Arguments	—
Category	System
Context	field, query, report Returns the account name of the current user.

Example Expression	Expected Result
`getCurrentUser()`	`currentUser@emailAddress.com`

grandTotalValue

Syntax	`grandTotalValue(a) : a`
Arguments	val: The expression to evaluate in the modified (grand total) context
Category	Reference
Context	field, query Returns the grand total value for the specified expression across all context dimensions. This can be used to generate comparisons to specific values.

Example Expression	Expected Result
`[Sales] / grandTotalValue ([Sales])`	`0.23`

gray

Syntax	`gray() : color`
Category	Color
Context	All The color gray.

greaterThan

Syntax	`greaterThan(a,a) : bool`
Arguments	val1: The first value to compare val2: The second value to compare
Category	Comparison
Context	All Returns True if the first value is greater than the second value.

Example Expression	Expected Result
10 > 5	true
`5 > 10`	`false`
`5 > 5`	`false`

greaterThanEquals

Syntax	`greaterThanEquals(a,a) : bool`
Arguments	val1: The first value to compare val2: The second value to compare
Category	Comparison
Context	All Returns True if the first value is greater than or equal to the second value.

Example Expression	Expected Result
`5 >= 10`	`false`
`5>= 5`	`true`

green

Syntax	`green() : color`
Category	Color
Context	All The color green.

group

Syntax	`group(list<a>) : list<list<a>>`
Arguments	list: The list to group together values with
Category	List
Context	All Returns the provided list with subsequent equal values grouped together into a sublist.

Example Expression	Expected Result
`group ({"hello","hello","goodbye","hello"})`	`{{"hello", "hello"}, {"goodbye"}, {"hello"}}`
group({"a", "a", "b", "b"})	{{"a", "a"}, {"b", "b"}}
group({1,2,2,3,3,3,4,4,4,4})	{{1}, {2, 2}, {3, 3, 3}, {4, 4, 4, 4}}
group({"a"})	{{"a"}}
group({})	{}

H

head

Syntax	`head(list<a>) : a`

Arguments	list: The list from which to take the first element.
Category	List
Context	All Returns the first element of the list. If the list is empty, returns null.

Example Expression	Expected Result
`head({1,2,3,4})`	`1`
`head({1})`	`1`
`head({})`	`null`

hour

Syntax	`hour(time) : number`
Arguments	time: The time from which to extract the hour
Category	Time
Context	All Returns the hour of the given date-time value.

Example Expression	Expected Result
`hour([BonusDate])`	`23`

I

if

Syntax	`if(bool,a,a) : a`
Arguments	condition: The Boolean condition to be tested

	thenVal: The value to be returned if the condition is true elseVal: The value to be returned if the condition is false
Category	Control
Context	All Returns the second argument (the THEN value) if the condition value (the first argument) is true or the third argument (the ELSE value) if the condition value is false. If the condition value is Null, then null is returned.

Example Expression	Expected Result
`IF True THEN 123 ELSE NULL`	`123`
`IF NULL THEN 123 ELSE 999`	`NULL`
`IF(1 > 2, 'abc', 'def')`	`'def'`

ifEmpty

Syntax	`ifEmpty(a,a) : a`
Arguments	value: The value to check valueIfEmpty: The value to use if the first argument is empty.
Category	Value
Context	All Evaluates the first argument to determine if it is empty. If it is not empty, the first argument is returned. Otherwise, the second argument is returned.

Example Expression	Expected Result
`ifEmpty("", "nonEmptyText")`	`nonEmptyTest`
`ifEmpty({}, {1,2,3})`	`{1,2,3}`

ifError

Syntax	`ifError(a,a) : a`
Arguments	value: The value to check valueIfEmpty: The value to use if the first argument is empty.
Category	Error, Value
Context	All Evaluates the first argument to determine if it is an error. If there is no error, the first argument is returned. Otherwise, the second argument is returned.

Example Expression	Expected Result
`ifError(5, 10)`	`5`
`ifError(5 / 0, 10)`	`10`

ifNotValue

Syntax	`ifNotValue(a,a) : a`
Arguments	value: The value to check valueIfNullError: The value to use if the first argument is an error or null.
Category	Value
Context	All Evaluates the first argument to determine if it has a value (it is not null or not an error). If it has a value, the first argument is returned. Otherwise, the second argument is returned.

Example Expression	Expected Result
`ifNotValue(5, 10)`	`5`
`ifNotValue(5 / 0, 10)`	`10`

`ifNotValue(NULL, 10)`	`10`

ifNull

Syntax	`ifNull(a,a) : a`
Arguments	value: The value to check valueIfNull: The value to use if the first argument is null
Category	Value
Context	All
	Evaluates the first argument to determine if it is null. If it is not null, the first argument is returned. Otherwise, the second argument is returned.

Example Expression	Expected Result
`ifNull(5, 10)`	`5`
`ifNull(NULL, 10)`	`10`

inRange

Syntax	`inRange(a,range<a>) : bool`
	`inRange(a,a,a) : bool`
	`inRange(a,a,bool,a,bool) : bool`

Arguments	value: The value to check range: The range of values rangeStart: The inclusive start of the value range rangeEnd: The inclusive end of the value range startInclusive: True if the start of the range (if any) is inclusive endInclusive: True if the end of the range (if any) is inclusive

Category	Range
Context	All Returns whether a value is included in the specified range.

Example Expression	Expected Result
`inRange(5, range(1, 10))`	`True`
inRange(12, range(1, 10))	`False`
inRange(12, range(10, null))	`True`
inRange(10, range(1, False, 10, False))	`False`

insertAt

Syntax	`insertAt(list<a>,number,a) : list<a>`
Arguments	list: The list to insert the value into index: The index at which to insert the value value: The value to insert
Category	List
Context	All Inserts a value at a given index.

Example Expression	Expected Result
`insertAt({1,2,3},2,4)`	`{1,4,2,3}`
`insertAt({4,6,2,3},1,9)`	`{9,4,6,2,3}`
`insertAt({9,4,2},100,29)`	`{9,4,2,29}`
`insertAt({1,2,3},-200,111)`	`{111,2,3}`
`insertAt({},0,1)`	`{1}`

intersection

Syntax	`intersection(list<a>) : list<a>`
Arguments	list1: The list to subtract from when an element is not found in list2. list2: The list to find duplicates in, in order to keep elements of list1.
Category	List
Context	All Returns the elements of a first list that appear in a second list.

Example Expression	Expected Result
`intersection({1,2,3},{2,3,4})`	`{}`
`intersection({5,5,5}, {4,5,6})`	`{5,5,5}`
`intersection({4,5,6}, {6,6,6})`	`{6}`
`intersection({},{1,2})`	`{}`
`intersection({1,2},{})`	`{}`
`intersection({},{})`	`{}`

intersectRanges

Syntax	`intersectRanges(list<range<a>>) : range<a>`
Arguments	ranges: A list of ranges
Category	Range
Context	All Returns the intersection of 2 or more ranges, or null if the ranges do not intersect.

Example Expression	Expected Result
`intersectRanges(range(1, 10), range(5, 15))`	`range(5, 10)`
intersectRanges(range(1, 10), range(11, 20))	`null`
intersectRanges(range(1, 10), range(5, 15), range(8, 9))	range(8, 9)
intersectRanges(range(1, 10), range(5, 15), range(12, 20))	`null`
intersectRanges(range(null, 10), range(10, null))	range(10, 10)

isElem

Syntax	`isElem(a,list<a>) : bool`
Arguments	value: the item to check for membership in the given list. list: The list that might contain the item.
Category	List
Context	All Checks if the given element is a member of the given list.

Example Expression	Expected Result
`isElem("a",{"a","b","c"})`	`True`
`isElem("e",{"a","b","c"})`	`False`

isEmpty

Syntax	`isEmpty(a) : bool`
Arguments	value: The value to check
Category	Value
Context	All

Returns True if the argument evaluated is determined to be empty. Values that can be empty are strings, lists, sets, tuples, attributes, and null.

Example Expression	Expected Result
`isEmpty("")`	`true`
isEmpty("abc")	`false`
isEmpty({})	`true`
isEmpty({1,2,3})	`false`
isEmpty(set())	`true`
isEmpty(set(1,2,3))	`false`
isEmpty(tuple())	`false`
isEmpty(tuple(1,2,3))	`false`
isEmpty(attribute(NULL, NULL))	`true`
isEmpty(attribute("FIXED", 1))	`false`
`isEmpty(null)`	`true`

isError

Syntax	`isError(a) : bool`
Arguments	value: The value to check
Category	Error, Value
Context	All

Returns true if the argument is an error value.

Example Expression	Expected Result

`isError(5)`	`False`
`isError(5 / 0)`	`True`

isGroupingBy

Syntax	`isGroupingBy(a) : bool`
Arguments	grouping: A reference to check against the groupings in the current evaluation context.
Category	Reference
Context	field, query Indicates whether a given value is being grouped on in the current context.

Example Expression	Expected Result
`isGroupingBy([Country])`	`True`

isSimilarValue

Syntax	`isSimilarValue(a,number,a,list<number>) : bool`
Arguments	subject: The subject for which similar values should be retrieved nSimilar: The number of similar values to be included compareKey: The subject key value to which the comparison is made features: The feature properties on which the comparison is performed
Category	Reference
Context	field, query, report Checks whether the current instance of a subject is one of the N most similar values to a reference value based on the features specified. The feature properties can be specified directly for continuous number values. The similarityFeature() function can also be used for specifying features to give weighting values, or for specifying non-numeric or discrete value feature properties.

Example Expression	Expected Result
`isSimilarValue([Country], 5, 'France', [Country].[Population], [Country].[GDP])`	`false`
isSimilarValue([Country], 5, 'France', [Country].[GDP], similarityFeature([Country].[Population], True, 1.0), similarityFeature([Country].[Language], False, 0.5))	`false`

J

join

Syntax	`join(text,list<a>) : text`
Arguments	separator: The separator used in joining list elements. list: The list containing elements to be joined.
Category	List
Context	All Joins the elements in the list with the separator and returns the result in a single string.

Example Expression	Expected Result
`join(",", {"a","b"})`	“a,b”
`join("-", 1.0,2.0)`	“1-2”

joinNonEmpty

Syntax	`joinNonEmpty(text,list<a>) : text`
Arguments	separator: The separator used in joining list elements. list: The list containing elements to be joined.
Category	List

Context	All
	Joins the non-null/non-empty elements of the list with the separator and returns the result in a single string. If the list does not contain any null or empty value, this function behaves the same as the join function. Note that the generated text does not include empty strings, empty sets, empty maps, empty tuples and empty lists or nulls.

Example Expression	Expected Result
`joinNonEmpty(",", {"a", NULL, "b", ""})`	`"a,b"`
`joinNonEmpty("-", {}, {1, 2}, {3})`	`"[1, 2]-[3]"`
`joinNonEmpty("-", set(), set(1, 2))`	`"{1, 2}"`

joinNonNull

Syntax	`joinNonNull(text,list<a?) : text`
Arguments	separator: The seaparator used in joining list elements. list: The list containing elements to be joined.
Category	list
Context	All
	Joins the non-null elements in the list with the separator and returns the result in a single string. If the list does not contain any null value, this function behaves the same as the join function.

Example Expression	Expected Result
`joinNonNull(",", {"a", NULL, "b", NULL})`	`"a,b"`
`joinNonNull("-", 1.0,2.0)`	`"1-2"`

K

kpiActual

Syntax	`kpiActual(number) : number`
Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the actual value for the KPI for the configured time period.

Example Expression	Expected Result
`kpiActual([SampleKPI])`	`80`

kpiActualDelta

Syntax	`kpiActualDelta(number) : number`
Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the raw difference between the current KPI actual value and the value from the preceding time period.

Example Expression	Expected Result
`kpiActualDelta([SampleKPI])`	`-10`

kpiActualDeltaPercent

Syntax	`kpiActualDeltaPercent(number) : number`

Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the percentage difference between the current KPI actual value and the value from the preceding time period.

Example Expression	Expected Result
`kpiActualDeltaPercent ([SampleKPI])`	`-11.1%`

kpiGoal

Syntax	`kpiGoal(number) : number`
Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the goal value for the KPI correponding to the current context.

Example Expression	Expected Result
`kpiGoal([SampleKPI])`	`100`

kpiNotificationContact

Syntax	`kpiNotificationContact(number) : number`
Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the contact value for the KPI corresponding to the current context, if specified.

Example Expression	Expected Result
`kpiNotificationContact ([SampleKPI])`	`12345`

kpiPriorActual

Syntax	`kpiPriorActual(number) : number`
Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the actual value for the KPI for the time period preceding the current configured period.

Example Expression	Expected Result
`kpiActualPrior([SampleKPI])`	`90`

kpiScore

Syntax	`kpiScore(number) : number`
Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the score for the KPI for the configured time period and current context.

Example Expression	Expected Result
`kpiScore([SampleKPI])`	0.8

kpiScoreDelta

Syntax	`kpiScoreDelta(number) : number`
Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the raw difference between the current KPI score value and the value from the preceding time period.

Example Expression	Expected Result
`kpiScoreDelta([SampleKPI])`	`-0.1`

kpiTimePeriodDisplay

Syntax	`kpiTimePeriodDisplay(number) : number`
Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the relative time period display text for the KPI.

Example Expression	Expected Result
`kpiTimePeriodDisplay ([SampleKPI])`	`Last 30 Day(s)`

kpiTimePeriodName

Syntax	`kpiTimePeriodName(number) : text`
Arguments	kpi: The measure on which the KPI is based
Category	KPI

Context	field, query, report Returns the symbolic name for the KPI time period.

Example Expression	Expected Result
`kpiTimePeriodName([SampleKPI])`	`Day`

kpiTimePeriodRange

Syntax	`kpiTimePeriodRange(number) : number`
Arguments	kpi: The measure on which the KPI is based
Category	KPI
Context	field, query, report Returns the number of previous KPI time periods.

Example Expression	Expected Result
`kpiTimePeriodRange ([SampleKPI])`	`7`

L

last

Syntax	`last(list<a>) : a`
Arguments	list: The list from which to take the last element
Category	List
Context	All Returns the last element of the list. If the list is empty, returns null.

Example Expression	Expected Result
`last({1,2,3,4})`	`4`
last({1})	`1`
last({})	`null`

left

Syntax	`left(text,number) : text`
Arguments	text: The original text from which to extract a subsequence. numberOfChars: The number of characters to extract.
Category	Text
Context	All Returns the leftmost characters from the text argument.

Example Expression	Expected Result
`left("huge", 3)`	`hug`
`left("Brown fox", 0)`	
`left("Jump", 200)`	`Jump`

len

Syntax	`len(list<a>) : number`
Arguments	list: The list for which to calculate the length
Syntax	`len(text) : number`
Arguments	text: The text for which to calculate the length
Category	List

Context	All
	Returns the length of the list.

Example Expression	Expected Result
`len({"a","b","c"}))`	`3`

lessThan

Syntax	`lessThan(a,a) : bool`
Arguments	val1: The first value to compare val2: The second value to compare
Category	Comparison
Context	All Returns True if the first value is less than the second value.

Example Expression	Expected Result
`5 < 10`	`true`
`5 < 5`	`false`

lessThanEquals

Syntax	`lessThanEquals(a,a) : bool`
Arguments	val1: The first value to compare val2: The second value to compare
Category	Comparison
Context	All Returns True if the first value is less than or equal to the second value.

Example Expression	Expected Result
`5 <= 10`	`true`
`5 <= 5`	`true`

lime

Syntax	`lime() : color`
Category	Color
Context	All The color lime.

lines

Syntax	`lines(text) : list<text>`
Arguments	text: The text to be split to lines.
Category	Text
Context	All Splits a text into a list of lines. Empty lines are ignored and not appended into the list.

Example Expression	Expected Result
`lines("First fox" & char(10) & "Second fox")`	`{'First fox', 'Second fox'}`
`lines(unlines("First fox", "Second fox"))`	`{'First fox', 'Second fox'}`

locale

Syntax	`locale() : text`

Arguments	
Category	Localization
Context	field, query, report Returns the name of the current user's locale

Example Expression	Expected Result
`locale`	`en_US`

localize

Syntax	`localize(text) : text`
Arguments	key: The key to be looked up in the translation table.
Category	Localization
Context	All Returns the formatted text for the given value and formatting attributes set.

Example Expression	Expected Result
`localize("please translate me into my locale")`	`gelieve te vertalen me in mijn locale`

lookupAttribute

Syntax	`lokupAttribute(attributes,text) : a`
Arguments	attributes: The set of attributes to check. attrName: The name of the attribute.
Syntax	`lookupAttribute(attributes,text,number) : a`
Arguments	attributes: The set of attributes to check.

	attrName: The name of the attribute. currentval: The current value to be used to resolve any conditions in the attributes.
Category	Attributes
Context	All Looks up the value of an attribute (by name) in the set of content attributes. Optionally, a current value may also be specified for resolving conditions in the attributes set.

Example Expression	Expected Result
`lookupAttribute(<A 1; B 2>, 'B')`	2
`lookupAttribute(<A 1; B 2; RANGE 1:10 <C 3> >, 'C', 5)`	3

lookupProperty

Syntax	`lookupProperty(a,b) : a`
	`lookupProperty(a,b,c) : a`
	`lookupProperty(a,b,c,d) : a`

Arguments	property: The subject property for which the value should be retrieved keyValue: The value of the subject key for which the property will be retrieved keyValue1: The value of the first subject key for which the property will be retrieved keyValue2: The value of the second subject key for which the property will be retrieved keyValue3: The value of the third subject key for which the property will be retrieved
Category	Reference
Context	field, query, report Returns the value of a property where the subject key or keys has the given values.

Example Expression	Expected Result
`lookupProperty([Employee].[StartDate], 'E12345')`	`2014/02/11`
lookupProperty([Country].[Language], coalesce([Cust].[ShipToCountry], [Cust].[ResidenceCountry]))	`FR`
lookupProperty([LocalizedCountry].[LocName], [Employee].[CountryOfBirth], 'en')	`France`

lookupUserAttribute

Syntax	`lookupUserAttribute(text) : text`
Arguments	userAttrName: The name of the user attribute
Category	Attributes
Context	field, query, report Looks up the value of a user attribute by name and returns it as text. It returns null if the user attribute does not exist.

Example Expression	Expected Result
`lookupUserAttribute ("indicee.user_attribute")`	`5`
lookupUserAttribute("indicee.missing_attribute")	`null`

lower

Syntax	`lower(text) : text`
Arguments	text: The text to convert to lower case.
Category	Text
Context	All Returns the given text converted into lower case.

Example Expression	Expected Result
`lower("The Quick FOX")`	`the quick fox`

M

makeAttributes

Syntax	`makeAttributes(text) : attributes`
Arguments	text: The text form of the attributes data
Category	Attributes
Context	All Constructs a set of content attributes (fixed and/or conditional) from the specified text form of the attributes data.

Example Expression	Expected Result
`makeAttributes("BOLD")`	`<BOLD>`
makeAttributes("FORECOLOR " & [RegionColor])	<BOLD; FORECOLOR color(255, 0, 0)>

maroon

Syntax	`maroon() : color`
Category	Color
Context	All The color maroon.

matches

Syntax	`matches(text,text) : bool`
Arguments	regex: The regular expression pattern. text: The body text to test for a match with the given pattern.
Category	Text
Context	All Determines whether a given body of text exactly matches a given pattern.

Example Expression	Expected Result
`matches("fo*bar", "foobar")`	`true (1)`
`matches("fo*bar", "fbar")`	`true (1)`
`matches("fo*bar", "fubar")`	`false (0)`

max

Syntax	`max(a) : a`
Arguments	val: The values to aggregate.
Category	Aggregation
Context	field, query, report Returns the largest value recorded for a specified field.

Example Expression	Expected Result
`max([Sales])`	`43000.5`

maxOfList

Syntax	`maxOfList(list<a>) : a`

Arguments	list: The list of values to find the maximum.
Category	List
Context	All Returns the maximum value in a given list. The list can be passed to the function as a literal list enclosed in braces or as a sequence of arguments.

Example Expression	Expected Result
`maxOfList({1,2,3})`	`3`
`maxOfList(1,2,3)`	`3`
`maxOfList('c', 'a', 't')`	`'t'`

mid

Syntax	`mid(text,number,number) : text`
Arguments	text: The original text from which to extract a subsequence. index: The character position of the first character to extract. length: The length of the text to extract.
Category	Text
Context	All Returns a subsequence of text from within a larger block of text.

Example Expression	Expected Result
`mid("The quick fox", 7, 3)`	`ick`
`mid("The quick fox", 5, 5)`	`quick`
`mid("Brown fox", 20, 0)`	
`mid("Jump", 2, 10)`	`ump`

min

Syntax	`min(a) : a`
Arguments	val: The values to aggregate.
Category	Aggregation
Context	field, query, report
	Returns the smallest value recorded for a specified field.

Example Expression	Expected Result
`min([Sales])`	`10.0`

minOfList

Syntax	`minOfList(list<a>) : a`
Arguments	list: The list of values to find the maximum.
Category	List
Context	All
	Returns the minimum value in a given list. The list can be passed to the function as a literal list enclosed in braces or as a sequence of arguments.

Example Expression	Expected Result
`minOfList({1,2,3})`	`1`
`minOfList(1,2,3)`	`1`

minute

Syntax	`minute(time) : number`

Arguments	time: The time from which to extract the minute value
Category	Time
Context	All Returns the minute portion of the given date-time value.

Example Expression	Expected Result
`minute([BonusDate])`	`40`

mod

Syntax	`mod(number,number) : number`
Arguments	num: The number to be divided (numerator). denom: The number to divide by (denominator).
Category	Numeric
Context	All Returns the modulo of a quotient of the two arguments (number/divisor). The result is always a number between 0 and the second operand. If both operands are positive, the result is identical to the rem (remainder) operator. Division by zero returns an error.

Example Expression	Expected Result
`mod(3, 2)`	`1`
`mod(4, 2)`	`0`
`mod(5, -2)`	`-1`
`mod(-5, 3)`	`1`
`mod(-5, -2)`	`-1`
`mod(5, 2.4)`	`0.2`

month

Syntax	`month(time) : number`
Arguments	time: The time from which to extract the month value
Category	Time
Context	All
	Returns the month portion of the given date-time value.

Example Expression	Expected Result
`month([BonusDate])`	`8`

multiply

Syntax	`multiply(number,number) : number`
Arguments	val1: The first value to multiply.
	val2: The second value to multiply.
Category	Numeric
Context	All
	Multiplies two number values. If either value is null, then the result will be null.

Example Expression	Expected Result
2 * 3	6
2 * NULL	NULL

N

navy

Syntax	`navy() : color`
Category	Color
Context	All The color navy.

negate

Syntax	`negate(number) : number`
Arguments	num: The number to be negated
Category	Numeric
Context	All Negates the given number, changing positive values to negative values and vice versa.

Example Expression	Expected Result
`negate(2)`	`-2`
`negate(0)`	`0`

newLine

Syntax	`newLine() : text`
Arguments	—
Category	text
Contexts	All Inserts a new line.

Example Expression	Expected Result
`'ab' & newLine & 'c'`	{{ab c}}

not

Syntax	`not(bool) : bool`
Arguments	bool: The boolean value to negate.
Category	Logical
Context	All Returns the logical negation of the boolean argument.

Example Expression	Expected Result
`not(2 = 3)`	`true (1)`
`not (1 = 1)`	`false (0)`

notEquals

Syntax	`notEquals(a,a) : bool`
Arguments	val1: The first value to compare val2: The second value to compare
Category	Comparison
Context	All Returns True if the first value is not equal to the second value. Note that comparing against null is allowed.

Example Expression	Expected Result
`5 <> 10`	`True`
`5 <> 5`	`false`
`Null <> 5`	`true`
`Null <> Null`	`false`

now

Syntax	`now() : time`
Arguments	—
Category	Time
Context	field, query, report Returns the current date-time. This can be combined with other date functions.

Example Expression	Expected Result
`year(now())`	`2021`

nullBoolean

Syntax	`nullBoolean() : bool`
Arguments	
Category	Value
Context	All A Null value with the value type of Boolean.

Example Expression	Expected Result
`nullBoolean`	`null`

nullConditionAttribute

Syntax	`nullConditionAttribute(text,a) : attributes`
Arguments	attrName: The name of the attribute. attrValue: The value of the attribute.

Category	Attributes
Context	All Constructs a content attribute containing a single attribute with an “Is Null” condition.

Example Expression	Expected Result
`nullConditionAttribute ("FIXED", 1)`	`<Null<FIXED 1>>`

nullIf

Syntax	`nullIf(a,a) : a`
Arguments	value: The value to check. comparison: The value for which a null value should be returned.
Category	Value
Context	All Returns the value of the first argument, except when the value is equal to the second argument, in which case Null is returned.

Example Expression	Expected Result
`nullIf(5, 10)`	`5`
`nullIf(5, 5)`	`NULL`

nullNumber

Syntax	`nullNumber() : number`
Arguments	
Category	Value
Context	All

A null value with the value type of Number.

Example Expression	Expected Result
`nullNumber`	`null`

nullText

Syntax	`nullText() : text`
Arguments	
Category	Value
Context	All

A null value with the value type of Text.

Example Expression	Expected Result
`nullText`	`null`

nullTime

Syntax	`nullTime() : time`
Arguments	
Category	Value
Context	All

A null value with the value type of Date/Time.

Example Expression	Expected Result
`nullTime`	`null`

numericValue

Syntax	`numericValue(number) : number` numericValue(bool) : number numericValue(text) : number numericValue(time) : number
Arguments	value: The value to be converted to a number.
Category	Numeric
Context	All Returns the numeric value of the given argument, if applicable. If conversion to a number is not possible, Null is returned. A date passed to this function is converted into the number of seconds in the Unix epoch (the number of seconds since 1970-01-01T00:00:00Z).

Example Expression	Expected Result
`numericValue(3)`	`3`
numericValue('123.45')	`123.45`
numericValue('hello')	`null`

O

offsetTimePeriodRange

Syntax	`offsetTimePeriodRange(time,text,number) : range<time>`
Arguments	timeval: The starting point in time shiftPeriodName: The name of the time period by which the time will be shifted offset: Number of time periods by which the time will be shifted
Category	Time
Context	All

Returns the time range corresponding to the time period offset by N periods from the specified starting time.

Example Expression	Expected Result
`offsetTimePeriodRange(now, "Year", -1)`	`(2011/01/01, 2012/01/01)`

olive

Syntax	`olive() : color`
Category	Color
Context	All The color olive.

or

Syntax	`or(bool,bool) : bool`
Arguments	bool1: The first Boolean argument bool2: The second Boolean argument
Category	Logical
Context	All Returns True if either of the argument values are true, and otherwise returns False.

Example Expression	Expected Result
`or(true, false)`	`true (1)`
`or(true, true)`	`true (1)`

orange

Syntax	`orange() : color`
Category	Color
Context	All The color orange.

P

pair

Syntax	`pair(a,b) : tuple<a, b>`
Arguments	val1: The first value val2: The second value
Category	Tuple
Context	All Constructs a pair of values.

Example Expression	Expected Result
`pair(1, 'abc')`	`tuple(1, 'abc')`

percentOfTotal

Syntax	`percentOfTotal(a,b) : a`
	`percentOfTotal(a,b,c) : a`
	`percentOfTotal(a,b,c,d) : a`

Arguments	val: The expression to find the percentage of which is in the specified groupings. grouping1: A grouping to include in the numerator of the percentage. grouping2: A second grouping to include in the numerator of the percentage.

	grouping3: A third grouping to include in the numerator of the percentage.
Category	Reference
Context	field, query The percentage of the first argument that is inside the groupings specified by the other arguments.

Example Expression	Expected Result
`percentOfTotal([Sales], [Country])`	`0.1`
percentOfTotal([Sales], [Country], [Product], [Time])	`0.2`

positiveNum

Syntax	`positiveNum(number) : number`
Arguments	num: The number to be returned
Category	Numeric
Context	All Returns a positive number.

Example Expression	Expected Result
`positiveNum(2)`	`2`
positiveNum(0)	`0`

power

Syntax	`power(number,number) : number`
Arguments	base: The value whose power is to be taken.

	exponent: The value specifying the exponent in the exponentiation.
Category	Numeric
Context	All Raises the first argument to the power of the second argument.

Example Expression	Expected Result
`power(10, 3)`	`1000`
`power(16, 0.5)`	`4`
`power(10, -2)`	`0.01`

productOfList

Syntax	`productOfList(list<number>) : number`
Arguments	list: The list of numbers
Category	List
Context	All Returns the product of the numbers in a given list.

Example Expression	Expected Result
`productOfList(2, 2)`	`4`
productOfList({2, 2, 2})	`8`
productOfList({2, 4, 2})	`16`
productOfList({})	`1`

proper

Syntax	`proper(text) : text`
Arguments	text: The text to convert to headline case.
Category	Text
Context	All Returns the given text with the first letter of every word capitalized.

Example Expression	Expected Result
`proper("the firm")`	`The Firm`

purple

Syntax	`purple() : color`
Category	Color
Context	All The color purple.

Q

quarter

Syntax	`quarter(time) : number`
Arguments	time: The time from which to extract the quarter.
Category	Time
Context	All Returns the quarter of the year of the given date-time value.

Example Expression	Expected Result
`quarter([BonusDate])`	`3`

R

randBetween

Syntax	`randBetween(number,number) : number`
Arguments	lower: The minimum number, inclusive upper: the maximum number, inclusive
Category	Random
Context	All Generates a random number in a closed interval: [lower, upper].

Example Expression	Expected Result
`randBetween(1, 10)`	`7`

range

Syntax	`range(a,a) : range<a>` `range(a,bool,a,bool) : range<a>`
Arguments	start: The starting value in the range, or null if no lower bound end: The ending value in the range, or null if no upper bound startInclusive: True if the start of the range (if any) is inclusive endInclusive: True if the end of the range (if any) is inclusive
Category	Range
Context	All Constructs a range between 2 values. A null value can be used to indicate no bound at one or both endpoints. Optionally, the start and end values can be followed by flags indicating whether they are inclusive (True) or exclusive (False). By default, the range endpoints are inclusive.

Example Expression	Expected Result
range(1, 10)	1 <= x <= 10
range(NULL, 5)	x <= 5
range(0, True, 5, False)	0 <= x < 5
range(0, False, null, True)	`x > 0`

rangeConditionAttribute

Syntax	`rangeConditionAttribute(text,a,number,number) : attributes`
Arguments	attrName: The name of the attribute. attrValue: The value of the attribute. rangeStart: The lower-bound of the range condition, or Null for no lower-bound. rangeEnd: The upper-bound of the range condition, or Null for no upper-bound.
Category	Attributes
Context	All Constructs a content attribute containing a single attribute with a range condition. The range is bounded by the start and/or end value inclusive unless they are null. If they are null, no bound is applied at that end.

Example Expression	Expected Result
rangeConditionAttribute("FIXED", 1, 3, 5)	<Range 3:5<FIXED 1>>
rangeConditionAttribute("FIXED", 1, 3, Null)	<Range 3:<FIXED 1>>

rangeEnd

Syntax	`rangeEnd(range<a>) : a`
Arguments	range: The value range
Category	Range
Context	All Returns the ending value of a range, or Null if there is no upper bound.

Example Expression	Expected Result
`rangeEnd(range(1, 10))`	`10`
rangeEnd(range(10, null))	`null`

rangeIncludesEnd

Syntax	`rangeIncludesEnd(range<a>) : bool`
Arguments	range: The value range
Category	Range
Context	All Returns whether the ending value of a range (if any) is inclusive (True) or exclusive (False).

Example Expression	Expected Result
`rangeIncludesEnd(range(1, 10))`	`true`
rangeIncludesEnd(range(10, null))	`false`
rangeIncludesEnd(range(1, False, 10, False))	`false`

rangeIncludesStart

Syntax	`rangeIncludesStart(range<a>) : bool`
Arguments	range: The value range
Category	Range
Context	All Returns whether the starting value of a range (if any) is inclusive (True) or exclusive (False).

Example Expression	Expected Result
`rangeIncludesStart(range(1, 10))`	`true`
rangeIncludesStart(range(null, 10))	`false`
rangeIncludesStart(range(1, False, 10, False))	`false`

rangesIntersect

Syntax	`rangesIntersect(list<range<a>>) : bool`
Arguments	ranges: A list of ranges
Category	Range
Context	All Returns whether 2 or more ranges intersect.

Example Expression	Expected Result
`rangesIntersect(range(1, 10), range(5, 15))`	`true`
rangesIntersect(range(1, 10), range(11, 20))	`false`
rangesIntersect(range(1, 10), range(5, 15), range(8, 9))	`true`

rangesIntersect(range(1, 10), range(5, 15), range(12, 20))	`false`
rangesIntersect(range(null, 10), range(10, null))	`true`

rangeStart

Syntax	`rangeStart(range<a>) : a`
Arguments	range: The value range
Category	Range
Context	All Returns the starting value of a range, or null if there is no lower bound.

Example Expression	Expected Result
`rangeStart(range(1, 10))`	`1`
rangeStart(range(null, 10))	`null`

red

Syntax	`red() : color`
Category	Color
Context	All The color red.

regexSplitAll

Syntax	`regexSplitAll(text,text) : list<text>`
Arguments	text: The text to be split. sepRegex: The regular expression for the separator.

Category	Text
Context	All Splits the text based on the regex separator pattern specified.

Example Expression	Expected Result
`regexSplitAll("A;B;C", ";")`	`[A, B, C]`

rem

Syntax	`rem(number,number) : number`
Arguments	num: The number to be divided (the numerator). denom: The number to divide by (the denominator).
Category	Numeric
Context	All Returns the remainder of an integer division of the two arguments (number/divisor). The result always has the same sign as the first operand. For operands with different signs, the result of this function is different from the one returned by the mod function. If both operands are positive, the result is identical to the mod (modulo) operator.

Example Expression	Expected Result
`rem(3, 2)`	`1`
`rem(4, 2)`	`0`
`rem(5, -2)`	`-1`
`rem(-5, 3)`	`1`
`rem(-5, -2)`	`-1`
`rem(5, 2.4)`	`0.2`

`rem(5.5, 2.4)`	`0.7`
`rem(4, 0)`	`ERR{DivideByZero}`

removeAttribute

Syntax	`removeAttribute(attributes,text) : attributes`
Arguments	attributes: The set of content attributes (conditional and/or unconditional). AttrName: The name of the attribute to be removed.
Category	Attributes
Context	All Removes any references to the specified attribute from the content attributes (with or without conditions).

Example Expression	Expected Result
`removeAttribute(<FIXED 1; FONT_FACE "Arial">, "FIXED")`	`<FONT_FACE "Arial">`
removeAttribute(<FIXED 1; Error<FONT_FACE "Arial">>, "FONT_FACE")	<FIXED 1>

removeDuplicates

Syntax	`removeDuplicates(list<a>) : list<a>`
Arguments	list: The list to remove duplicates from.
Category	List
Context	All Removes duplicate elements from a list. The first occurrence of each element is the one that remains.

Example Expression	Expected Result
`removeDuplicates({1,2,2,4})`	`{1,2,4}`
removeDuplicates({3,3,6,6,9,9})	{3,6,9}
removeDuplicates({3,3,6,1,6,9,2,9})	{3,6,1,9,2}
removeDuplicates({1,5,10})	{1,5,10}
removeDuplicates({})	`{}`

repeat

Syntax	`repeat(number,a) : list<a>`
Arguments	number: The number of times to repeat the provided value value: The value to be repeated into a list
Category	List
Context	All Returns the given value repeated a specified number of times in a list.

Example Expression	Expected Result
`repeat(4, "hello")`	`{"hello","hello","hello","hello"}`
repeat(1, "once")	{"once"}
repeat(0, "none")	`{}`

replace

Syntax	`replace(text,text,text) : tex`
Arguments	regex: The regular expression pattern. replacement: The replacement text. text: The text to be replaced.

Category	Text
Context	All Returns a copy of text with all matches of regex pattern replaced by the replacement text.

Example Expression	Expected Result
`replace(".at", "cat", "bat,fat,sit")`	`cat,cat,sit`

replicate

Syntax	`replicate(number,text) : text`
Arguments	ncopies: The number of times to replicate the text. text: The text to replicate.
Category	Text
Context	All Replicates the given text for the given number of times and concatenates them all into a new text value.

Example Expression	Expected Result
`replicate (3,"foo")`	`"foofoofoo"`

reverse

Syntax	`reverse(list<a>) : list<a>`
Arguments	list: The list to reverse.
Category	List
Context	All Reverses a list.

Example Expression	Expected Result
`reverse({1,2,3,4,5})`	`{5,4,3,2,1}`
reverse({9})	{9}
reverse({})	`{}`

right

Syntax	`right(text,number) : text`
Arguments	text: The original texst from which to extract a subsequence. numberOfChars: The number of characters to extract.
Category	Text
Context	All Returns the rightmost characters from the text argument.

Example Expression	Expected Result
`right("ushers", 4)`	`hers`

round

Syntax	`round(number) : number` round(number,number) : number
Arguments	value: The numeric value to be rounded. nDecPlaces: The number of decimal places to which the value is rounded.
Category	Numeric
Context	All Returns the rounded value of the argument. Values that are halfway between two whole numbers are rounded to the even value. An optional second argument determines the decimal place to which the function rounds. If the number of decimal places is negative, the rounding applies to the left of the decimal point.

Example Expression	Expected Result
`round(1.9)`	`2`
`round(1.5)`	`2`
`round(2.5)`	`2`
`round(-1.9)`	`-2`
`round(-1.5)`	`-2`
`round(123.456, 1)`	`123.5`
`round(123.456, -1)`	`120`

S

second

Syntax	`second(time) : number`
Arguments	time: The time from which to extract the seconds.
Category	Time
Context	All Returns the seconds of the given date-time value.

Example Expression	Expected Result
`second([BonusDate])`	`11`

set

Syntax	`set(list<a>) : set<a>`
Arguments	list: The list of values to be included in the set.

Category	Set
Context	All Returns the set of all values in a given list, including Null and Error values.

Example Expression	Expected Result
`set({4,3,2,1,2,3})`	`1,2,3,4`
set(1,null,2)	null,1,2
set('a', 'b', 'b', 'a')	'a', 'b'

setDifference

Syntax	`setDifference(set<a>,list<set<a>>) : set<a>`
Arguments	set: The starting set of values setsToRemove: The sets to be removed
Category	Set
Context	All Removes the values from subsequent sets from the first set.

Example Expression	Expected Result
`setDifference(set(1, 2, 3, 4), set(2, 5))`	`1, 3, 4`
setDifference(set(1, 2, 3), set(3, 4, 5), set(0, 2, 4, 6, 8))	`1`

setIntersection

Syntax	`setIntersection(list<set<a>>) : set<a>`
Arguments	sets: The sets to be intersected
Category	Set

Context	All
	Returns the values which exist in all of the provided sets.

Example Expression	Expected Result
`setIntersection(set(1, 2, 3, 4), set(2, 5))`	`2`
setIntersection(set(1, 2, 3, 4), set(2, 3, 4, 5), set(0, 2, 4, 6, 8))	`2, 4`

setSize

Syntax	`setSize(set<a>) : number`
Arguments	set: The set of values
Category	Set
Context	All
	Returns the number of values in a set.

Example Expression	Expected Result
`setSize(set({4,3,2,1,2,3}))`	`4`
setSize(set(1,null,2))	`3`
setSize(set('a', 'b', 'b', 'a'))	`2`

setToList

Syntax	`setToList(set<a>) : list<a>`
Arguments	set: The set of values
Category	Set
Context	All
	Returns a list corresponding to values in a set.

Example Expression	Expected Result
`setToList(set({4,3,2,1,2,3}))`	`1,2,3,4`
setToList(set(1,null,2))	null,1,2
setToList(set('a', 'b', 'b', 'a'))	'a', 'b'

setUnion

Syntax	`setUnion(list<set<a>>) : set<a>`
Arguments	sets: The sets to be unioned
Category	Set
Context	All Returns the values which exist in any of the provided sets.

Example Expression	Expected Result
`setUnion(set(1, 2, 3), set(2, 5))`	`1, 2, 3, 4, 5`
setUnion(set(1, 2, 3), set(2, 3, 4), set(0, 2, 4, 6, 8))	0, 1, 2, 3, 4, 6, 8

setValueGreaterThan

Syntax	`setValueGreaterThan(a,set<a>) : a`
Arguments	val: The value to look up in the set set1: The set of values
Category	Set
Context	All Returns the largest set value larger than the specified value, if any.

Example Expression	Expected Result
`setValueGreaterThan(3, set(1, 2, 3, 4))`	`4`
setValueGreaterThan(4, set(1, 3, 5, 7))	`5`
setValueGreaterThan(4, set(1, 2, 3, 4))	`null`

setValueGreaterThanEqual

Syntax	`setValueGreaterThanEqual(a,set<a>) : a`
Arguments	val: The value to look up in the set set1: The set of values
Category	Set
Context	All Returns the largest set value larger than or equal to the specified value, if any.

Example Expression	Expected Result
`setValueGreaterThanEqual(3, set(1, 2, 3, 4))`	`3`
setValueGreaterThanEqual(4, set(1, 3, 5, 7))	`5`
setValueGreaterThanEqual(7, set(1, 2, 3, 4))	`null`

setValueLessThan

Syntax	`setValueLessThan(a,set<a>) : a`
Arguments	val: The value to look up in the set set1: The set of values

Category	Set
Context	All Returns the largest set value smaller than the specified value, if any.

Example Expression	Expected Result
`setValueLessThan(3, set(1, 2, 3, 4))`	`2`
setValueLessThan(3, set(1, 3, 5, 7))	`3`
setValueLessThan(1, set(1, 2, 3, 4))	`null`

setValueLessThanEqual

Syntax	`setValueLessThanEqual(a,set<a>) : a`
Arguments	val: The value to look up in the set set1: The set of values
Category	Set
Context	All Returns the largest set value smaller than or equal to the specified value, if any.

Example Expression	Expected Result
`setValueLessThanEqual(3, set(1, 2, 3, 4))`	`3`
setValueLessThanEqual(4, set(1, 3, 5, 7))	`3`
setValueLessThanEqual(0, set(1, 2, 3, 4))	`null`

shiftTime

Syntax	`shiftTime(time,text,number) : time`
Arguments	timeVal: The time value to be shifted periodName: The name of the time period to shift by nPeriods: The number of time periods to shift the time value
Category	Time
Context	All Shifts a time value by a number of intervals for a given time period. A negative shift value can be used to shift the time to an earlier time. The shifting is sensitive to the user's time zone (where the shift crosses a DST boundary).

Example Expression	Expected Result
`shiftTime(toDate(2019,7,15), 'Year', 2)`	`2021/07/15`
shiftTime(toDate(2021,2,15), 'Month', -1)	2021/01/15

sign

Syntax	`sign(number) : number`
Arguments	value: The numeric value for which the sign will be returned.
Category	Numeric
Context	All Returns a value that represents the sign of a given number. It returns –1 for negative numbers, 0 for zero, and 1 for positive numbers.

Example Expression	Expected Result
`sign(100)`	`1`
`sign(0)`	`0`
`sign(-100)`	`-1`

silver

Syntax	`silver() : color`
Category	Color
Context	All The color silver.

similarityFeature

Syntax	`similarityFeature(a,bool,number) : number`
Arguments	featureProp: The feature property on which the feature is based isContinuous: True for continuous numeric values (compared for similarity), False for discrete values (compared by equality only) weighting: A weighting factor which gives more influence to features with higher weighting values (default = 1)
Category	Reference
Context	field, query, report Specifies the configuration for a feature to be used when querying similar values.

Example Expression	Expected Result
`similarityFeature([Country].[Population], True, 1.0)`	`null`
similarityFeature([Country].[Language], False, 0.5)	`null`

sort

Syntax	`sort(list<a>) : list<a>`
Arguments	list: The list to sort.

Category	List
Context	All Sorts a list in ascending order.

Example Expression	Expected Result
`sort({2,5,4,1,3})`	`{1,2,3,4,5}`
sort({"cat","abc","battle"})	{"abc", "battle", "cat"}
sort({})	`{}`

split

Syntax	`split(text,text,number) : text`
Arguments	text: The original text to split. delimiter: The separator text used to determine when to split. index: The index of the component of the split to return.
Category	Text
Context	All Returns a component of the specified text, partitioned according to some separator text.

Example Expression	Expected Result
`split("foo.bar.baz", ".", 3)`	`baz`
split("foo.bar.baz", ".", 4)	

splitAt

Syntax	`splitAt(number,list<a>) : list<list<a>>`
Arguments	index: The index to split the given list (1-based)

	list: The list to discard the last value from
Category	List
Context	All Returns the given list split at the index number.

Example Expression	Expected Result
`splitAt(3, {"hello", "goodbye", "hello", "goodbye"})`	`{{"hello", "goodbye"}, {"hello", "goodbye"}}`
splitAt(3, {1,2,3,4,5})	{{1, 2}, {3, 4, 5}}
splitAt(2, {1,2})	{{1}, {2}}
splitAt(4, {1,2,3})	{{1, 2, 3}, {}}
splitAt(10, {})	{{}, {}}

sqrt

Syntax	`sqrt(number) : number`
Arguments	value: The numeric value for which the square root will be computed.
Category	Numeric
Context	All Returns the positive square root of the given value.

Example Expression	Expected Result
`sqrt(9)`	`3`

startsWith

Syntax	`startsWith(list<a>,list<a>) : bool`

Arguments	prefix: The value or list to be checked for at the beginning of the list. list: The list that might contain the prefix list.
Category	List
Context	All Checks if the first list is a prefix of the second list.

Example Expression	Expected Result
`startsWith({"a"},{"a","b"})`	`True`
startsWith({"b"},{"a","b"})	`False`
startsWith({"a","b"},{"a","b","c"})	`True`

stdDev

Syntax	`stdDev(number) : number`
Arguments	val: The values to aggregate.
Category	Aggregation
Context	field, query, report Returns the arithmetic standard deviation of all of the data values for a given field.

Example Expression	Expected Result
`stdDev([Sales])`	`2.0`

sublist

Syntax	`sublist(list<a>,number,number) : list<a>`
Arguments	list: The list of values to create the sublist from. length: The length of the sublist.

	start: The index of the original list that will be the first element of the sublist.
Category	List
Context	All Returns the sublist from the index “start” to the index “end”.

Example Expression	Expected Result
`sublist({1,2,3,4,5},2,3)`	`{2,3,4}`
sublist({1,2,3,4,5},1,3)	{1,2,3}
sublist({1,2,3,4,5},3,3)	{3,4,5}
sublist({5,8},1,100)	{5,8}
sublist({8,9,1},-100,3)	{8,9,1}
sublist({},0,100)	`{}`

subscript

Syntax	`subscript(number,list<a>) : a`
Arguments	index: The index of the item in the list to return. list: The list to retrieve the item at the given index.
Category	List
Context	All Returns the element located at the provided index in the given list.

Example Expression	Expected Result
`subscript(2, {"a","b","c"})`	`"b"`

subtract

Syntax	`subtract(number,number) : number`
Arguments	val1: The base value val2: The value to subtract from the base value
Category	Numeric
Context	All Subtracts the second value from the first value. Note that subtracting a null value from a value returns the original value, and a value subtracted from a null value is the negative of the original value.

Example Expression	Expected Result
`3 - 1`	`2`
`1 - NULL`	`1`
`NULL - 1`	`-1`

sum

Syntax	sum(number) : number
Arguments	val: The values to aggregate.
Category	Aggregation
Context	field, query, report Returns the sum of all of the data values for a given field.

Example Expression	Expected Result
`sum([Sales])`	`12345678.0`

sumOfList

Syntax	`sumOfList(list<number>) : number`
Arguments	list: The list of values to find the sum.
Category	List
Context	All Returns the sum of the values in a given list. The list can be passed to the function as a literal list enclosed in braces or as a sequence of arguments.

Example Expression	Expected Result
`sumOfList({1,2,3})`	`6.00`
sumOfList(1,2,3)	`6.00`

T

tail

Syntax	`tail(list<a>) : list<a>`
Arguments	list: The list from which to drop the first element
Category	List
Context	All Returns the list without the first element. If the list is empty, returns an empty list.

Example Expression	Expected Result
`tail({1,2,3,4})`	`{2,3,4}`
tail({1})	`{}`
tail({})	`{}`

tails

Syntax	`tails(list<a>) : list<list<a>>`
Arguments	list: The list to derive suffixes from
Category	List
Context	All Returns all potential suffixes of the given list.

Example Expression	Expected Result
`tails({"a","b","c"})`	`{{"a", "b", "c"}, {"b", "c"}, {"c"}, {}}`
tails({1,2,3})	{{1, 2, 3}, {2, 3}, {3}, {}}
tails({1,2})	{{1, 2}, {2}, {}}
tails({1})	{{1}, {}}
tails({})	{{}}

take

Syntax	`take(number,list<a>) : list<a>`
Arguments	number: The number of values to take from the provided list list: The list to source values from
Category	List
Context	All Takes a specified number of elements from a list.

Example Expression	Expected Result
`take(3, {"do", "not", "never", "do"})`	`{"do", "not", "never"}`
take(3, {1,2})	{1, 2}
take(2, {})	{}

teal

Syntax	`teal() : color`
Category	Color
Context	All The color teal.

text

Syntax	`text(a) : text`
Arguments	value: The value to convert into a string.
Category	Conversion
Context	All Returns the text value of the given value argument. This function accepts a value and converts it to text. If conversion to text is not possible, null is returned.

Example Expression	Expected Result
`text(3.141592)`	`"3.141592"`

timePartsPeriodRange

Syntax	`timePartsPeriodRange(list<tuple<text, number>>) : range<time>`
Arguments	timePeriodVals: Pairs of time period namesand period instance values.
Category	Time
Context	All Returns the time range defined by the provided pairs of time period names and periods instance values.

Example Expression	Expected Result
`timePartsPeriodRange(pair ('Year', 2014))`	`[2014/01/01, 2015/01/01)`
timePartsPeriodRange(pair('Year', 2014), pair('Month', 2))	[2014/02/01, 2014/03/01)

timePeriodCaption

Syntax	`timePeriodCaption(text,time) : text`
Arguments	periodName: The name of the period to find. The time period name can be **Year**, **Quarter**, **Month**, **DayOfMonth**, **Hour**, **Minute**, or **Second**. time: The time value for which to look up the calendar period value.
Category	Time
Context	All Returns the name, as text, of a particular calendar period for the given time.

Example Expression	Expected Result
`timePeriodCaption("Month", toDate(2012, 12, 31))`	`"Dec"`
timePeriodCaption("Year", [BonusDate])	"2021"

timePeriodRange

Syntax	`timePeriodRange(time,text) : range<time>`
Arguments	time: The point in time timePeriod: The name of the time period
Category	Time
Context	All

Returns the time range corresponding to the period containing the specified time. Null is returned if the specified time does not fall within an instance of the time period.

Example Expression	Expected Result
timePeriodRange(now, "Year")	[2012/01/01, 2013/01/01)

timePeriodValue

Syntax	`timePeriodValue(text,time) : number`
Arguments	periodName: The name of the period to find. The time period name can be **Year**, **Quarter**, **Month**, **DayOfMonth**, **Hour**, **Minute**, or **Second**. time: The time value for which to look up the calendar period value.
Category	Time
Context	All Returns the numeric value of the time period name that is specified for the given time.

Example Expression	Expected Result
`timePeriodValue("Month", toDate(2021, 12, 31))`	`12`
timePeriodValue("Year",[BonusDate])	`2021`

timePeriodValueCaption

Syntax	`timePeriodValueCaption(text,number) : text`
Arguments	periodName: The name of the period to find. The time period name can be **Year**, **Quarter**, **Month**, **DayOfMonth**, **Hour**, **Minute**, or **Second**. time: The time value for which to look up the calendar period value.

Category	Time
Context	All Returns the display value of the time component that is specified for a given numeric value of the time part.

Example Expression	Expected Result
`timePeriodValueCaption ("Month", 5)`	`May`

timeShiftFilterPeriod

Syntax	`timeShiftFilterPeriod(a,time,number) : a`
Arguments	val: The expression to evaluate in the context of a leading or lagging time period timeField: The date value over which the time shifting is done shiftAmount: The number of whole units of the given filter time period to shift (negative for past, positive for future)
Category	Reference, Time
Context	field, query Returns the requested value, shifted by the specified number of periods corresponding to the value time filter. This function is useful for calculating period-to-period variances. The first parameter specifies the value to evaluate. The second parameter identifies the date value over which the time shifting is done. The third parameter is the number of whole units to shift by. Negative numbers shift into the past and positive numbers shift into the future.

Example Expression	Expected Result
`timeShiftFilterPeriod([Sales], [Date], -1)`	`27`

timeShiftValue

Syntax	`timeShiftValue(a,time,text,number) : a`
Arguments	val: The expression to evaluate in the context of a leading or lagging time period. timeField: The date reference (dimension) to use to find the correct value in time. shiftPeriod: The name of a time period (unit of time). shiftAmount: The number of whole units of the given shiftPeriod to shift (negative for past, positive for future).
Category	Reference, Time
Context	field, query

Returns the requested value, shifted by the specified time offset. This function is useful for calculating period-to-period variances.

- The first parameter specifies the value to evaluate.
- The second parameter is the date reference dimension to use to find the correct value in time.
- The third parameter is the unit of time to shift by. It can be Year, Quarter, Month, DayOfMonth, Hour, Minute, or Second.
- The fourth parameter is the number of whole units to shift by.

Negative numbers shift into the past and positive numbers shift into the future. For example, to determine the sales total from the preceding quarter you could use this formula:

```
timeShiftValue([Sales], [saleDate], "Quarter", -1)
```

To calculate the difference between the current period sales and the previous period sales, you could use this formula:

```
[Sales] - timeShiftValue([Sales], [Date], "Year", -1)
```

Example Expression	Expected Result
`timeShiftValue([Sales], [Date], "Year", -1)`	27

timeZone

Syntax	`timeZone() : text`
Arguments	
Category	Time
Context	field, query, report Returns the name of the current user's time zone.

Example Expression	Expected Result
`timeZone`	`America/Vancouver`

toDate

Syntax

1. toDate(text,text) : time
2. toDate(text,number,number,number,text) : time
3. toDate(number,number,number,number,number,number) : time
4. toDate(number,number,number,number,number) : time
5. toDate(number,number,number) : time

Arguments

Syntax 1:

- format: The format pattern to match a date-time value from the text.
- dateTimeText: The date-time value represented as text.

Syntax 2:

- regex: A regular expression with at least 3 captures for year, month, day.
- yearIndex: The index of the year capture in the regex.
- monthIndex: The index of the month capture in the regex.
- dayIndex: The index of the day capture in the regex.
- dateTimeText: The date-time value represented as text.

Syntax 3:

- year: The year in the date.

- month: The 1-based month (1 = Jan, 2 = Feb, … 12 = Dec).
- day: The 1-based day of the month.
- hours: The 0-based hour of the day (0–23).
- minutes: The 0-based minute of the hour (0–59).
- seconds: The 0-based second of the minute (0–59).

Syntax 4:

- year: The year in the date.
- month: The 1-based month (1 = Jan, 2 = Feb, … 12 = Dec).
- day: The 1-based day of the month.
- hours: The 0-based hour of the day (0–23).
- minutes: The 0-based minute of the hour (0–59).

Syntax 5:

- year: The year in the date.
- month: The 1-based month (1 = Jan, 2 = Feb, … 12 = Dec).
- day: The 1-based day of the month.

Category	Time
Context	All

Returns a date-time value obtained by interpreting a given non-date-time value. The toDate function has several forms. The year, month, day, and other parameters can be either passed explicitly or parsed from a string.

Example Expression	Expected Result
`toDate("dd-MMM-yyyy HH:mm","13-aug-2019 14:12")`	`{Fri Aug 13 11:12:00 GMT-700 2019}`
toDate(2019, 1, 31)	`January 31, 2019`
toDate(2019, 1, 31, 10, 4)	2019-1-31 10:04:00 UTC
toDate(2019, 1, 31, 10, 4, 34)	2010-1-31 10:04:34 UTC

trim

Syntax	`trim(text) : text`
Arguments	text: The original text.
Category	Text
Context	All Returns the given text with any leading and trailing white space removed.

Example Expression	Expected Result
`trim(" Mary Jones ")`	`"Mary Jones"`

triple

Syntax	`triple(a,b,c) : tuple<a, b, c>`
Arguments	val1: The first value val2: The second value val3: The third value
Category	Tuple
Context	All Constructs a triple of values.

Example Expression	Expected Result
`triple(1, 'abc', False)`	`tuple(1, 'abc', False)`

truncate

Syntax	`truncate(number) : number`

Arguments	value: The numeric value to be truncated.
Category	Numeric
Context	All Returns the given value truncated by dropping the fractional part.

Example Expression	Expected Result
`truncate(1.9)`	`1`
truncate(–1.9)	`-1`

tuple

Syntax	`tuple(list<a>) : tuple<a, a>`
Arguments	tupleVal: The values making up the tuple
Category	Tuple
Context	All Constructs a tuple from the provided values.

Example Expression	Expected Result
`tuple(1, 'abc')`	`tuple(1, 'abc')`
tuple(True, 999, 'abc')	tuple(True, 999, 'abc')

U

union

Syntax	`union(list<a>,list<a>) : list<a>`
Arguments	list1: The first list to union.

	list2: The second list to union.
Category	List
Context	All Makes a list that has the context of the two argument lists together. First list duplicates are preserved.

Example Expression	Expected Result
`union({1,2,3},{4,5,6})`	`{1,2,3,4,5,6}`
union({1,2,3,4},{3,4,5,6})	{1,2,3,4,5,6}
union({2},{2,2,2,2,2})	{2}
union({2,2,2,2,2}, {2})	{2,2,2,2,2}
union({}, {1,2,3})	{1,2,3}
union({4,5,6}, {})	{4,5,6}
union({}, {})	{}

unixTimeSecondsToDate

Syntax	`unixTimeSecondsToDate(number) : time`
Arguments	val: The Unix time in seconds to convert to a date.
Category	Conversion, Time
Context	All Converts a Unix timestamp to a date-time value.

Example Expression	Expected Result
`year(unixTimeSecondsToDate(0))`	`1970`
unixTimeSecondsToDate(1420070400)	2015-01-01 00:00:00 UTC

unlines

Syntax	`unlines(list<text>) : text`
Arguments	list: The list of the texts to join.
Category	Text
Context	All Joins a list of texts into a single text after appending a terminating newline to each. Any element of the list that is null or an empty text is skipped. Only one newline is appended between two non-empty texts.

Example Expression	Expected Result
`unlines({'First fox', 'Second fox'})`	`"First fox nSecond fox"`

unwords

Syntax	`unwords(list<text>) : text`
Arguments	list: Text items to be combined, separated with spaces
Category	Text
Context	All Joins a list of words with spaces.

Example Expression	Expected Result
`unwords("The", "quick", "brown", "fox")`	`'The quick brown fox'`
unwords({"The", "quick", "brown", "fox"})	'The quick brown fox'
unwords("Buffalo buffalo	{'Buffalo','buffalo','Buffalo','buffalo','buffalo','buffalo','Buffalo','buffalo'}

Buffalo buffalo buffalo buffalo Buffalo buffalo")	
unwords(words("Buffalo buffalo Buffalo buffalo buffalo buffalo Buffalo buffalo"))	'Buffalo buffalo Buffalo buffalo buffalo buffalo Buffalo buffalo'

upper

Syntax	`upper(text) : text`
Arguments	text: The texts to convert to upper case.
Category	Text
Context	All
	Returns the given text converted into upper case characters.

Example Expression	Expected Result
`upper("The fox")`	`"THE FOX"`

V

valueForAll

Syntax	`valueForAll(a,b) : a`
	`valueForAll(a,b,c) : a`
	`valueForAll(a,b,c,d) : a`
Arguments	val: The expression to evaluate in the modified context for all values of the specified key fields.
	keyField1: A field that defines the component of the evaluation context to evaluate over (dimension).

	keyField2: A second field that defines the component of the evaluation context to evaluate over (dimension). keyField3: A third field that defines the component of the evaluation context to evaluate over (dimension).
Category	Reference
Context	field, query Returns a data value relative to the current calculation by using all members of the given dimensions. This can be used to generate comparisons to specific values.

Example Expression	Expected Result
`[Sales] / valueForAll([Sales], [Country])`	`0.11`
[Sales] / valueForAll([Sales], [Country], [Product], [Time])	`0.34`

valueForOnly

Syntax	`valueForOnly(a,b) : a`
	
	`valueForOnly(a,b,c) : a`
	
	`valueForOnly(a,b,c,d) : a`

Arguments	val: The expression to evaluate in the modified context in the context of only the specified dimension keys. keyField1: A field that defines the component of the evaluation context to evaluate over (dimension). keyField2: A second field that defines the component of the evaluation context to evaluate over (dimension). keyField3: A third field that defines the component of the evaluation context to evaluate over (dimension).
Category	Reference
Context	field, query

Returns a data value relative to the current calculation by using the current value of the given dimentions. This can be used to generate comparisons to specific values.

Example Expression	Expected Result
`[Sales] / valueForOnly([Sales], [Country])`	`0.01`
[Sales] / valueForOnly([Sales], [Country], [Product], [Time])	`0.3`

valueWithoutFilter

Syntax	`valueWithoutFilter(a,b) : a`
	`valueWithoutFilter(a,b,c) : a`
	`valueWithoutFilter(a,b,c,d) : a`

Arguments	val: The expression to evaluate in the modified context in the context of only the specified dimension keys. keyField1: A field that defines the component of the evaluation context to evaluate over (dimension). keyField2: A second field that defines the component of the evaluation context to evaluate over (dimension). keyField3: A third field that defines the component of the evaluation context to evaluate over (dimension).
Category	Reference
Context	field, query Returns the value of the first argument with filters suppressed on any of the subsequent argument fields. This can be used to reference values that would normally be outside the scope of data for the query.

Example Expression	Expected Result
`[Sales] / valueWithoutFilter([Sales], [Country])`	`2.6`

[Sales] / valueWithoutFilter([Sales], [Country], [Product], [Time])	`5.35`

W

weekday

Syntax	`weekday(time) : number` `weekday(time,number) : number`
Arguments	date: The date to use. option: The day numbering type.
Category	Time
Context	All

Returns a number representing the day of the week for a given date. An optional second parameter controls the starting day of the week. The options for the second parameter are as follows:

1: Returns Sunday as 1 to Saturday as 7 (default).

2: Returns Monday as 1 to Sunday as 7.

3: Returns Monday as 0 to Sunday as 6.

Example Expression	Expected Result
`weekday(toDate(2010, 10, 3))`	`1`
weekday(toDate(2010, 10, 3), 1)	`1`
weekday(toDate(2010, 10, 9), 1)	`7`
weekday(toDate(2010, 10, 3), 2)	`7`
weekday(toDate(2010, 10, 5), 2)	`5`
weekday(toDate(2010, 10, 3), 3)	`0`

weightedAvgOfList

Syntax	`weightedAvgOfList(list<number>) : number`
Arguments	list: The list of values and weightings, where each value is followed by its weighting.
Category	List
Context	All Returns the weighted average of the non-null pairs of values and weights in a given list. Each value should be followed by the corresponding weighting. Values will be ignored where the value or the associated weighting is null. The list can be passed to the function as a literal list enclosed in braces or as a sequence of arguments.

Example Expression	Expected Result
`weightedAvgOfList({1, 1, 2, 3, 7, 2})`	`3.50 = (1*1 + 2*3 + 7*2) / (1 + 3 + 2)`
weightedAvgOfList(1, 200, null, 300)	`1.00`

white

Syntax	`white() : color`
Category	Color
Context	All The color white.

words

Syntax	`words(text) : list<text>`
Arguments	text: The text to be split into words
Category	Text

Context	All
	Splits text separated by spaces into a list of words.

Example Expression	Expected Result
`words("It has but established new")`	`{'It', 'has', 'but', 'established', 'new'}`
words("a,b,c,d")	{'a,b,c,d'}
words("a, b, c, d")	{'a,', 'b,', 'c,', 'd'}
words("Buffalo buffalo Buffalo buffalo buffalo buffalo Buffalo buffalo")	{'Buffalo','buffalo','Buffalo','buffalo','buffalo','buffalo','Buffalo','buffalo'}
words(words("Buffalo buffalo Buffalo buffalo buffalo buffalo Buffalo buffalo"))	'Buffalo buffalo Buffalo buffalo buffalo buffalo Buffalo buffalo'

Y

year

Syntax	`year(time) : number`
Arguments	time: The time from which to extract the year.
Category	Time
Context	All
	Returns the year of the given date-time value.

Example Expression	Expected Result
`year([BonusDate])`	`2021`

yellow

Syntax	`yellow() : color`
Category	Color
Context	All
	The color yellow.

Change the time value format

In Data Explorer, time values are often captured in seconds or milliseconds by default. Values such as work time, average handle time, contact duration, and so on are sometimes not easily understood when displayed as seconds in a report. You can change how those time values are shown in your reports by applying the DURATION content attribute to them. When you apply the DURATION attribute, you can specify the time format you want to use.

The time/date format is expressed using Unicode formatting strings. Some common formats are:

- mm
- hh:mm:ss
- h 'hours'
- dd 'days'
- d 'days' hh:mm:ss

Literal strings, such as the words **hours** and **days** in the examples above, can be added by enclosing them in single quotes.

Guidelines for Unicode formatting can be found here:

https://unicode.org/reports/tr35/tr35-dates.html#Date_Format_Patterns

Seconds versus milliseconds

The DURATION content attribute converts any numeric value into a time duration format because it assumes the input is in seconds. If the original value is not in seconds, you need to write a formula to convert that value to seconds first. For example, if the field is in milliseconds, you would write a formula in a custom measure to convert it to seconds, like this:

```
[field in milliseconds]/1000
```

Where **field in milliseconds** is the name of the field in the database or your report that you want to convert to seconds.

For more information on custom measures, see Create a custom measure.

Time formats in exported reports

Applying the DURATION content attribute to a field will not change the exported results for that field. If a field is captured in seconds, even if you change the time value format to hh:mm in your report, when you export the report, the field will still be in seconds. This allows the report to be easily imported to other data and reporting products, such as Excel.

If you want your results to be formatted as time durations for export, you must create a custom measure with a formula like this:

```
format(<DURATION; PATTERN “hh:mm:ss”>,[field name])
```

where **field name** is the name of the field in the database or your report that you want to format.

There are many approaches that can be taken to do a milliseconds-to-seconds conversion. In this next example, the formula tests the field called [durationInMilliseonds] to see if contains a null value. If it does, it replaces that null value with a zero and then divides the result by 1,000 to get seconds.

```
ifNull([durationInMilliseconds],0)/1000
```

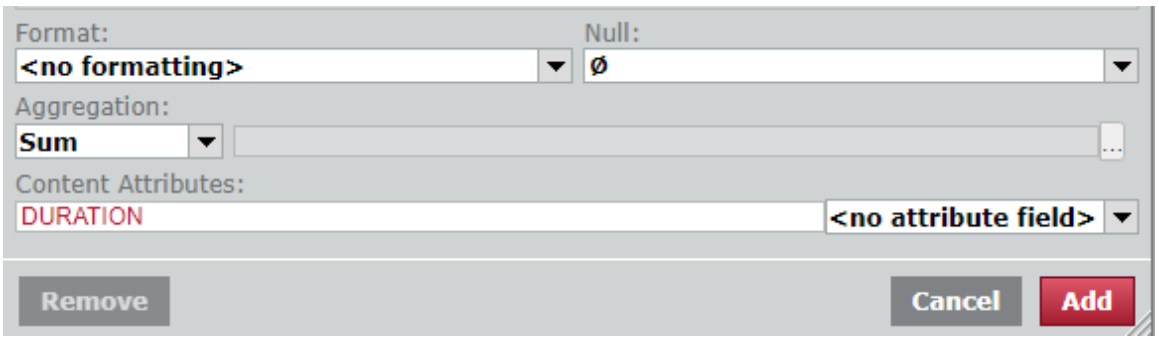
For more information on custom measures, see Create a custom measure.

Ways to format with DURATION

There are 4 ways you can apply the DURATION content attribute using the fields in the bottom panel of the measure’s dialog box.

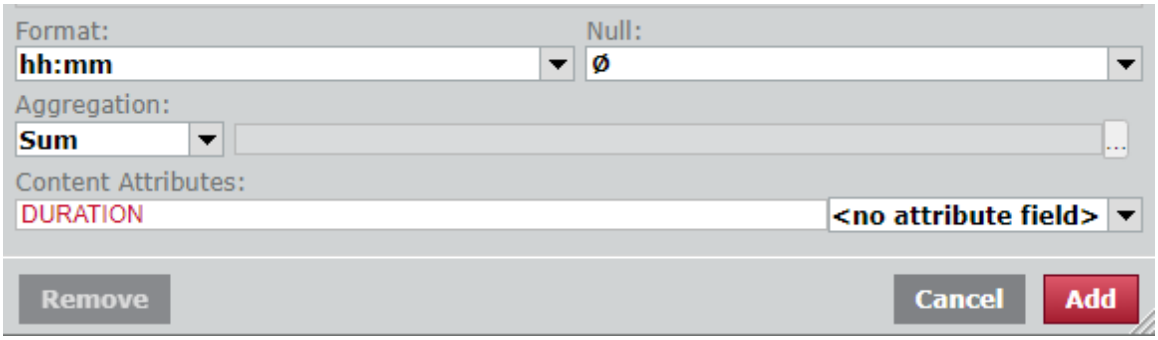
DURATION attribute only

Enter DURATION in the Content Attribute field, and make sure the Format field is empty or displays <no formatting>. The default time value format associated with the attribute is **h:mm:ss.SSS** (hours, minutes, seconds, and fractional seconds).



DURATION attribute and format

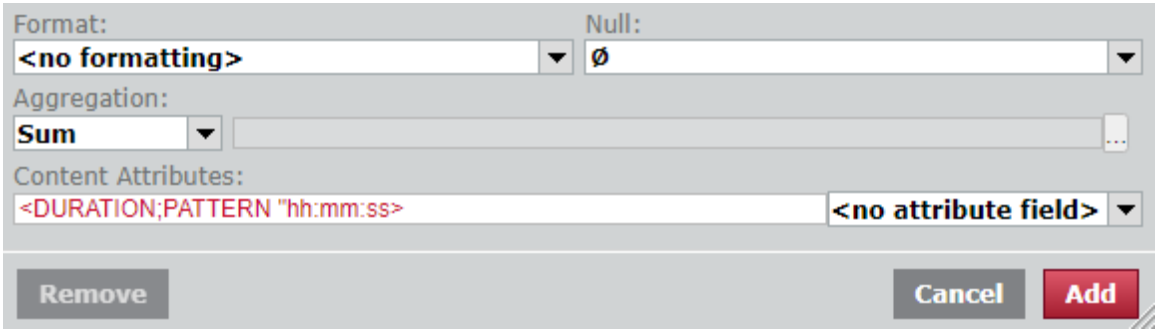
Enter DURATION in the Content Attribute field and the desired format in the Format field.



DURATION and PATTERN attributes and format

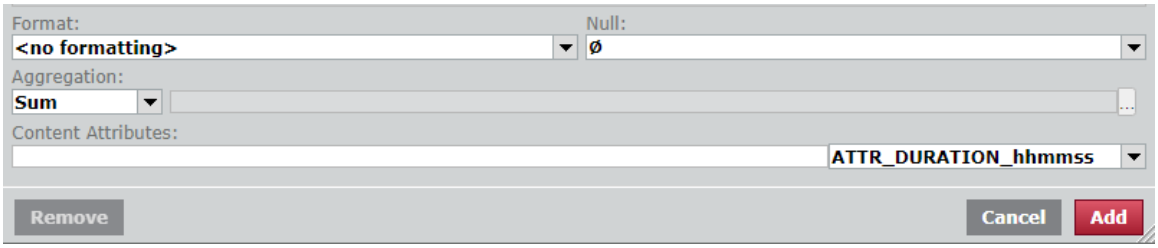
Enter two attributes, DURATION and PATTERN, and specify the desired format in the attribute string.

For more information on how to write a content attribute string, see Configure a measure's appearance and About content attributes.



Preconfigured content attribute

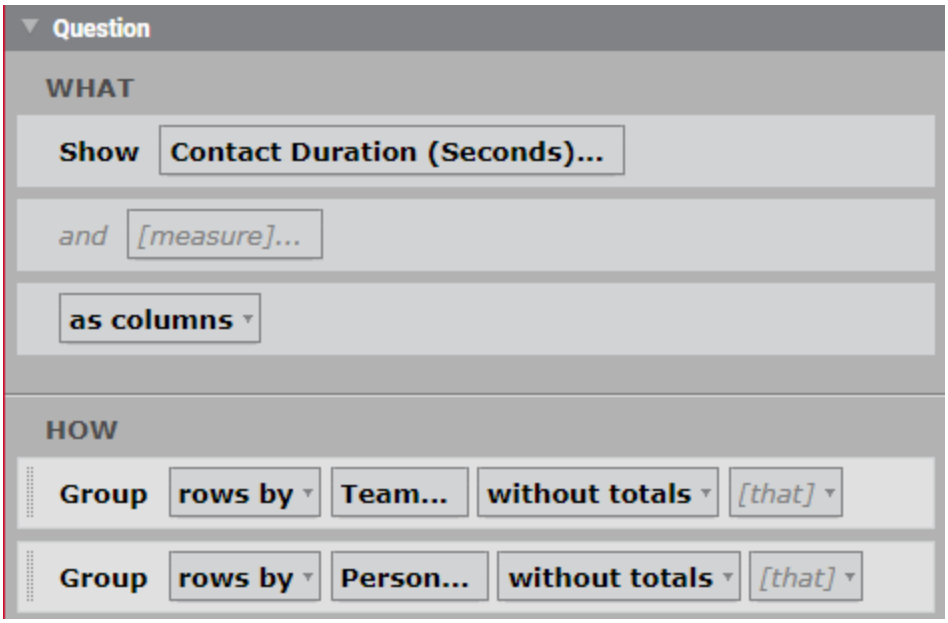
The drop-down field to the right of the Content Attributes field lets you apply preconfigured content attributes to the measure without having to enter anything in the Content Attributes field itself. There are several preconfigured DURATION attributes you can use. The one selected in this graphic applies the **hh:mm:ss** format to the time value measure.



NOTE Not all data libraries have preconfigured content attributes in them. For example, the Webex WFO data model has them, but the WFM data model does not. If your data library has them, they appear in this drop-down list.

Example

We have created a simple report that shows the contact duration in seconds by team and then by agent. The measure **Contact Duration (Seconds)** is grouped by **Team** and then by **Person**.



The resulting report looks like this:

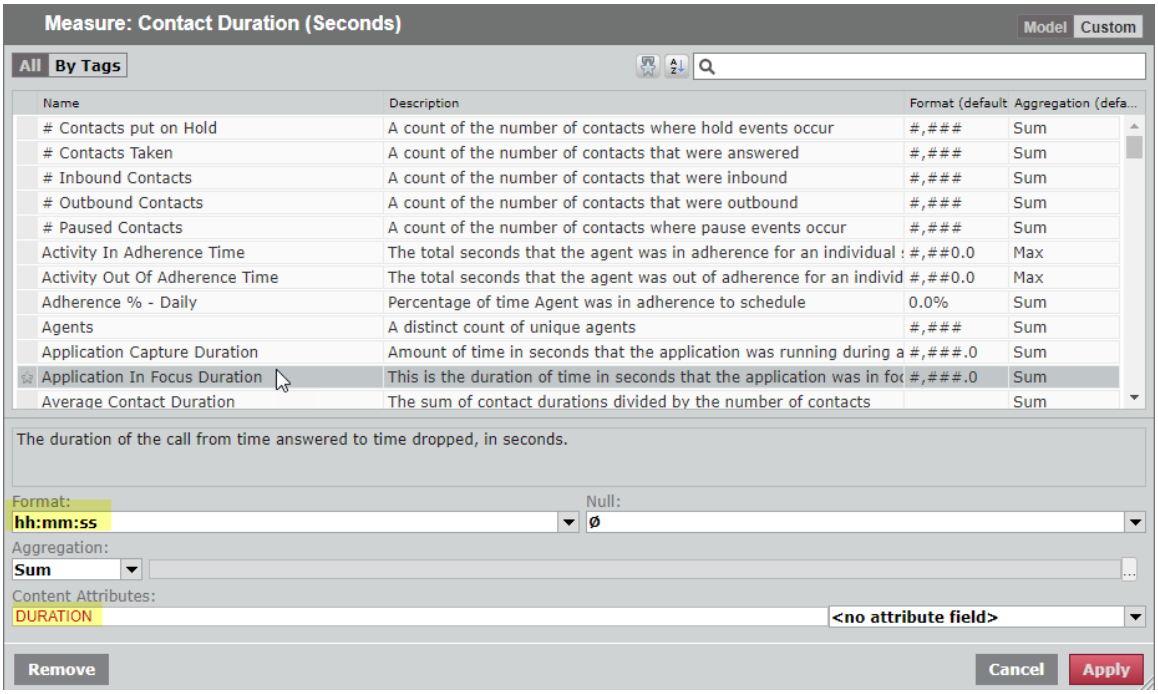
Team ⊞ ↓	Person ⊞ ↑	Contact Duration (Se...
SecOps_Trax	Edward Harris	.0
NA West	Anna Alexander	48,974.0
	beth bryant	107,374.0
	Clarence Cook	100,786.0
	don davidson	97,698.0
	Edward Eastman	103,330.0
	Fred Fischer	42,512.0
	George Gray	44,112.0
	Henry Hall	44,764.0

We want the Contact Duration value to be displayed in **hh:mm:ss** format rather than in seconds to be more understandable. To accomplish this, we apply the DURATION content attribute to the measure.

To do this, we open the **Contact Duration (Seconds)** measure dialog box (click the measure's name in the **Question** panel) and add the DURATION content attribute in the lower panel.

- In the **Format** field, enter **hh:mm:ss**
- In the **Content Attributes** field, enter **DURATION**

The fields are highlighted in this graphic:



The report now shows the Contact Duration in hh:mm:ss format:

Team	Person	Contact Duration (Se...
SecOps_Trax	Edward Harris	00:00:00
NA West	Anna Alexander	13:36:14
	beth bryant	29:49:34
	Clarence Cook	27:59:46
	don davidson	27:08:18
	Edward Eastman	28:42:10
	Fred Fischer	11:48:32
	George Gray	12:15:12
	Henry Hall	12:26:04

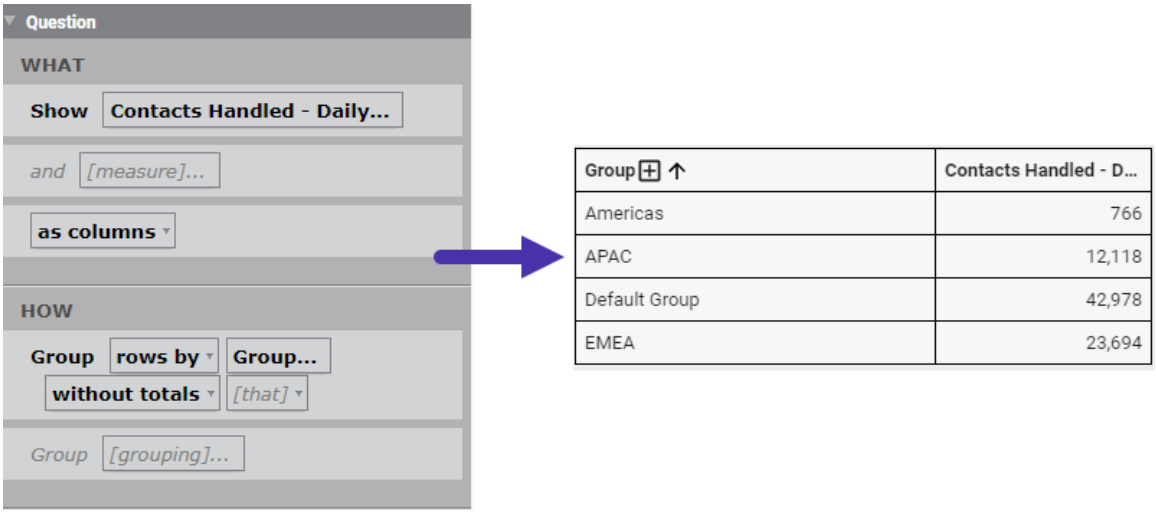
Drill down from group to team to person

If you have a report that displays data by group, Data Explorer automatically allows you to drill down from Group to Team to Person. This is a great way to allow people to start with a high-level view and dig into the areas they need to see more detail on.

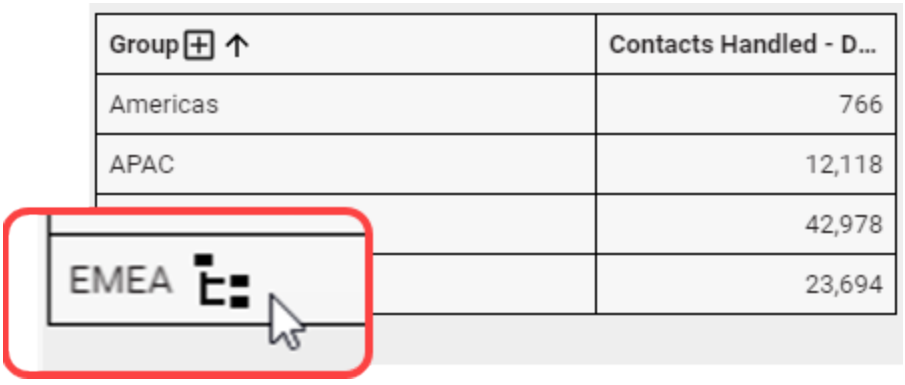
Any time you group by Group, you will have this drill-down functionality available in your report.

How does it work?

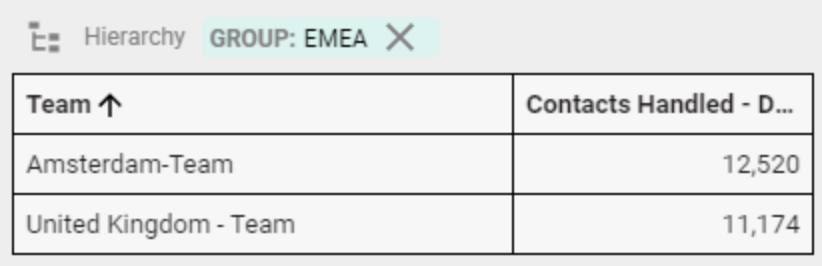
Create a report grouped by Group.



Hover your mouse over one of the group names in your report and click the symbol that appears.

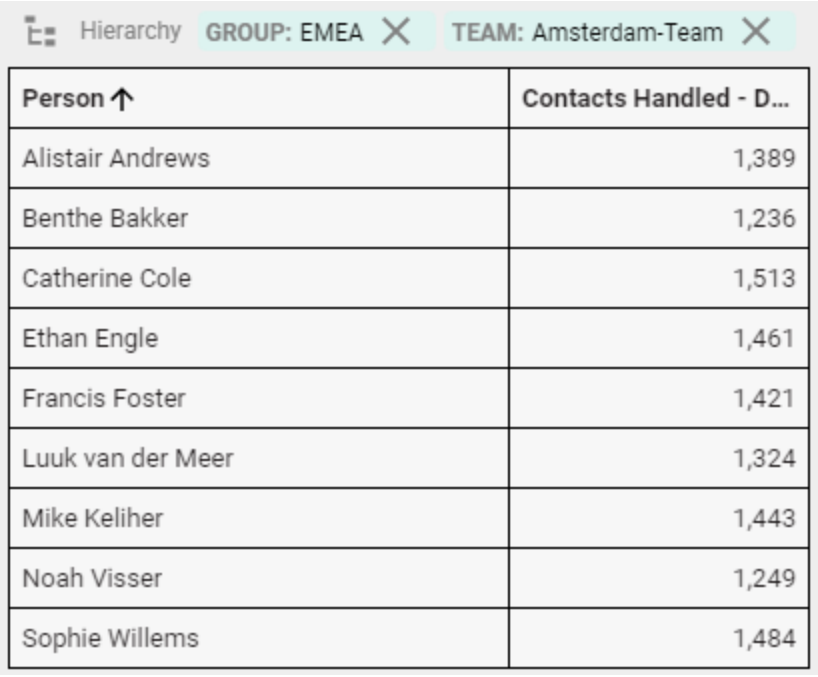


Now you'll see data broken down for each team within the group you clicked. You can tell where you are in the hierarchy by the breadcrumb trail shown at the top of your report.



Team ↑	Contacts Handled - D...
Amsterdam-Team	12,520
United Kingdom - Team	11,174

Do you want to drill down further? Click the symbol next to one of the teams to see data for each person who is a member of that team.



Person ↑	Contacts Handled - D...
Alistair Andrews	1,389
Benthe Bakker	1,236
Catherine Cole	1,513
Ethan Engle	1,461
Francis Foster	1,421
Luuk van der Meer	1,324
Mike Keliher	1,443
Noah Visser	1,249
Sophie Willems	1,484

If you want to zoom back out, click the **X** next to the team or group in the breadcrumb trail above your report.

Change a headline report's color based on value

Data Explorer offers a number of different data visualization (view type) options. One used frequently is the Headline option. This is a way to display a non-graphical result as a big number on your dashboard.



You can easily change the color of these numbers based on their value. This is useful if, for example, you want to highlight a number that has fallen below an acceptable threshold.

In this example, we are showing the average NPS response. We want the number to be orange when it's below 7, gray when it's between 7 and 9, and navy blue when it's 9 or higher. We can do this with content attributes, but there is an easier way for headline numbers.

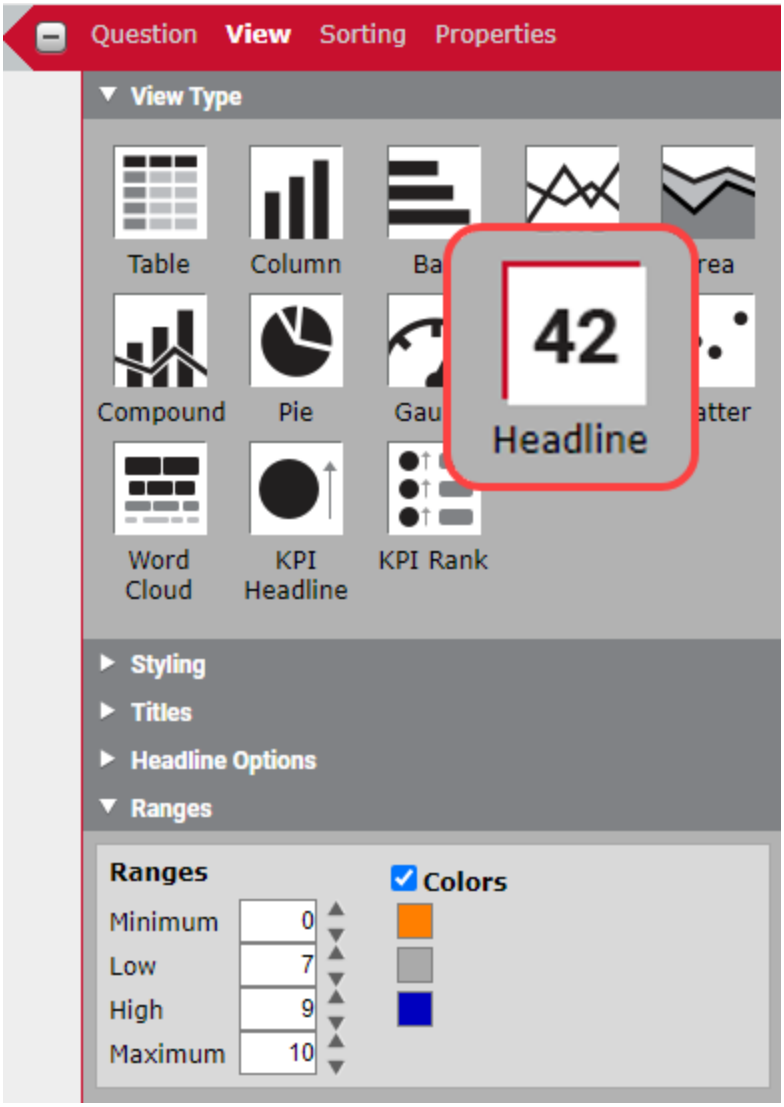
How does it work?

When you configure this report, choose **Headline** as your View Type, then scroll down to the bottom of the View panel to the **Ranges** section.

Select the **Colors** check box, then set your minimum, low, high, and maximum ranges.

> **NOTE** If you don't know the maximum or minimum for your value, you can just enter a number that is really high or really low. In this example, NPS response scores range from 0 to 10, so those are the minimum and maximum.

Choose the colors you want to associate with value ranges you set up. As you can see in the graphic, we have chosen orange for 0–7. gray for 7–9, and blue for 9–10.



How Insights works

Using Insights, you can make better decisions by reporting on the data that your contact center generates.

When you create an analysis, the typical workflow looks like this:

1. Create a new analysis.
2. Select a dataset.

3. Choose fields from the dataset to create the first chart. Insights automatically suggests the best visualization.
4. Add more charts, tables, or insights to the analysis. Resize and rearrange them on one or more sheets. Use extended features to add variables, custom controls, colors, additional pages (called sheets), and more.
5. Publish the analysis as a dashboard to share it with other people.

Terminology

Term	What it means
Data preparation	The process of transforming data for use in an analysis. Cisco does most of this work for you, but you might need to filter data so that you can focus on what's important to you or add calculated fields to enhance your analysis.
SPICE (Super-fast, Parallel, In-memory Calculation Engine)	The robust in-memory engine that Insights uses. SPICE is engineered to rapidly perform advanced calculations and serve data. The storage and processing capacity available in SPICE speeds up the analytical queries that you run against your data. By using SPICE, you save time because you don't need to retrieve the data every time that you change an analysis or update a visual.
Data analysis	The basic workspace for creating data visualizations, which are graphical representations of your data. Each analysis contains a collection of visualizations that you arrange and customize.
Data visualization, or visual	A graphical representation of data. There are many types of visualizations, including diagrams, charts, graphs, and tables. All visuals begin in AutoGraph mode, which automatically selects the best type of visualization for the fields that you select. You can also take control and choose your own visuals. You can enhance your analytics by applying filters, changing colors, adding parameter controls, custom click actions, and more.
Machine learning (ML) Insights	ML Insights propose narrative add-ons that are based on an evaluation of your data. You can choose one from the list, for example forecasting or anomaly (outlier) detection. Or you can create your own. You can

Term	What it means
	combine insight calculations, narrative text, colors, images, and conditions that you define.
Sheet	A page that displays a set of visualizations and insights. You can imagine this as a sheet from a newspaper, except that it's filled with charts, graphs, tables, and insights. You can add more sheets and make them work separately or together in your analysis.
Dashboard	The published version of an analysis. You can share with other users of Insights for reporting purposes. You specify who has access and what they can do with the dashboard.

Reader experience: Explore interactive dashboards in Insights

In Insights, a data dashboard is a collection of charts, graphs, and insights. It's like a newspaper that's all about the data that you're interested in, except it has digital pages. Instead of reading it, you interact with it.

Dashboards come in a wide variety of designs, depending on what you do and the analytics that you need to do it well. Using Insights, you can interact with your data on a webpage. If you also subscribe by mail, you can see a static preview of it.

The story told by your data reflects the expertise of the data analysts who built the dashboards. They refine the data, add calculations, find angles on the story, and decide how to present it. The publisher designs the dashboard and fills it with interactive data visualizations and controls that adjust your view. Publishers can customize the level of interactivity that you have, including filter and search options. You can interact with the active items on the screen to filter, sort, drill down, or jump to another tool.

When you view a dashboard, you're seeing the most recently received data. As you interact with the items on the screen, any changes you make change your view of the dashboard, and no one else's. Thus, your device's privacy is assured, although the publisher can tell what you looked at. After you close the dashboard, your explorations aren't preserved, and neither is the data.

If you're also a dashboard publisher—we call them authors, because they write reports—you can also save a copy of the dashboard for further analysis. If you find a new feature of the data that you want to publish, work with the original authors to update it. That way, everyone can see the same version of the story. However, you can also use your copy to learn how their design works or to inspire your work on something entirely new. Then, when you're finished, you can publish your analysis as a new dashboard.

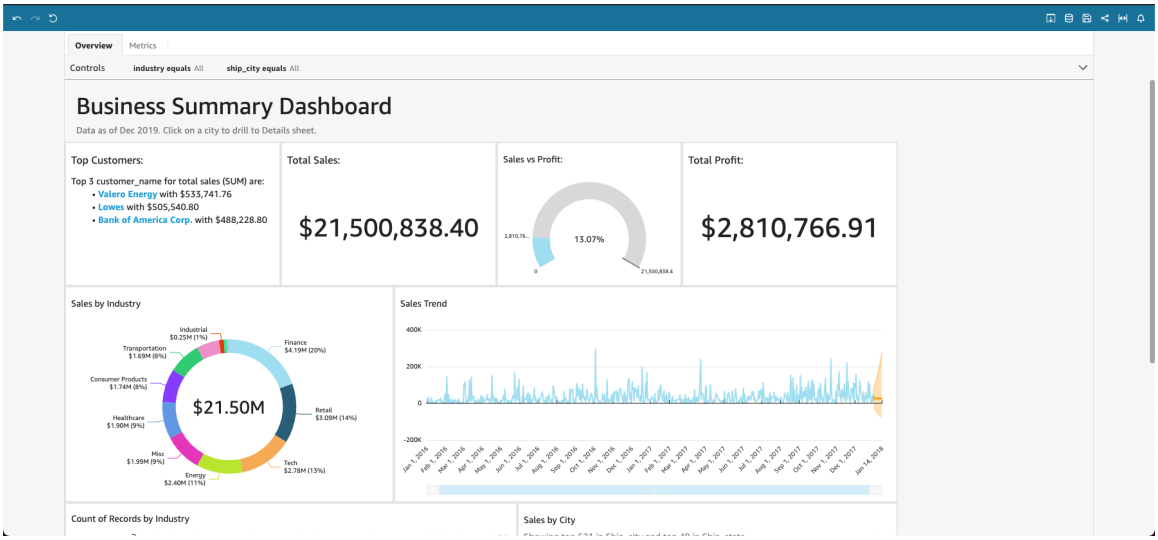
To learn to set up dashboards, see Share and subscribe to data in Insights.

Topics

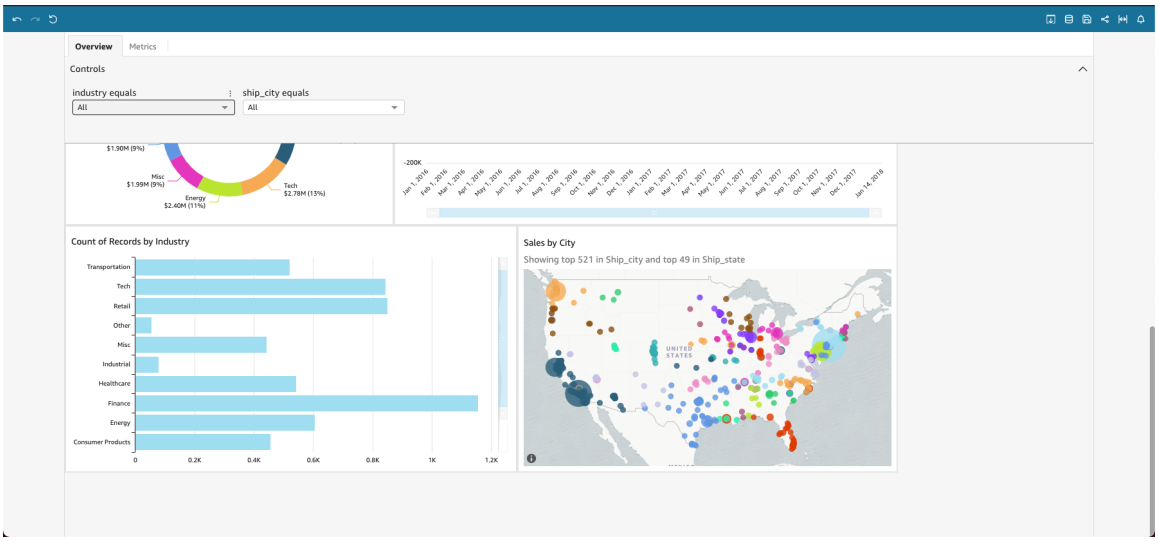
- Interact with Insights dashboards
- Bookmark views of a dashboard

Interact with Insights dashboards

When you open a dashboard, the screen should look something like the following example.



If your dashboard has a title, it is usually a larger heading. It might have some status information or instructions below it. If your dashboard has multiple sheets, these display as tabs across the top of the dashboard. If the dashboard publisher allows filtering, this option appears to the left of the dashboard. The items on the screen can include charts, graphs, insights, narratives, or images. To see them all, you might need to scroll vertically or horizontally. The following screenshot shows more of the previous example dashboard:



Prerequisites

- You have the Insights Reader license.

Page location

Insights > Dashboards > Click a dashboard

Procedures

Fit the dashboard to your screen

1. Click **View** (upper-right corner of the page).
2. Select **Fit to window**.

Revert a dashboard to its default settings

- Click **Reset to original dashboard** (upper-left corner of the page).

Print a dashboard

1. Click **Export** (upper-right corner of the page).
2. Select **Print**. The **Prepare for printing** window opens.
3. Select a **Paper size** and **Paper orientation**, and then click **Go To Preview**.
4. Click **Print**. Your browser's print window opens.

View the datasets included in a dashboard

1. Click **Data** (upper-right corner of the page). The **Datasets for this dashboard** window opens.

Choose the options (parameters) to apply to the whole dashboard

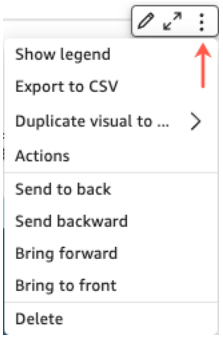
Depending on the information in the dashboard, you might be able to choose a date range, view information for a specific team or agent, and other options. Sometimes an option is selected for you, and sometimes it's set to ALL.

1. Expand the **Controls** menu at the top of the page.
2. Select your options.

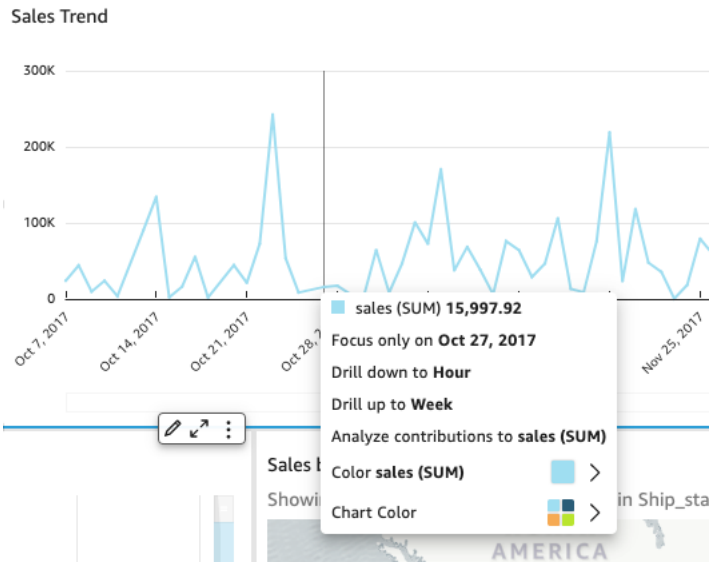
To return to the default options, hover over the field, click **Options** (the three dots), and select **Reset**.

Explore individual widgets

Every dashboard contains at least one widget. Each widget has a settings menu that appears when you select that widget. This menu provides options to zoom in or out, filter the data, export the data, and more. The options vary depending on the type of widget.



When you click a data point in a widget, several actions are available. You can click a data point, for example a bar in a bar chart, a point where the line bends on a line chart, and so on. The available options vary based on what type of item it is. The following screenshot shows a list of actions available on most chart types.



These actions are as follows:

- **Focus on** or **exclude**: You can focus on or exclude specific data in a field, for example regions, metrics, or dates.
- **Drill up** or **drill down**: If your dashboard contains data on which you can drill down or up, you can drill up to a higher level or drill down to explore deeper details.
- Custom URL actions: If your dashboard contains custom actions, you can activate them by clicking or right-clicking a data point. For example, you might be able to email someone directly from the dashboard. Or you might open another sheet, website, or application, and send it the value you chose from this one.
- Change **chart colors** or specific field colors: You can change all the chart colors to a specific color. Or you can choose a specific field value to change its color of the element it's part of.

Related topics

- Bookmark views of a dashboard

Use filters on dashboard data

You can use filters to refine the data displayed in a visual. Filters are applied to the data before any aggregate functions. If you have multiple filters, all top-level filters apply together using AND. If the filters are grouped inside a top-level filter, the filters in the group apply using OR.

Insights applies all of the enabled filters to the field.

EXAMPLE There is one filter of state = WA and another filter of sales >= 500. In this case, the dataset contains only records that meet both of those criteria. If you disable one of these, only one filter applies.

Take care that multiple filters applied to the same field aren't mutually exclusive.

Prerequisites

- You have the Insights Reader license.

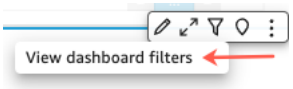
Page location

Insights > Dashboards > Click a dashboard

Procedures

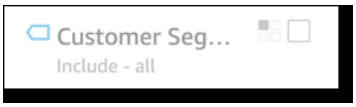
View existing filters

1. Hover over the widget, and click **Filter** in the settings menu.
2. Select **View dashboard filters**. The filters appear in the **Applied filters** panel in order of creation, with the oldest filter on top.

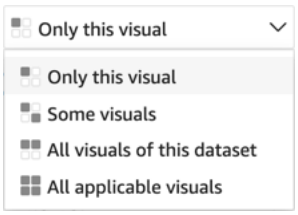


Filters in the **Applied filters** panel display icons to indicate how they are scoped and whether they are enabled.

A filter that isn't enabled is grayed out, and you can't select its check box.



A scope icon appears to the right of the filter name to indicate the scope set on that filter. The scope icon resembles four boxes in a square. If all boxes are filled, the filter applies to all visuals on the analysis sheet. If only one box is filled, the filter applies to the selected visual only. If some boxes are filled, the filter applies to some of the visuals on the sheet, including the one currently selected.

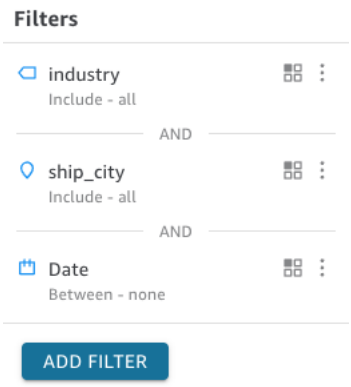


The scope icons match the ones that appear on the filter menu when you are choosing the scope for the filter.

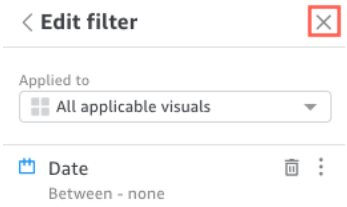
View filter details

- Click **Filter** at left. The filter view retains your last selection. So when you open **Filter**, you see either the **Applied filters** or the **Edit filter** view.

  In the **Applied filters** view, click any filter to view its details. The filters in this list can change depending on the scope of the filter and which visual you currently have selected.



  Close the **Edit filter** view by clicking the **X** on the right. Doing this resets the **Filter** view.



Related topics

- Filter data during your session
- Sort dashboard data

- Export and print interactive dashboard reports

Filter data during your session

Prerequisites

- You have the Insights Reader license.

Page location

Insights > Dashboards > Click a dashboard

Procedures

NOTE Your filters aren't saved from one session to the next.

Filter data across the entire dashboard

- If your dashboard has **Controls** at the top of the screen, use them to filter data by choosing from a preset list of values.

Filter data in a single widget

- Use the filter icon on each widget's settings menu.

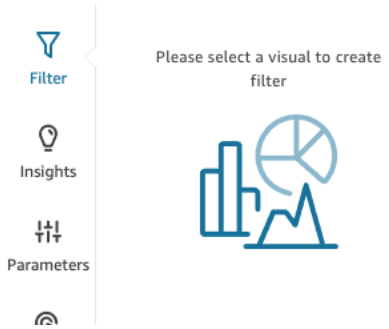


Create your own filter

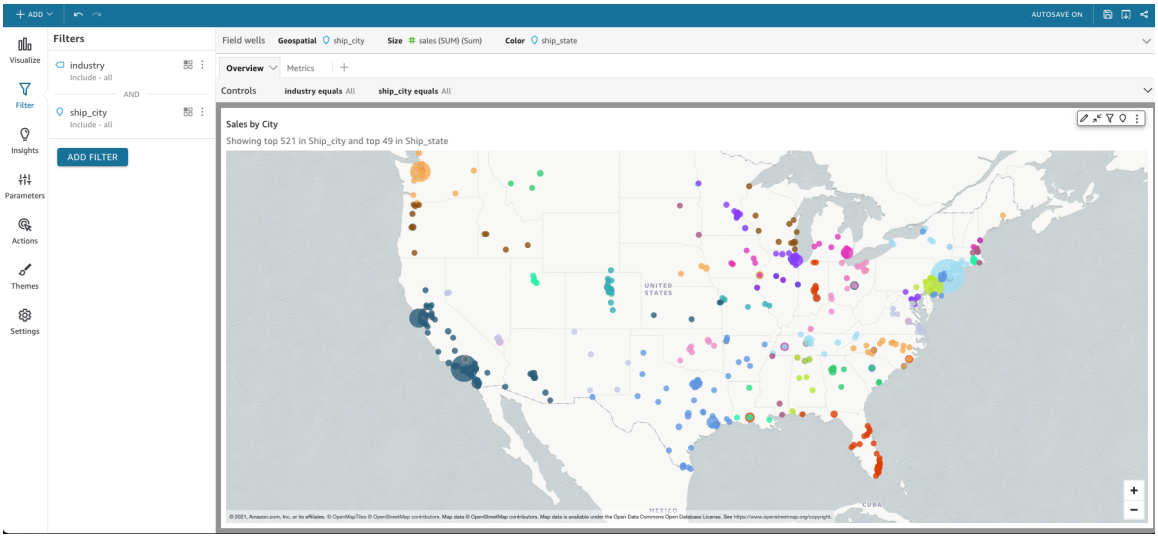
1. Click **Filter** on the left side of the page. The filter icon looks like the following.



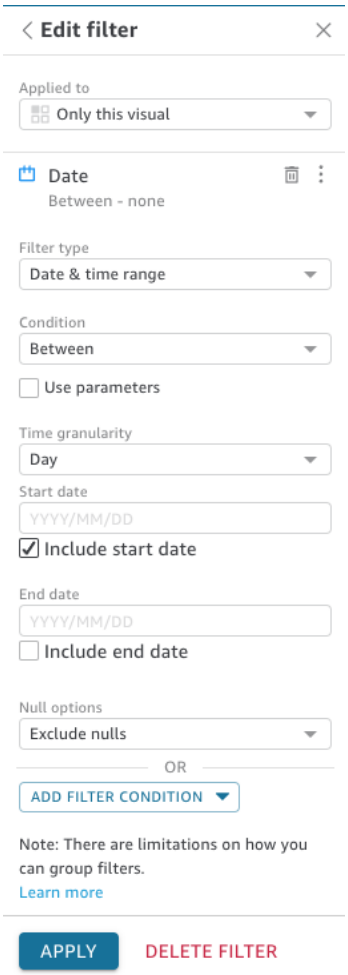
2. Click the dashboard element you want to filter so that a highlight appears around the selected item. If any filters are already there, they appear in a list.



If there aren't any filters, click the plus sign (+) near **Filters** to add one.



Filtering options vary depending on the data type of the field you want to filter and on the options you choose inside the filter. The following screenshot shows some of the options available for a time-range date filter.



3. For each filter, choose whether to apply it to one, some, or all dashboard elements.

Enable or disable a filter

- Select the check box next to the name of the filter.

Delete a filter

- Edit the filter, scroll to the bottom, and click **Delete Filter**.

Related topics

- Filter data in Insights—More detailed information on creating filters
- Use filters on dashboard data

- Sort dashboard data
- Export and print interactive dashboard reports

Sort dashboard data

Prerequisites

- You have the Insights Reader license.

Page location

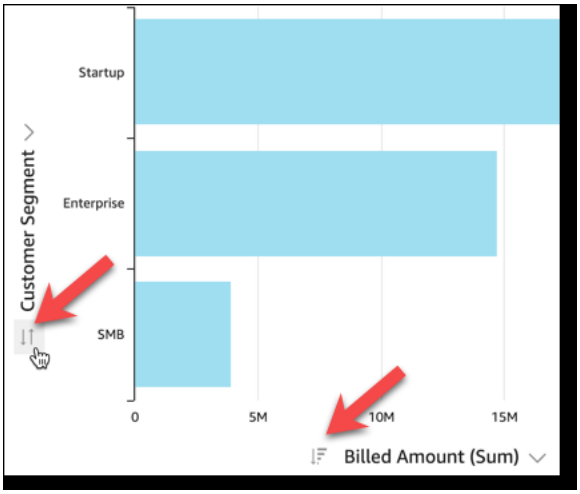
Insights > Dashboards > Click a dashboard

Procedures

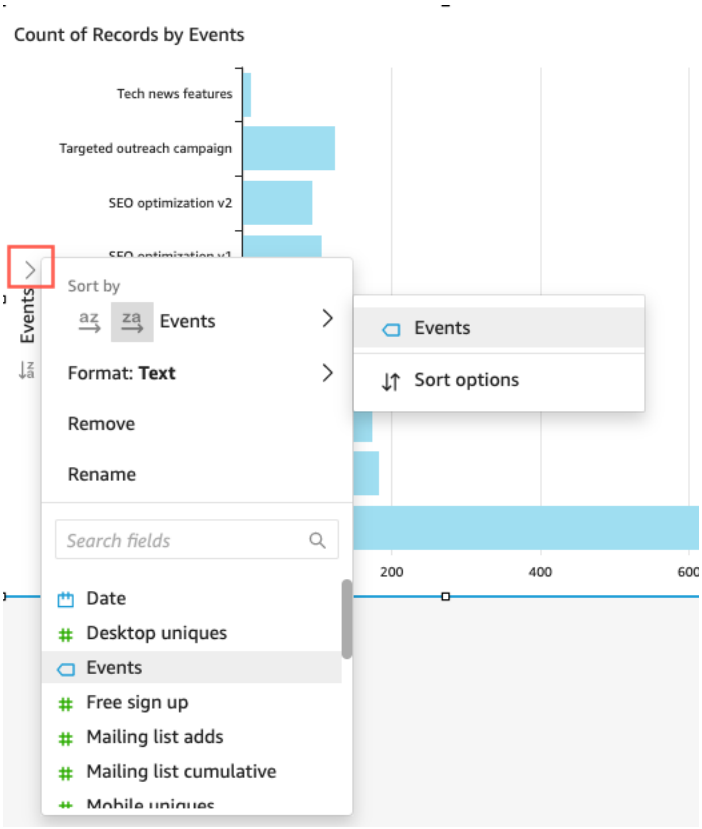
Sort data in a dashboard

You can sort data in three ways:

- Hover over the label for the field you want to sort by, and click the sort icon.



- Click the filter icon at the upper right of one of the dashboard elements.



- Click the field and select **Sort** from the drop-down list.

Sort data in a pivot table

- Click the column sort icon on the pivot table.

Related topics

- Use filters on dashboard data
- Filter data during your session
- Export and print interactive dashboard reports

Export and print interactive dashboard reports

You can export or print a PDF version of an interactive dashboard. You can also export some visuals in a dashboard to a CSV. Exporting an entire dashboard to a CSV is not currently supported for interactive dashboards.

Prerequisites

- You have the Insights Reader license.

Page location

Insights > Dashboards > Click a dashboard

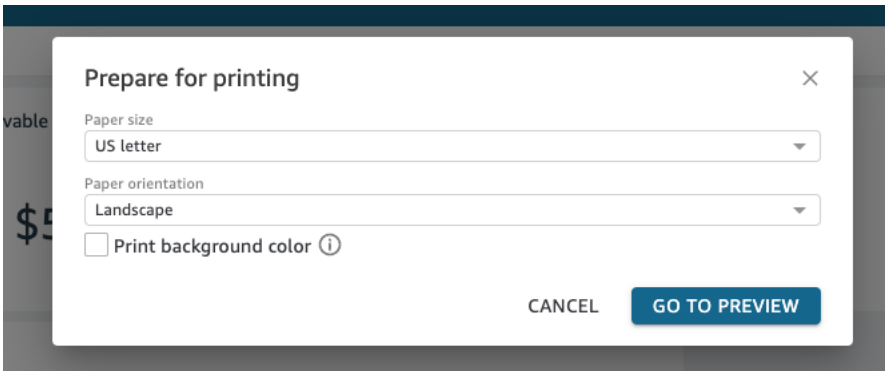
Procedures

Export an interactive dashboard report as a PDF

1. Click the **Export** icon at the top right.
2. Select **Generate PDF**. Insights begins preparing the dashboard report for download.
3. Click **View Exports** in the blue pop-up to open the **Exports** pane on the right.
4. There are two ways to download your report:
    - Click **Download** in the green pop-up. The PDF downloads to your device.
    - Click the **Export** icon at the top right, and then click **View exports** to view and download every report that is ready.

Print an interactive dashboard report

1. Click the **Export** icon at the top right, and then select **Print**. The **Prepare for printing** window opens.
2. Select the **Paper size** and **orientation** that you want.
3. (Optional) To include the background color, select **Print background color**.
4. Click **Go To Preview**. The **Preview** window opens.

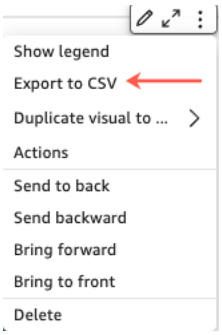


5. Click **Print**.

Export data from a dashboard to a CSV

NOTE Export files can directly return information from the dataset import. This makes the files vulnerable to CSV injection if the imported data contains formulas or commands. For this reason, export files can prompt security warnings. To avoid malicious activity, turn off links and macros when reading exported files.

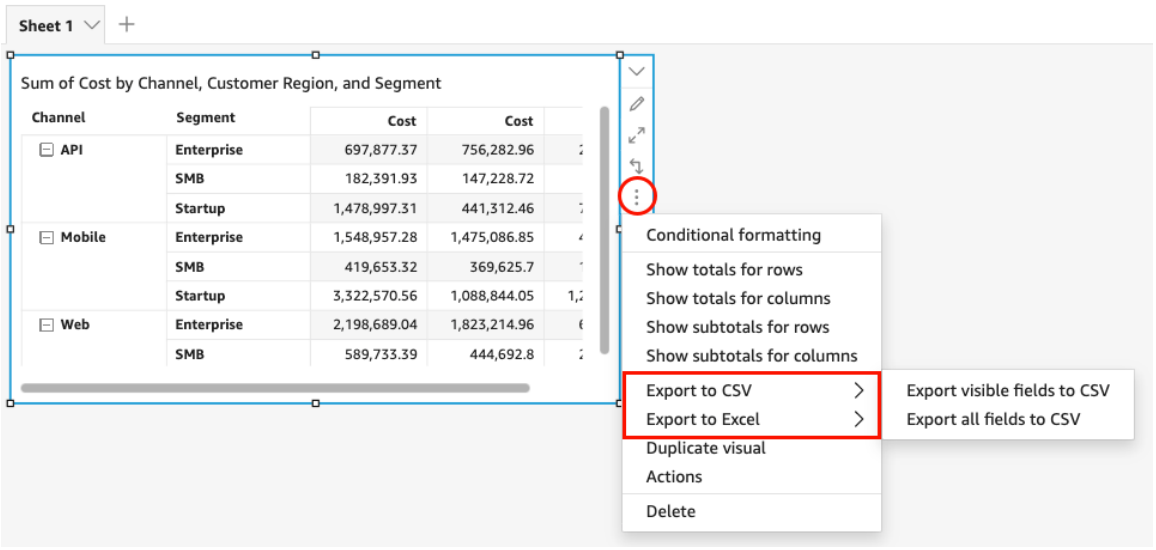
1. Click the **Menu options** icon in the upper-right corner of a widget and select **Export to CSV**. The CSV file downloads to your device. Exports include only data that currently appears in the item that you choose.



Export data from a table or pivot table to CSV or Excel

1. Click the **Menu options** icon at the upper-right corner of the widget and select **Export to CSV** or **Export to Excel**.

2. Select **Export all visible fields** or **Export all fields**. Your file downloads to your device.



Bookmark views of a dashboard

When you open a dashboard, you can create bookmarks to capture specific views of your interests. By doing this, you can quickly return to the data that's relevant to you.

EXAMPLE You create a bookmark for a dashboard with a specific filter setting that differs from the original published dashboard.

Prerequisites

- You have the Insights Reader license.
- The dashboard you want to bookmark is published.

Page location

Insights > Dashboards > Click a dashboard

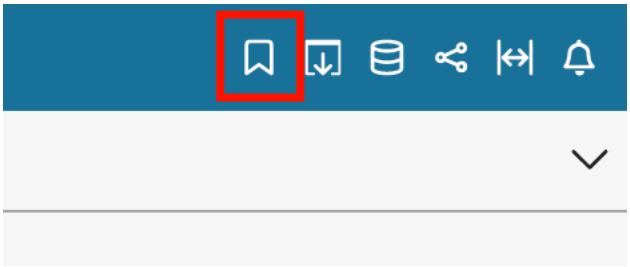
Procedures

Create a bookmark for a dashboard

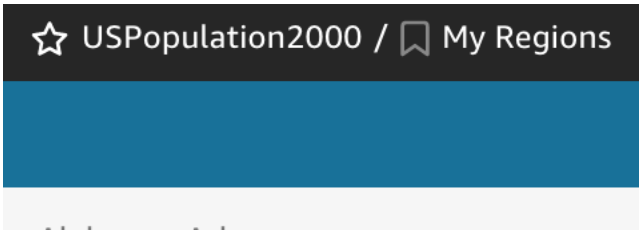
1. Configure the dashboard to exactly the view you want.

   EXAMPLE You filter to the team that interests you and select a specific date range using a sheet control on the dashboard.

2. Click the **Bookmark** icon (upper-right corner of the page). The **Bookmarks** panel opens.



3. Click **Add Bookmark**. The **Add a bookmark** pane opens.
4. Enter a name for the bookmark.
5. Click **Save**. The dashboard name changes to the bookmark name (at top left).



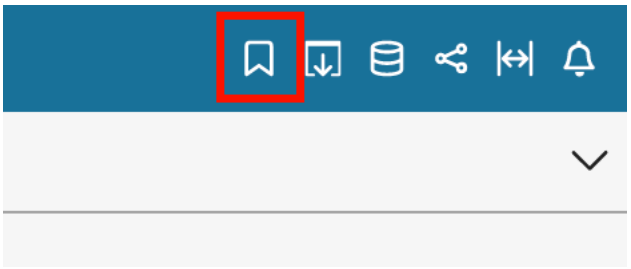
Return to the original dashboard

1. Click the **Bookmark** icon (upper-right corner of the page). The **Bookmarks** panel opens.
2. Click **Original dashboard**.

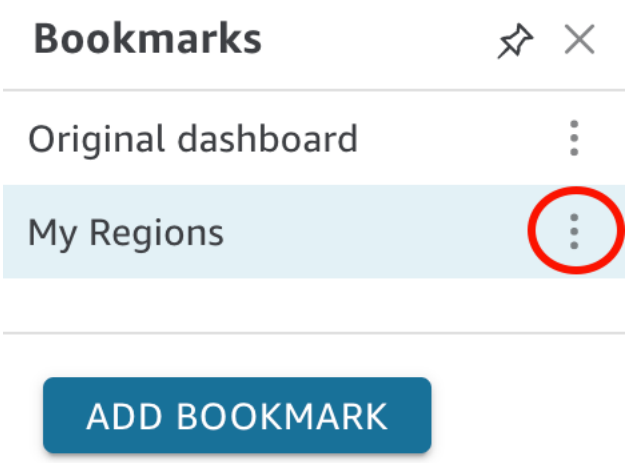
Update a bookmark

At any time, you can change a bookmark dashboard view and update the bookmark to always reflect those changes.

1. Open the published dashboard and make needed changes to the filters or parameters, or select a sheet.
2. Click the **Bookmark** icon (upper-right corner of the page). The **Bookmarks** pane opens.

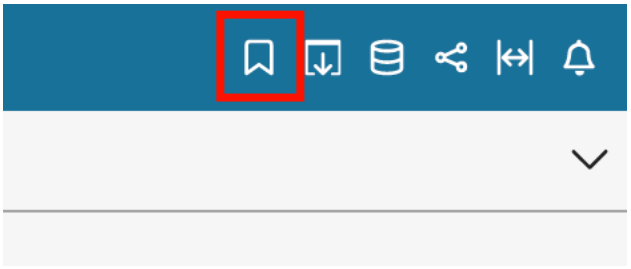


3. Click the context menu (the three vertical dots) for the bookmark that you want to update, and then select **Update**. A confirmation message appears.

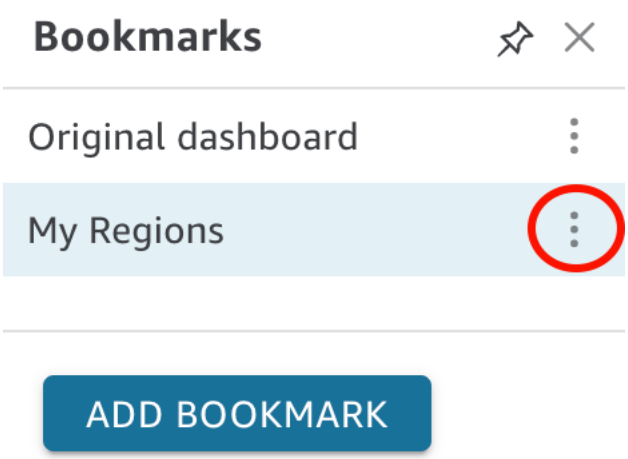


Rename a bookmark

1. Click the **Bookmark** icon (upper-right corner of the page). The **Bookmarks** pane opens.



2. Click the context menu (the three vertical dots) for the bookmark that you want to rename, and then select **Rename**. The **Rename bookmark** pane opens.

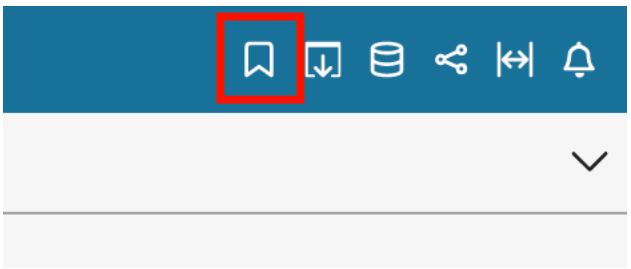


3. Enter a name for the bookmark.
4. Click **Save**.

Set a bookmark as your default view of the dashboard

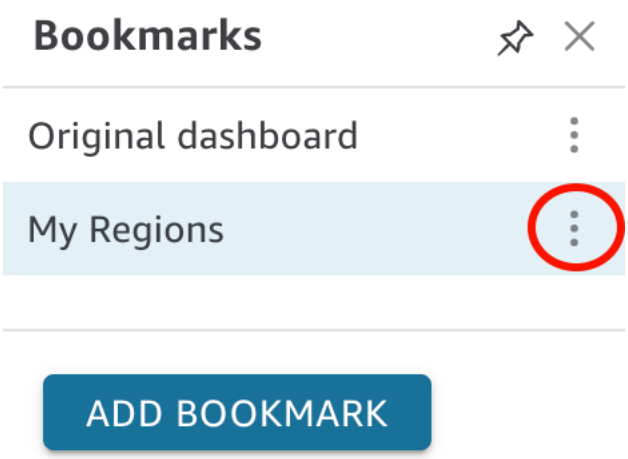
By default, when you update a dashboard, Insights remembers those changes and keeps them after you close the dashboard. This way, you can pick up where you left off when you open the dashboard again. You can set a bookmark as the default view of a dashboard instead. If you do, anytime that you open the dashboard, you see the bookmarked view, regardless of the changes you made during your last session. This doesn't affect anyone else's view of the dashboard.

1. Click the **Bookmark** icon (upper-right corner of the page). The **Bookmarks** pane opens.



2. Click the context menu (the three vertical dots) for the bookmark that you want to set as your default

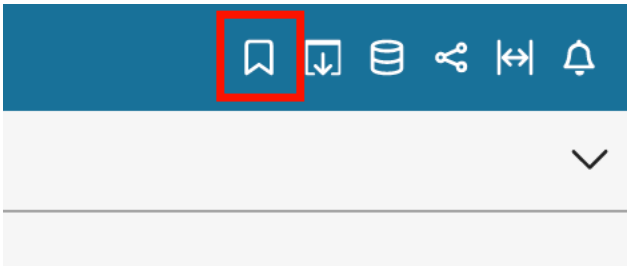
view, and then select **Set as default**.



Share a bookmark with another dashboard subscriber

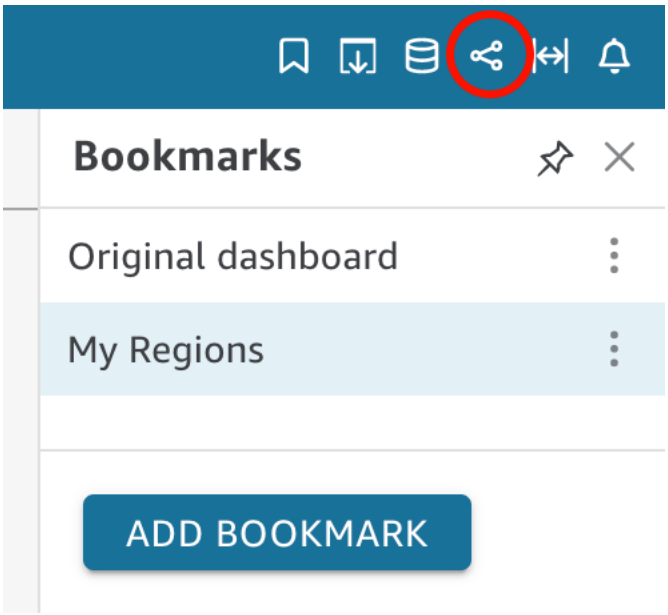
After you create a bookmark, you can share a link to the view with others who have permission to view the dashboard. They can then save that view as their own bookmark.

1. Click the **Bookmark** icon (upper-right corner of the page). The **Bookmarks** pane opens.



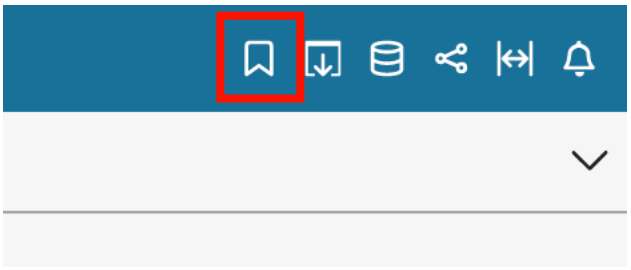
2. Select the bookmark that you want to share so that the dashboard updates to that view.
3. Click the **Share** icon (upper-right corner of the page), and then select **Share this view**. The **Share using a link** window opens.
4. Copy the link in the window and paste it in an email or chat message to share it with others. The person who receives the link can then save the view as their own bookmark. For more information

about sharing views of a dashboard, see Sharing your view of an Insights dashboard.

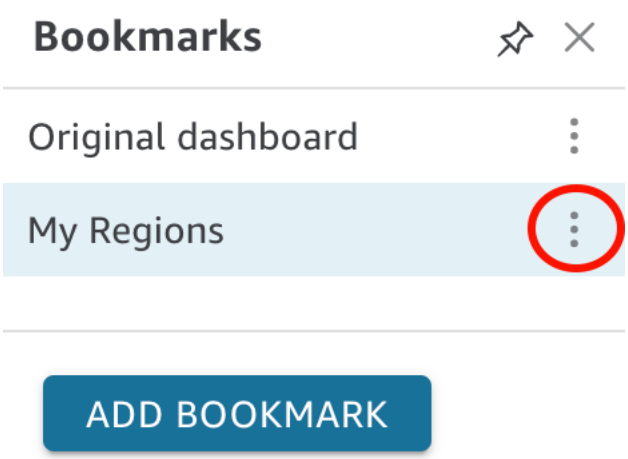


Delete a bookmark

1. Click the **Bookmark** icon (upper-right corner of the page). The **Bookmarks** pane opens.



2. Click the context menu (the three vertical dots) for the bookmark that you want to delete, and then select **Delete**. The **Delete Bookmark** window opens.



3. Click **Yes, Delete Bookmark**.

Related topics

- Interact with Insights dashboards

Use the Insights start page

Prerequisites

- You have the Insights Reader license.

Page location

Insights

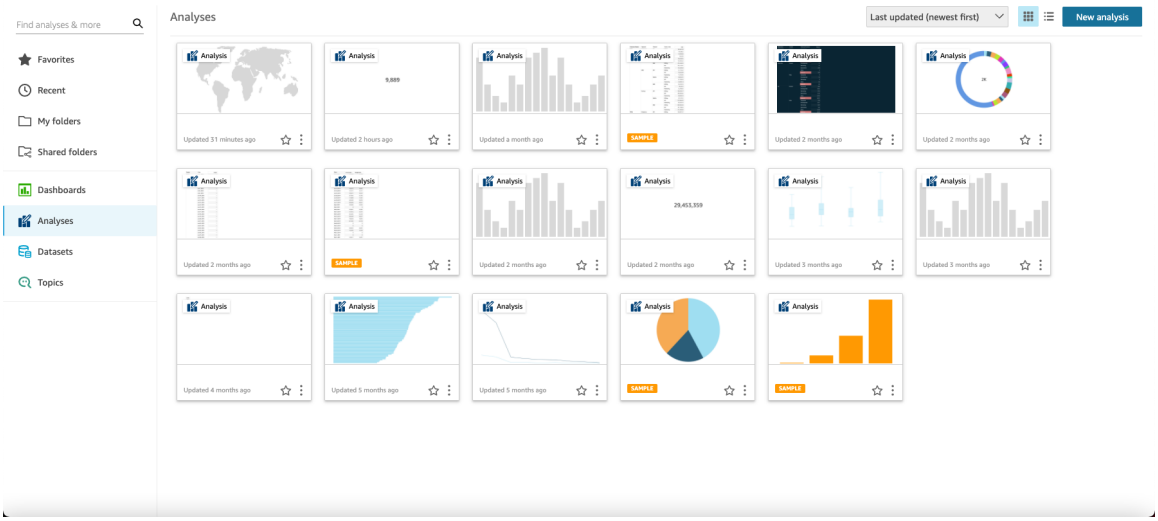
Procedures

View available dashboards

1. Click **Dashboards** in the side menu.
2. Click a dashboard to open it.

View available analyses

1. Click **Analyses** in the side menu. This is the default page when Insights opens.
2. Click an analysis to open it.



View your list of favorite dashboards and analyses

- Click **Favorites** in the side menu.

Add an item to your favorites

- Click the star near the title of the dashboard or analysis so that the star is filled in.

Remove an item from your favorites

- Clear the star near the item's title.

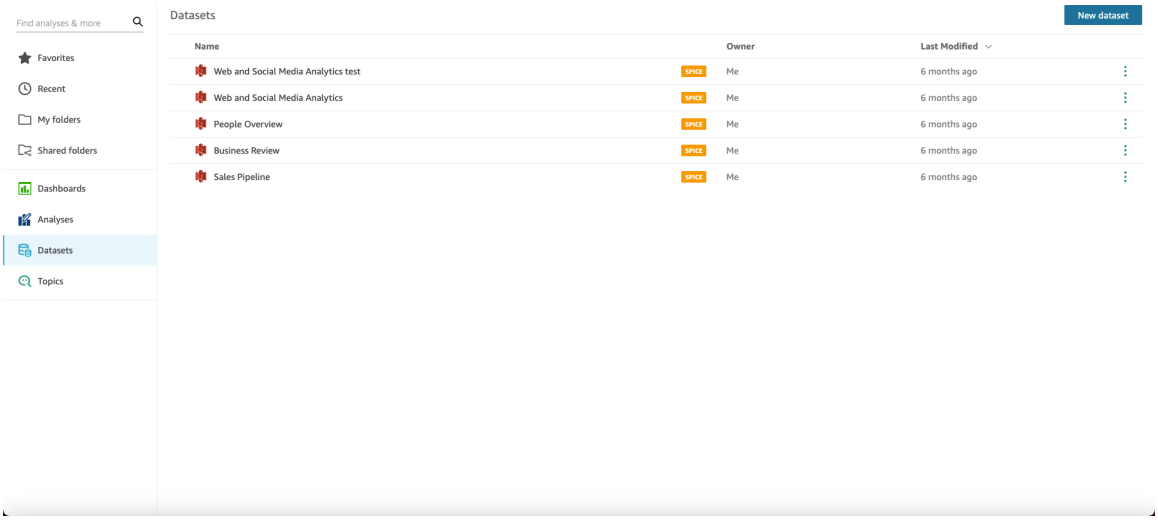
Create a new analyses

1. Click **New analysis** (upper-right corner of the page). The **Your Datasets** page opens.
2. Click a dataset to start analyzing it. See Create an analysis in Insights for more information.

View datasets

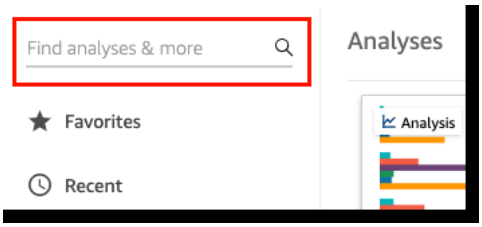
1. Click **Datasets** in the side menu. The **Datasets** page opens with a list of the datasets that you have access to. (If they don't all fit on one page, you can navigate between pages.)
2. Click a dataset to see more information about it or to start analyzing it. See Create an analysis in

Insights for more information.



Search for a dataset, analysis, or dashboard

1. Enter the name, or part of the name, of the item that you're looking for in the **Find analyses & more** field (upper-left corner of the page). The search is not case-sensitive.



2. Click an item from the search results to open it.

Related topics

- Create an analysis in Insights
- Interact with Insights dashboards

Prepare data in Insights

Datasets store any data preparation you have done on that data so that you can reuse that prepared data in multiple analyses. Data preparation provides options such as adding calculated fields and applying filters.

Use the following topics to learn more about data preparation.

Topics

- Add calculations
- Filter data in Insights

Adding drill-downs to visual data in Insights

All visual types except pivot tables offer the ability to create a hierarchy of fields for a visual element. The hierarchy allows you drill down to see data at different levels of the hierarchy. For example, you can associate the country, state, and city fields with the x-axis on a bar chart. Then, you can drill down or up to see data at each of those levels. As you drill down each level, the data displayed is refined by the value in the field you drill down on. For example, if you drill down on the state of California, you see data on all of the cities in California.

The field wells you can use to create drill-downs varies by visual type. Refer to the topic on each visual type to learn more about its drill-down support.

Drill-down functionality is added automatically for dates when you associate a date field with the drill-down field well of a visual. In this case, you can always drill up and down through the levels of date granularity. Drill-down functionality is also added automatically for geospatial groupings, after you define these in the dataset.

Use the following table to identify the field wells/on-visual editors that support drill-down for each visual type.

Visual type	Field well or on-visual editor
Bar charts (all horizontal)	Y axis and Group/Color
Bar charts (all vertical)	X axis and Group/Color
Combo charts (all)	X axis and Group/Color
Geospatial charts	Geospatial and Color
Heat map	Rows and Columns
KPIs	Trend Group
Line charts (all)	X axis and Color
Pie chart	Group/Color

Visual type	Field well or on-visual editor
Pivot table	Drill-down not supported
Scatter plot	Group/Color
Tabular Reports	Drill-down not supported
Tree map	Group by

Prerequisites

- You have the Insights > Create/edit report permission.

Page location

Insights > Analyses

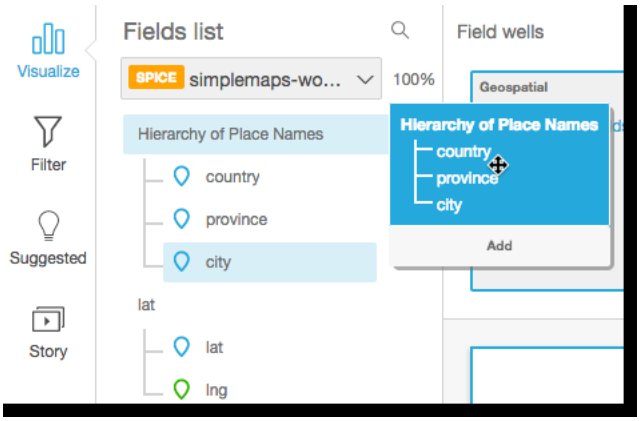
Procedures

Add drill-down levels to a visual

1. On the analysis page, choose the visual that you want to add drill-downs to.

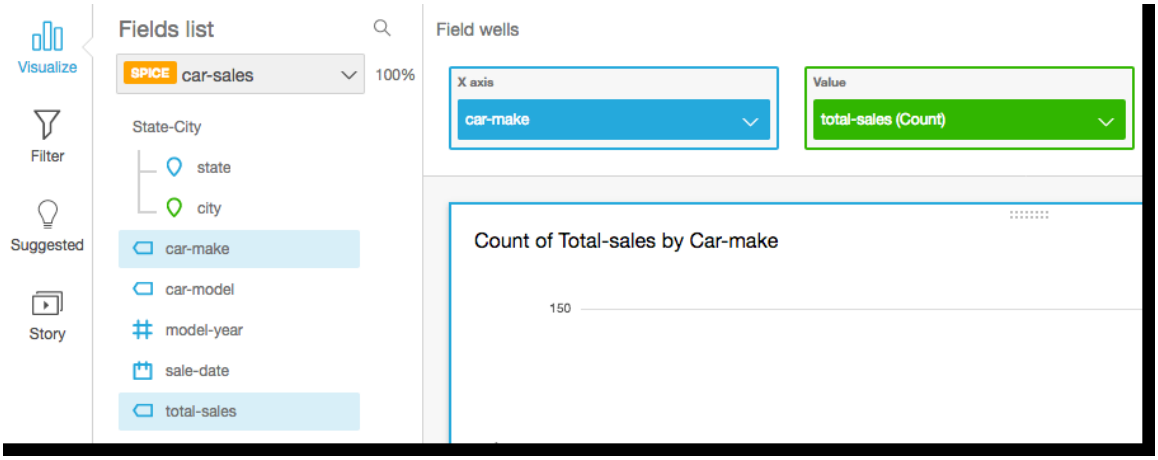
   NOTE You cannot add drill-downs to pivot tables.

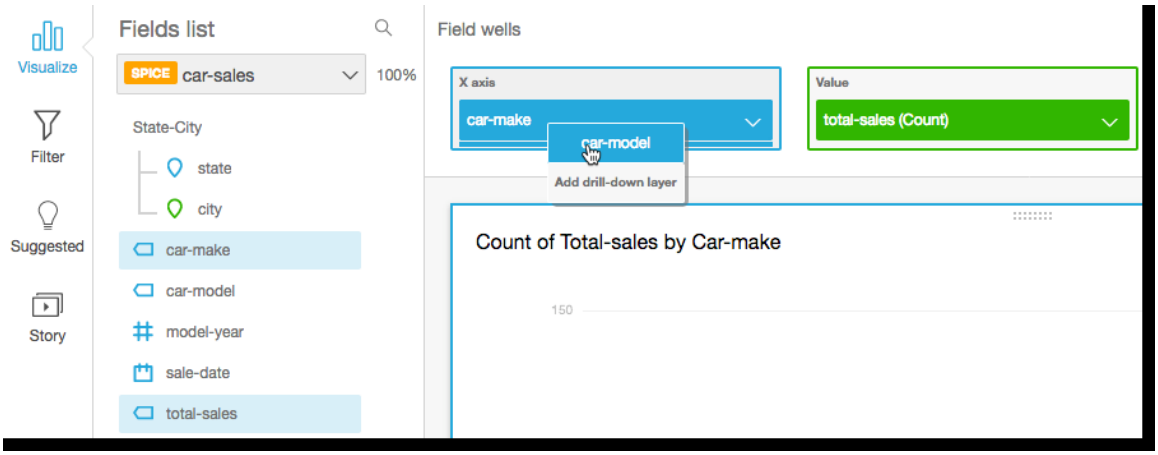
2. Click anywhere on the field wells to expand them.
3. If your dataset has a defined hierarchy, you can drag the entire hierarchy into the field well as one. For example, geospatial or coordinate data. In this case, you do not need to follow the remaining steps.

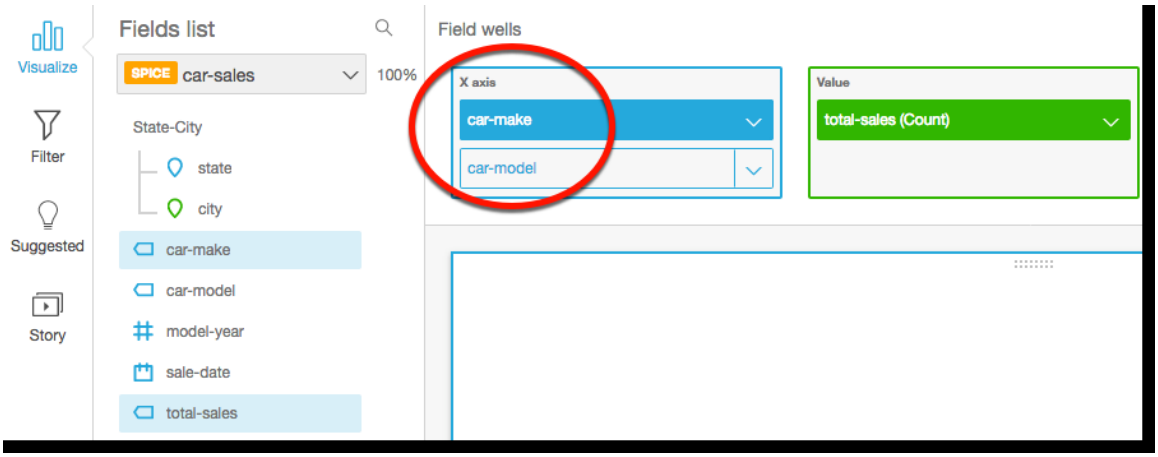


If you do not have a predefined hierarchy, you can create one in your analysis, as described in the remaining steps.

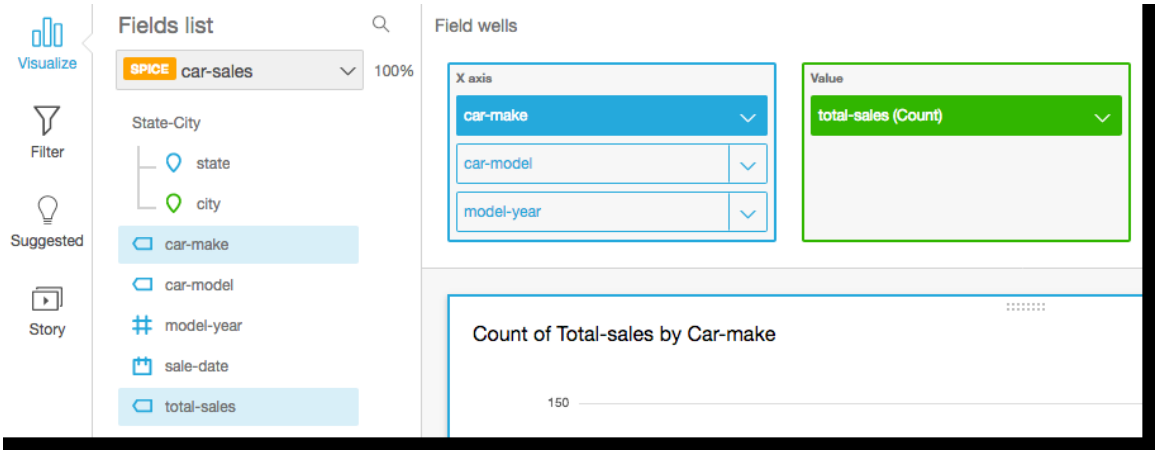
4. Drag a field that you want to use in the drill-down hierarchy to an appropriate field well, depending on the visual type. Ensure that the label for the dragged field says **Add drill-down layer**. Place the dragged field above or below the existing field based on where you want it to be in the hierarchy you are creating.







5. Continue until you have added all of the levels of hierarchy that you want. To remove a field from the hierarchy, select the field, and then click **Remove**.



6. To drill down or up to see data at a different level of the hierarchy, choose an element on the visual, such as a line or bar, and then select Drill down to <lower level> or Drill up to <higher level>. For example, from the car-make level, you can drill down to car-model to see data at that level. If you drill down to car-model from the Ford car-make, you see only car-models in that car-make.

   After you drill down to the car-model level, you can then drill down further to see make-year data or go back up to car-make. If you drill down to make-year from the bar representing Ranger, you see only years for that model of car.

Add calculations

Create calculated fields to transform your data by using one or more of the following:

- Operators
- Functions
- Fields that contain data
- Other calculated fields

Prerequisites

- You have the Insights > Create/edit report permission.

Page location

Insights > Analyses

You can add calculated fields to a dataset during data preparation or from the **Analysis** page. When you add a calculated field to a dataset during data preparation, it is available to all analyses that use that dataset. When you add a calculated field to a dataset in an analysis, it is available only in that analysis. For more information about adding calculated fields, see the following topics:

- Adding calculated fields
- Order of evaluation in Insights
- Using level-aware calculations in Insights
- Calculated field function and operator reference for Insights

Adding calculated fields

Create calculated fields to transform your data by using one or more of the following:

- Operators
- Functions
- Aggregate functions (you can only add these to an analysis)
- Fields that contain data
- Other calculated fields

You can add calculated fields to a dataset during data preparation or from the **Analysis** page. When you add a calculated field to a dataset during data preparation, it is available to all analyses that use that dataset. When you add a calculated field to a dataset in an analysis, it is available only in that analysis.

Analyses support both single-row operations and aggregate operations. Single-row operations are those that supply a potentially different result for every row. Aggregate operations supply results that are always the same for entire sets of rows. For example, if you use a simple string function with no conditions, it changes every row. If you use an aggregate function, it applies to all the rows in a group. If you ask for the total sales amount for the US, the same number applies to the entire set. If you ask for data on a particular state, the total sales amount changes to reflect your new grouping. It still provides one result for the entire set.

By creating the aggregated calculated field within the analysis, you can then drill down into the data. The value of that aggregated field is recalculated appropriately for each level. This type of aggregation is not possible during dataset preparation.

For example, if you want to figure out the percentage of profit for each country, region, and state, you can add a calculated field to your analysis, (sum(salesAmount - cost)) / sum(salesAmount). This field is then calculated for each country, region, and state, at the time your analyst drills down into the geography.

Prerequisites

- You have the Insights > Create/edit report permission.

Page location

Insights > Analyses

Procedures

When you add a dataset to an analysis, every calculated field that exists in the dataset is added to the analysis. You can add additional calculated fields at the analysis level to create calculated fields that are available only in that analysis.

Add a calculated field to an analysis

1. In your analysis, click **Add**, and then click **Add calculated field**.
2. In the **Calculations editor** window, enter a name for the calculated field and then enter a formula using fields from your dataset, functions, and operators.
1. Click **Save**.

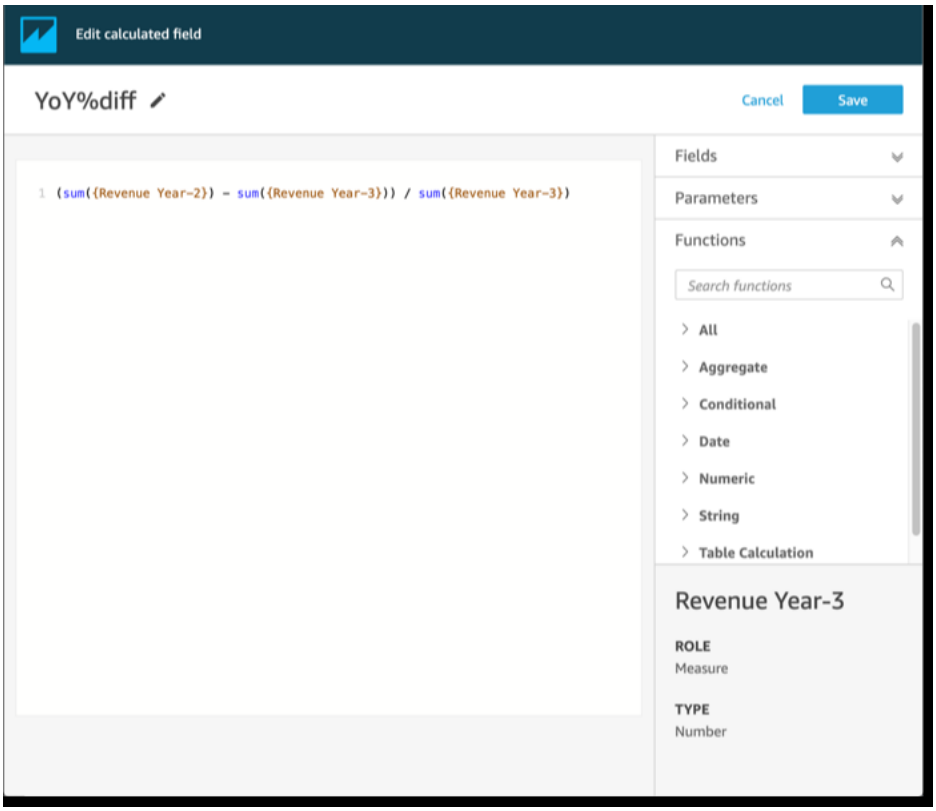
For more information about how to create formulas using the available functions in Insights, see Calculated field function and operator reference for Insights.

Insights authors can generate calculated fields during the data preparation phase of a dataset's creation. When you create a calculated field for a dataset, the field becomes a new column in the dataset. All analyses that use the dataset inherit the dataset's calculated fields.

If the calculated field operates at the row level and the dataset is stored in SPICE, Insights computes and materializes the result in SPICE. If the calculated field relies on an aggregation function, Insights retains the formula and performs the calculation when the analysis is generated. This type of calculated field is called an unmaterialized calculated field.

Add or edit a calculated field for a dataset

1. Open a dataset.
2. To create a new field, click **Add calculated field**.
3. To edit an existing calculated field, select a calculated field and then click **Edit**.



4. In the calculation editor, enter a name for the new calculated field. This name appears in the field list in the dataset, so it should look similar to the other fields.
5. (Optional) Add a comment, for example, to explain what the expression does, by enclosing text in slashes and asterisks.

```
/* Calculates sales per year for this year*/
```

6. Identify the metrics, functions, and other items to use. For this example, we need to identify the following:

    - The metric to use
    - Functions: ifelse and datediff

    We must build a statement such as "If the sale happened during this year, show the total sales and otherwise show 0."

To add the ifelse function, open the **Functions** list. Select **All** to close the list of all functions. Now, you should see the Aggregate, Conditional, Date function groups, and so on. Click **Conditional** and then double-click **ifelse** to add it to the workspace.

```
ifelse()
```

7. Place your cursor inside the parentheses in the workspace and add three blank lines.

```
ifelse(


)
```

8. With your cursor on the first blank line, find the **dateDiff** function. It's listed for Functions under Dates. You can also find it by entering "date" for Search functions. The **dateDiff** function returns all functions that have "date" as part of their name. However, it does not return all functions listed under **Dates**. For example, the **now** function is missing from the search results. Double-click **dateDiff** to add it to the first blank line of the **ifelse** statement.

```
ifelse(
dateDiff()


)
```

9. Add the parameters that **dateDiff** uses. Place your cursor inside the **dateDiff** parentheses, so that you can add date1, date2, and period:

    a. For **date1**: The first parameter is the field that has the date in it. You can find it under **Fields** and add it to the workspace by double-clicking it or entering its name.

    b. For **date2**, add a comma, then choose **truncDate()** for **Functions**. Inside the parentheses, add **period** and **date**. The format is **truncDate("YYYY", now())**

c. For **period**: Add a comma after **date2** and enter YYYY. This is the period for the year. To see a list of all the supported periods, find **dateDiff** in the **Functions** list, and open the documentation by clicking **Learn more**. If you are already viewing the documentation, see **dateDiff**.

You can add a few spaces for readability. Your expression must look like the below example.

```
ifelse(
   dateDiff( {Date}, truncDate( "YYYY", now() ) ,"YYYY" )


)
```

10. Enter the return value. For example, the first parameter in **ifelse** needs to return a value of **TRUE** or **FALSE**. Because we want the current year, and we are comparing it to this year, we specify that the **dateDiff** statement should return **0**. The **if** part of the **ifelse** evaluates as true for rows where there is no difference between the year of the sale and the current year.

```
   dateDiff( {Date}, truncDate( "YYYY", now() ) ,"YYYY" ) = 0
```

11. To create a field for the total sales for last year, you can change **0** to **1**.

    Another way to do the same thing is to use **addDateTime** instead of **truncDate**. For each previous year, change the first parameter for **addDateTime** to represent each year. You can use **-1** for last year, **-2** for the year before that, and so on. If you use **addDateTime**, you leave the **dateDiff** function **= 0** for each year.

```
   dateDiff( {Discharge Date}, addDateTime(-1, "YYYY", now() ) ,"YYYY" ) = 0
/* Last year */
```

12. Place your cursor on the first blank line under **dateDiff** and add a comma. For the **then** part of the **ifelse** statement, we need to choose the measure (metric) that contains the sales amount, **TotalSales**. To select a field, open the **Fields** list and double-click a field to add it to the screen. Alternatively, you can enter the name. Add { } around names that contain spaces. You can know which field is a metric by the number sign in front of it (#). Your expression should now look like the below example.

```
ifelse(
   dateDiff( {Date}, truncDate( "YYYY", now() ) ,"YYYY" ) = 0
   ,{TotalSales}

)
```

13. Add an **else** clause. The **ifelse** function does not require one, but you must add it for reporting purposes. You cannot have any null values, because sometimes rows with nulls are omitted. You must set the else part of the **ifelse** to **0**. The result is that this field is **0** for rows that contain sales from previous years. Add a comma and an **0** on the blank line. If you add the comment at the beginning, your finished **ifelse** expression should look similar to the below example.

```
/* Calculates sales per year for this year*/
ifelse(
   dateDiff( {Date}, truncDate( "YYYY", now() ) ,"YYYY" ) = 0
   ,{TotalSales}
   ,0
)
```

14. Click **Save**. If there are errors in your expression, the editor displays an error message. Check your expression for a red line and then hover your cursor over the line to see what the error message is. Common errors include missing punctuation, missing parameters, misspellings, and invalid data types. If you do not want to make changes, click **Cancel**.

Add a parameter value to a calculated field

You can reference parameters in calculated fields. By adding the parameter to your expression, you add the current value of the parameter.

1. To add a parameter, open the **Parameters** list and select the parameter whose value you want to include.
2. (Optional) To manually add a parameter to the expression, enter the name of the parameter. Add {} around the name and add a prefix of $, for example, ${parameterName}.

NOTE You can change the data type of any field in your dataset, including the types of calculated fields. You can only choose data types that match the data that is in the field.

Change the data type of a calculated field

- For **Calculated fields**, select the field that you want to change, right-click and click **Change data type**.

NOTE Unlike the other fields in the dataset, you cannot disable calculated fields. Instead, you must delete them.

To delete a calculated field

- For **Calculated fields**, select the field that you want to change, right-click and click **Delete**.

When your dataset uses the Direct Query mode, the calculation of the decimal data type is determined by the behavior of the source engine that the dataset originates from. In some cases, Insights applies special handlings to determine the output calculation's data type.

When your dataset uses SPICE query mode and a calculated field is materialized, the data type of the result is contingent on the specific function operators and the data type of the input. The tables below show the expected behavior for some numeric calculated fields.

The following unary operators table shows which data type is output based on the operator you use and the data type of the value that you input. For example, if you input an integer to an abs calculation, the output value's data type is an integer.

Operator	Input type	Output type
abs	Decimal-fixed	Decimal-fixed
	Int	Int
	Decimal-float	Decimal-float
ceil	Decimal-fixed	Int
	Int	Int
	Decimal-float	Int
exp	Decimal-fixed	Decimal-float
	Int	Decimal-float
	Decimal-float	Decimal-float

Operator	Input type	Output type
floor	Decimal-fixed	Int
	Int	Int
	Decimal-float	Int
ln	Decimal-fixed	Decimal-float
	Int	Decimal-float
	Decimal-float	Decimal-float
log	Decimal-fixed	Decimal-float
	Int	Decimal-float
	Decimal-float	Decimal-float
round	Decimal-fixed	Decimal-fixed
	Int	Decimal-fixed
	Decimal-float	Decimal-fixed
sqrt	Decimal-fixed	Decimal-float
	Int	Decimal-float
	Decimal-float	Decimal-float

The following binary operators tables show which data type is output based on the data types of the two values that you input. For example, for an arithmetic operator, if you provide two integer data types, the result of the calculation output is an integer.

For basic operators (+, -, *):

	Integer	Decimal-fixed	Decimal-float
Integer	Integer	Decimal-fixed	Decimal-float
Decimal-fixed	Decimal-fixed	Decimal-fixed	Decimal-float
Decimal-float	Decimal-float	Decimal-float	Decimal-float

For division operators (/):

	Integer	Decimal-fixed	Decimal-float
Integer	Decimal-float	Decimal-float	Decimal-float
Decimal-fixed	Decimal-float	Decimal-fixed	Decimal-float
Decimal-float	Decimal-float	Decimal-float	Decimal-float

For exponential and mod operators (^, %):

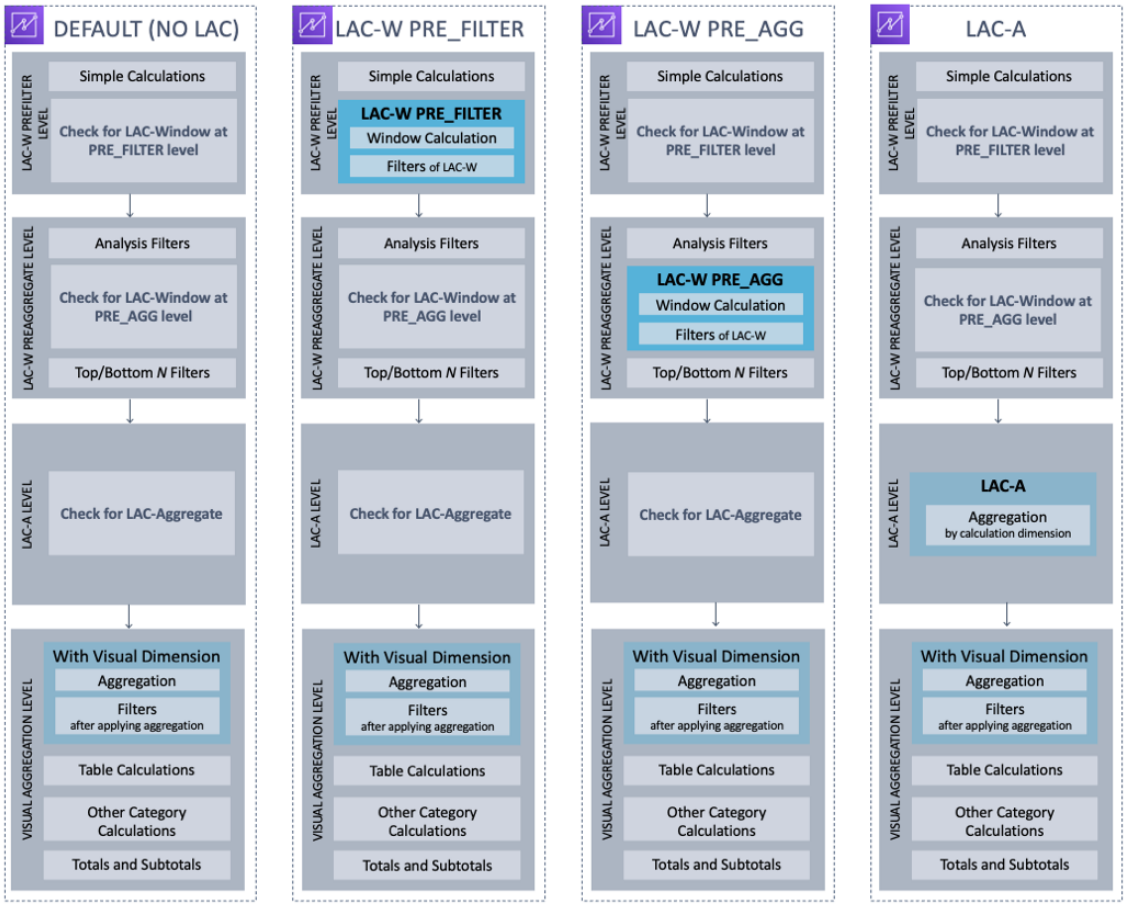
	Integer	Decimal-fixed	Decimal-float
Integer	Decimal-float	Decimal-float	Decimal-float
Decimal-fixed	Decimal-float	Decimal-float	Decimal-float
Decimal-float	Decimal-float	Decimal-float	Decimal-float

Order of evaluation in Insights

When you open or update an analysis, before displaying it, Insights evaluates everything that is configured in the analysis in a specific sequence. Insights translates the configuration into a query that a database engine can run. The query returns the data in a similar way whether you connect to a database, a software as a service (SaaS) source, or the Insights analytics engine (SPICE).

If you understand the order that the configuration is evaluated in, you know the sequence that dictates when a specific filter or calculation is applied to your data.

The following illustration shows the order of evaluation. The column on the left shows the order of evaluation when no level aware calculation window (LAC-W) nor aggregate (LAC-A) function is involved. The second column shows the order of evaluation for analyses that contain calculated fields to compute LAC-W expressions at the prefilter (PRE_FILTER) level. The third column shows the order of evaluation for analyses that contain calculated fields to compute LAC-W expressions at the preaggregate (PRE_AGG) level. The last column shows the order of evaluation for analyses that contain calculated fields to compute LAC-A expressions. Following the illustration, there is a more detailed explanation of the order of evaluation. For more information about level aware calculations, see Using level-aware calculations in Insights.



The following list shows the sequence in which Insights applies the configuration in your analysis. Anything that's set up in your data set happens outside your analysis, for example calculations at the dataset level, filters, and security settings. These all apply to the underlying data. The following list only covers what happens inside the analysis.

- LAC-W Prefilter level: Evaluates the data at the original table cardinality before analysis filters.
    - Simple calculations: Calculations at scalar level without any aggregations or window calculations. For example, date_metric/60, parseDate(date, 'yyyy/MM/dd'), ifelse(metric > 0, metric, 0), split(string_column, '|' 0).
    - LAC-W function PRE_FILTER: If any LAC-W PRE_FILTER expression is involved in the visual, Insights firstly computes the window function at the original table level, before any filters. If the LAC-W PRE_FILTER expression is used in filters, it is applied at this point. For example, maxOver(Population, [State, County], PRE_FILTER) > 1000.

- LAC-W PRE_AGG: Evaluates the data at the original table cardinality before aggregations.
    - Filters added during analysis: Filters created for un-aggregated fields in the visuals are applied at this point, which are similar to WHERE clauses. For example, year > 2020.
    - LAC-W function PRE_AGG: If any LAC-W PRE_AGG expression is involved in the visual, Insights computes the window function before any aggregation is applied. If the LAC-W PRE_AGG expression is used in filters, it is applied at this point. For example, maxOver (Population, [State, County], PRE_AGG) > 1000.
    - Top/bottom N filters: Filters that are configured on dimensions to display top/bottom N items.
- LAC-A level: Evaluate aggregations at customized level, before visual aggregations
    - Custom-level aggregations: If any LAC-A expression is involved in the visual, it is calculated at this point. Based on the table after the filters mentioned above, Insights computes the aggregation, grouped by the dimensions that are specified in the calculated fields. For example, max(Sales, [Region]).
- Visual level: Evaluates aggregations at visual level, and post-aggregation table calculations, with the remaining configurations applied in the visuals.
    - Visual-level aggregations: Visual aggregations should always be applied except for tabular tables (where dimension is empty). With this setting, aggregations based on the fields in the field wells are calculated, grouped by the dimensions that put into the visuals. If any filter is built on top of aggregations, it is applied at this point, similar to HAVING clauses. For example, min(distance) > 100.
    - Table calculations: If there is any post-aggregation table calculation (it should take aggregated expression as operand) referenced in the visual, it is calculated at this point. Insights performs window calculations after visual aggregations. Similarly, filters built on such calculations are applied.
    - Other category calculations: This type of calculation only exists in line, bar, pie, and donut charts. For more information, see Display limits.
    - Totals and subtotals: Totals and Subtotals are calculated in donut charts (only totals), tables (only totals), and pivot tables, if requested.

Using level-aware calculations in Insights

With Level-aware calculations (LAC) you can specify the level of granularity that you want to compute window functions or aggregate functions. There are two types of LAC functions: level-aware calculation - aggregate (LAC-A) functions, and level-aware calculation - window (LAC-W) functions.

Topics

- LAC-A functions
- LAC-W functions

Level-aware calculation - aggregate (LAC-A) functions

With LAC-A functions, you can specify at what level to group the computation. By adding one argument into an existing aggregate function, such as sum() , max() , count(), you can define any group-by level that you want for the aggregation. The level added can be any dimension independent of the dimensions added to the visual. For example:

```
sum(measure,[group_field_A])
```

To use LAC-A functions, type them directly in the calculation editor by adding the intended aggregation levels as the second argument between brackets. Following is an example of an aggregate function and a LAC-A function, for comparison.

- Aggregate function: sum({sales})
- LAC-A function: sum({sales}, [{Country},{Product}])

The LAC-A results are computed with the specified level in the brackets [ ], can be used as operand of an aggregate function. The group-by level of the aggregate function is visual level, with Group by fields added to the field well of the visual.

In addition to creating a static LAC group key in the bracket [ ], you can make it dynamically adapted to visual group-by fields, by putting a parameter $visualDimensions in the bracket. This is a system-provided parameter, in contrast to user-defined parameter. The [$visualDimensions]parameter represents the fields added to the Group by field well in current visual. The following examples show how to dynamically add group keys to the visual dimensions or remove group keys from visual dimensions

- LAC-A with dynamic-added group key : sum({sales}, [${visualDimensions},{Country},{Products}])

  It calculates, before the visual level aggregation is calculated, the sum of sales, grouping by country, products, and any other fields in the Group by field well .

- LAC-A with dynamic-removed group key : sum({sales}, [${visualDimensions},!{Country},!{Products}])

  It calculates, before visual level aggregation is calculated, the sum of sales, grouping by the fields in the visual's Group by field well, except country and product.

You can specify added group key or removed group key in on LAC expression, but not both.

LAC-A functions are supported for the following aggregate functions:

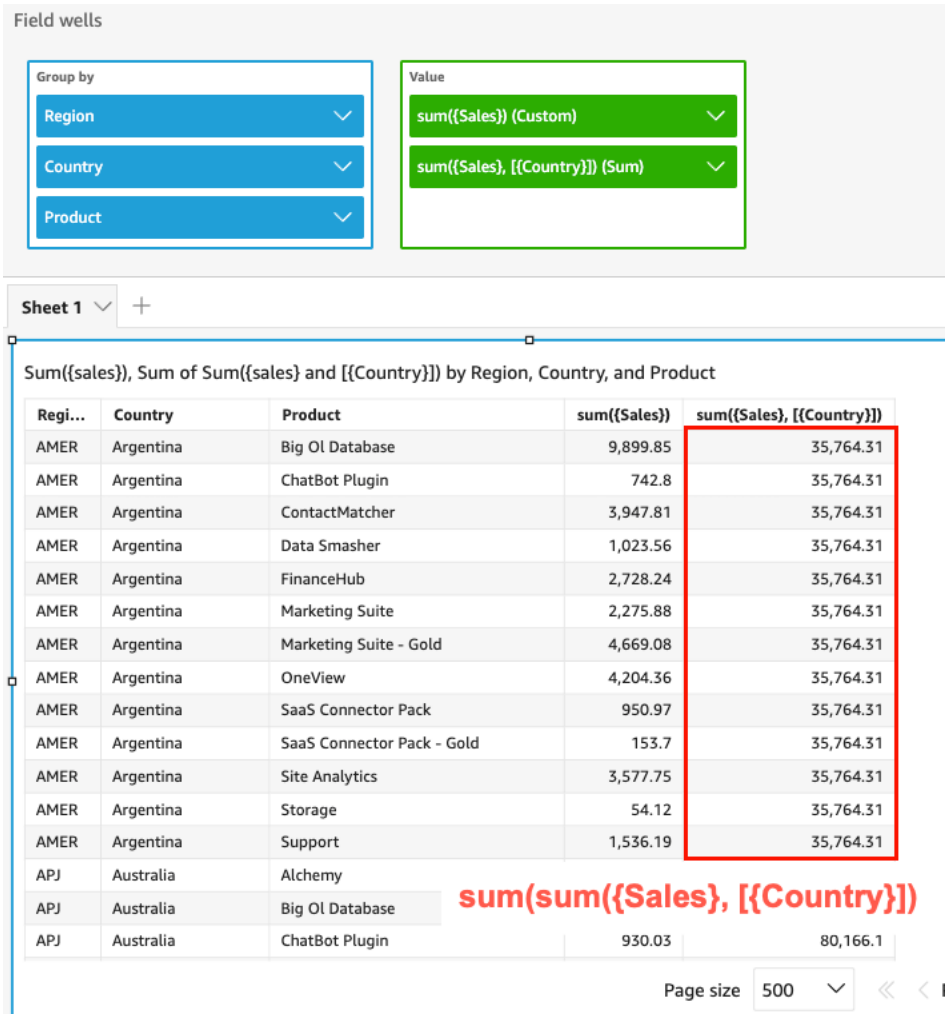
- avg
- count
- distinct_count
- max
- median
- min
- percentile
- percentileCont
- percentileDisc (percentile)
- stdev
- stdevp
- sum
- var
- varp

LAC-A examples

You can do the following with LAC-A functions:

- Run calculations that are independent of the levels in the visual. For example, if you have the following calculation, the sales numbers are aggregated only at the country level, but not across other dimensions (Region or Product) in the visual.

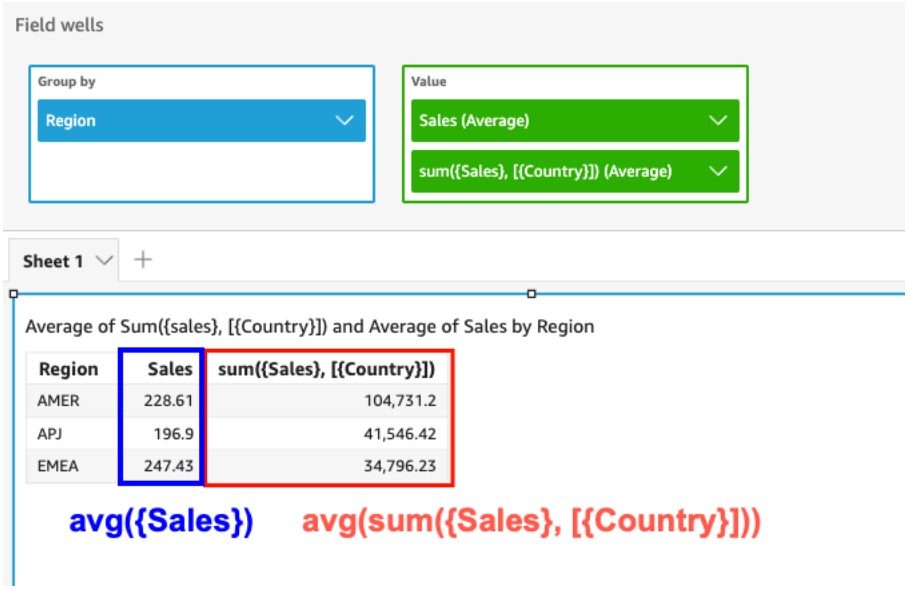
```
sum({Sales},[{Country}])
```



- Run calculations for the dimensions that are not in the visual. For example, if you have the following function, you can calculate the average total country sales by region.

```
sum({Sales},[{Country}])
```

- Though Country is not included in the visual, the LAC-A function first aggregates the sales at the Country level and then the visual level calculation generates the average number for each region. If the LAC-A function isn't used to specify the level, the average sales are calculated at the lowest granular level (the base level of the dataset) for each region (showing in the sales column).

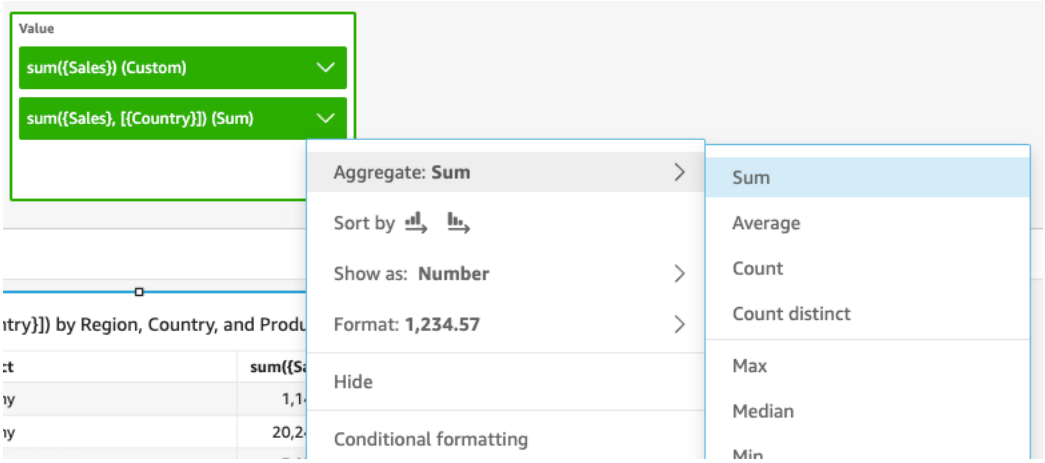


- Use LAC-A combined with other aggregate functions and LAC-W functions. There are two ways you can nest LAC-A functions with other functions.
  - You can write a nested syntax when you create a calculation. For example, the LAC-A function can be nested with a LAC-W function to calculate the total sales by country of each product's average price:

    ```
    sum(avgOver({Sales},[{Product}],PRE_AGG),[{Country}])
    ```

  - When adding a LAC-A function into a visual, the calculation can be further nested with visual-level aggregate functions that you selected in the fields well. For more information about changing the aggregation of fields in the visual, see Changing or adding aggregation to

a field by using a field well.



LAC-A limitations

The following limitations apply to LAC-A functions:

- LAC-A functions are supported for all additive and non-additive aggregate functions, such as sum(), count(), and percentile(). LAC-A functions are not supported for conditional aggregate functions that end with "if", such as sumif() and countif(), nor for period aggregate functions that start with "periodToDate", such as periodToDateSum() and periodToDateMax().
- Row-level and column-level totals are not currently supported for for LAC-A functions in tables and pivot tables. When you add row-level or column-level totals to the chart, the total number will show as blank. Other non-LAC dimensions are not impacted.
- Nested LAC-A functions are not currently supported. A limited capability of LAC-A functions nested with regular aggregate functions and LAC-W functions are supported.

  For example, the following functions are valid:

  - Aggregation(LAC-A()). For example: max(sum({sales}, [{country}]))
  - LAC-A(LAC-W()). For example: sum(sumOver({Sales},[{Product}],PRE_AGG), [{Country}])

  The following functions are not valid:

  - LAC-A(Aggregation()). For example: sum(max({sales}), [{country}])
  - LAC-A(LAC-A()). For example: sum(max({sales}, [{country}]),[category])

- LAC-W(LAC-A()). For example: sumOver(sum({Sales},[{Product}]),[{Country}],PRE_AGG)

Level-aware calculation - window (LAC-W) functions

With LAC-W functions, you can specify the window or partition to compute the calculation. LAC-W functions are a group of window functions, such as sumover(), (maxover), denseRank, that you can run at the prefilter or preaggregate level. For example: sumOver(measure,[partition_field_A],pre_agg).

LAC-W functions used to be called level aware aggregations (LAA).

LAC-W functions help you to answer the following types of questions:

- How many of my customers made only 1 purchase order? Or 10? Or 50? We want the visual to use the count as a dimension rather than a metric in the visual.
- What are the total sales per market segment for customers whose lifetime spend is greater than $100,000? The visual should only show the market segment and the total sales for each.
- How much is the contribution of each industry to the entire company's profit (percent of total)? We want to be able to filter the visual to show some of the industries, and how they contribute to the total sales for the displayed industries. However, we also want to see each industry's percent of total sales for the entire company (including industries that are filtered out).
- What are the total sales in each category as compared to the industry average? The industry average should include all of the categories, even after filtering.
- How are my customers grouped into cumulative spending ranges? We want to use the grouping as a dimension rather than a metric.

For more complex questions, you can inject a calculation or filter before Insights gets to a specific point in its evaluation of your settings. To directly influence your results, you add a calculation level keyword to a table calculation. For more information on how Insights evaluates queries, see Order of evaluation in Insights.

The following calculation levels are supported for LAC-W functions:

- PRE_FILTER – Before applying filters from the analysis, Insights evaluates prefilter calculations. Then it applies any filters that are configured on these prefilter calculations.
- PRE_AGG – Before computing display-level aggregations, Insights performs preaggregate calculations. Then it applies any filters that are configured on these preaggregate calculations. This work happens before applying top and bottom N filters.

You can use the PRE_FILTER or PRE_AGG keyword as a parameter in the following table calculation functions. When you specify a calculation level, you use an unaggregated measure in the function. For example, you can use countOver({ORDER ID}, [{Customer ID}], PRE_AGG). By using PRE_AGG, you specify that the countOver executes at the preaggregate level.

- avgOver
- countOver
- denseRank
- distinctCountOver
- minOver
- maxOver
- percentileRank
- Rank
- stdevOver
- stdevpOver
- sumOver
- varOver
- varpOver

By default, the first parameter for each function must be an aggregated measure. If you use either PRE_ FILTER or PRE_AGG, you use a nonaggregated measure for the first parameter.

For LAC-W functions, the visual aggregation defaults to MIN to eliminate duplicates. To change the aggregation, open the field's context (right-click) menu, and then choose a different aggregation.

Calculated field function and operator reference for Insights

You can use the following functions and operators to create calculated fields:

- Operators
- Functions by category
- Functions

- Aggregate functions
- Table calculation functions

Operators

You can use the following operators in calculated fields. Insights uses the standard order of operations, which is parentheses, exponents, multiplication, division, addition, and subtraction (PEMDAS). Equal (=) and not equal (<>) comparisons are case-sensitive.

- Addition (+)
- Subtraction (−)
- Multiplication (*)
- Division (/)
- Modulo (%) – See also mod() in the below list.
- Power (^) – See also exp() in the below list.
- Equal (=)
- Not equal (<>)
- Greater than (>)
- Greater than or equal to (>=)
- Less than (<)
- Less than or equal to (<=)
- AND
- OR
- NOT

Insights supports applying the following mathematical functions to an expression.

- Mod(number, divisor) – Finds the remainder after dividing a number by a divisor.
- Log(expression) – Returns the base 10 logarithm of a given expression.
- Ln(expression) – Returns the natural logarithm of a given expression.

- Abs(expression) – Returns the absolute value of a given expression.
- Sqrt(expression) – Returns the square root of a given expression.
- Exp(expression) – Returns the base of natural log e raised to the power of a given expression.

To make lengthy calculations easier to read, you can use parentheses to clarify groupings and precedence in calculations. In the following statement, you do not need parentheses. The multiplication statement is processed first, and then the result is added to five, returning a value of 26. However, parentheses make the statement easier to read and maintain.

5 + (7 * 3)

Because parentheses are first in the order of operations, you can change the order in which other operators are applied. For example, in the following statement the addition statement is processed first, and then the result is multiplied by three, returning a value of 36.

(5 + 7) * 3

EXAMPLE The following example uses multiple arithmetic operators to determine a sales total after discount.
(Quantity * Amount) - Discount

EXAMPLE (=) equal
Using = performs a case-sensitive comparison of values. Rows where the comparison is TRUE are included in the result set. In the following example, rows where the Region field is South are included in the results. If the Region is south, these rows are excluded.
Region = 'South'
In the following example, the comparison evaluates to FALSE.
Region = 'south'
The following example shows a comparison that converts Region to all uppercase (SOUTH), and compares it to SOUTH. This returns rows where the region is south, South, or SOUTH.
toUpper(Region) = 'SOUTH'

EXAMPLE (<>)
The not equal symbol <> means less than or greater than.
So, if we say x<>1, then we are saying if x is less than 1 OR if x is greater than 1. Both < and > are evaluated together. In other words, if x is any value except 1. Or, x is not equal to 1. Use <>, not !=.
The following example compares Status Code to a numeric value. This returns rows where the Status Code is not equal to 1.
statusCode <> 1
The following example compares multiple statusCode values. In this case, active records have

activeFlag = 1. This example returns rows where one of the following applies:

For active records, show rows where the status isn't 1 or 2

For inactive records, show rows where the status is 99 or -1

```
( activeFlag = 1 AND (statusCode <> 1 AND statusCode <> 2) )
OR
( activeFlag = 0 AND (statusCode= 99 OR statusCode= -1) )
```

EXAMPLE (^)

The power symbol ^ means to the power of. You can use the power operator with any numeric field with any valid exponent.

The following example is a simple expression of 2 to the power of 4 or (2 * 2 * 2 * 2). This returns a value of 16.

2^4

The following example computes the square root of the revenue field.

revenue^0.5

EXAMPLE AND, OR, and NOT

The following example uses AND, OR, and NOT to compare multiple expressions. It does this by using conditional operators to tag top customers NOT in Washington or Oregon with a special promotion, who made more than 10 orders. If no values are returned, the value 'n/a' is used.

ifelse(((NOT (State = 'WA' OR State = 'OR')) AND Orders > 10), 'Special Promotion XYZ', 'n/a')

EXAMPLE Creating comparison lists like "in" or "not in"

This example uses operators to create a comparison to find values that exist, or do not exist, in a specified list of values.

The following example compares promoCode a specified list of values. This example returns rows where the promoCode is in the list (1, 2, 3).

```
promoCode    = 1
OR promoCode = 2
OR promoCode = 3
```

The following example compares promoCode a specified list of values. This example returns rows where the promoCode is NOT in the list (1, 2, 3).

```
NOT(promoCode = 1
OR promoCode  = 2
OR promoCode  = 3
)
```

Another way to express this is to provide a list where the promoCode is not equal to any items in the list.

```
promoCode     <> 1
AND promoCode <> 2
AND promoCode <> 3
```

EXAMPLE Creating a "between" comparison

This example uses comparison operators to create a comparison showing values that exist between one value and another.

The following example examines OrderDate and returns rows where the OrderDate is between the first day and last day of 2016. In this case, we want the first and last day included, so we use "or equal to" on the comparison operators.

OrderDate >= "1/1/2016" AND OrderDate <= "12/31/2016"

Functions by category

In this section, you can find a list of the functions available in Insights, sorted by category.

Aggregate functions

The aggregate functions for calculated fields in Insights include the following. These are only available during analysis and visualization. Each of these functions returns values grouped by the chosen dimension or dimensions. For each aggregation, there is also a conditional aggregation. These perform the same type of aggregation, based on a condition.

- avg averages the set of numbers in the specified measure, grouped by the chosen dimension or dimensions.
- avgIf calculates the average based on a conditional statement.
- count calculates the number of values in a dimension or measure, grouped by the chosen dimension or dimensions.
- countIf calculates the count based on a conditional statement.
- distinct_count calculates the number of distinct values in a dimension or measure, grouped by the chosen dimension or dimensions.
- distinct_countIf calculates the distinct count based on a conditional statement.
- max returns the maximum value of the specified measure, grouped by the chosen dimension or dimensions.

- maxIf calculates the maximum based on a conditional statement.
- median returns the median value of the specified measure, grouped by the chosen dimension or dimensions.
- medianIf calculates the median based on a conditional statement.
- min returns the minimum value of the specified measure, grouped by the chosen dimension or dimensions.
- minIf calculates the minimum based on a conditional statement.
- percentile (alias of `percentileDisc`) computes the *n*th percentile of the specified measure, grouped by the chosen dimension or dimensions.
- percentileCont calculates the *n*th percentile based on a continuous distribution of the numbers of the specified measure, grouped by the chosen dimension or dimensions.
- percentileDisc (percentile) calculates the *n*th percentile based on the actual numbers of the specified measure, grouped by the chosen dimension or dimensions.
- periodToDateAvg averages the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDateCount calculates the number of values in a dimension or measure for a given time granularity (for instance, Quarter) up to a point in time including duplicates.
- periodToDateMax returns the maximum value of the specified measure for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDateMedian returns the median value of the specified measure for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDateMin returns the minimum value of the specified measure or date for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDatePercentile calculates the percentile based on the actual numbers in measure for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDatePercentileCont calculates percentile based on a continuous distribution of the numbers in the measure for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDateStDev calculates the standard deviation of the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time based on a sample.

- periodToDateStDevP calculates the population standard deviation of the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time based on a sample.
- periodToDateSum adds the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDateVar calculates the sample variance of the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDateVarP calculates the population variance of the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time.
- stdev calculates the standard deviation of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a sample.
- stdevIf calculates the sample standard deviation based on a conditional statement.
- stdevp calculates the standard deviation of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a biased population.
- stdevpIf calculates the population deviation based on a conditional statement.
- var calculates the variance of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a sample.
- varIf calculates the sample variance based on a conditional statement.
- varp calculates the variance of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a biased population.
- varpIf calculates the population variance based on a conditional statement.
- sum adds the set of numbers in the specified measure, grouped by the chosen dimension or dimensions.
- sumIf calculates the sum based on a conditional statement.

Conditional functions

The conditional functions for calculated fields in Insights include the following:

- Coalesce returns the value of the first argument that is not null.
- Ifelse evaluates a set of *if, then* expression pairings, and returns the value of the *then* argument for the first *if* argument that evaluates to true.
- in evaluates an expression to see if it is in a given list of values.
- isNotNull evaluates an expression to see if it is not null.
- isNull evaluates an expression to see if it is null. If the expression is null, `isNull` returns true, and otherwise it returns false.
- notIn evaluates an expression to see if it is not in a given list of values.
- nullIf compares two expressions. If they are equal, the function returns null. If they are not equal, the function returns the first expression.
- switch returns an expression that matches the first label equal to the condition expression.

Date functions

The date functions for calculated fields in Insights include the following:

- addDateTime adds or subtracts a unit of time to the date or time provided.
- addWorkDays adds or subtracts the given number of work days to the date or time provided.
- dateDiff returns the difference in days between two date fields.
- epochDate converts an epoch date into a standard date.
- Extract returns a specified portion of a date value.
- formatDate formats a date using a pattern you specify.
- isWorkDay returns TRUE if a given date-time value is a work or business day.
- netWorkDays returns the number of working days between the provided two date values.
- Now returns the current date and time, using either settings for a database, or UTC for file and Salesforce.
- truncDate returns a date value that represents a specified portion of a date.

Numeric functions

The numeric functions for calculated fields in Insights include the following:

- Ceil rounds a decimal value to the next highest integer.
- decimalToInt converts a decimal value to an integer.
- Floor decrements a decimal value to the next lowest integer.
- intToDecimal converts an integer value to a decimal.
- Round rounds a decimal value to the closest integer or, if scale is specified, to the closest decimal place.

Mathematical functions

The mathematical functions for calculated fields in Insights include the following:

- Mod(`number, divisor`) – Finds the remainder after dividing a number by a divisor.
- Log(`expression`) – Returns the base 10 logarithm of a given expression.
- Ln(`expression`) – Returns the natural logarithm of a given expression.
- Abs(`expression`) – Returns the absolute value of a given expression.
- Sqrt(`expression`) – Returns the square root of a given expression.
- Exp(`expression`) – Returns the base of natural log *e* raised to the power of a given expression.

String functions

The string (text) functions for calculated fields in Insights include the following:

- Concat concatenates two or more strings.
- contains checks if an expression contains a substring.
- endsWith checks if the expression ends with the substring specified.
- Left returns the specified number of leftmost characters from a string.
- Locate locates a substring within another string, and returns the number of characters before the substring.
- Ltrim removes preceding blank space from a string.
- parseDate parses a string to determine if it contains a date value, and returns the date if found.
- parseDecimal parses a string to determine if it contains a decimal value.

- parseInt parses a string to determine if it contains an integer value.
- parseJson parses values from a native JSON or from a JSON object in a text field.
- Replace replaces part of a string with a new string.
- Right returns the specified number of rightmost characters from a string.
- Rtrim removes following blank space from a string.
- Split splits a string into an array of substrings, based on a delimiter that you choose, and returns the item specified by the position.
- startsWith checks if the expression starts with the substring specified.
- Strlen returns the number of characters in a string.
- Substring returns the specified number of characters in a string, starting at the specified location.
- toLower formats a string in all lowercase.
- toString formats the input expression as a string.
- toUpper formats a string in all uppercase.
- trim removes both preceding and following blank space from a string.

Table calculations

Table calculations form a group of functions that provide context in an analysis. They provide support for enriched aggregated analysis. By using these calculations, you can address common business scenarios such as calculating percentage of total, running sum, difference, common baseline, and rank.

When you are analyzing data in a specific visual, you can apply table calculations to the current set of data to discover how dimensions influence measures or each other. Visualized data is your result set based on your current dataset, with all the filters, field selections, and customizations applied. To see exactly what this result set is, you can export your visual to a file. A table calculation function performs operations on the data to reveal relationships between fields.

Lookup-based functions

- Difference calculates the difference between a measure based on one set of partitions and sorts, and a measure based on another.
- Lag calculates the lag (previous) value for a measure.

- Lead calculates the lead (following) value for a measure.
- percentDifference calculates the percentage difference between the current value and a comparison value.

Over functions

- avgOver calculates the average of a measure over one or more dimensions.
- countOver calculates the count of a field over one or more dimensions.
- distinctCountOver calculates the distinct count of the operand partitioned by the specified attributes at a specified level.
- maxOver calculates the maximum of a measure over one or more dimensions.
- minOver calculates the minimum of a measure over one or more dimensions.
- percentileOver (alias of `percentileDiscOver`) calculates the *n*th percentile of a measure partitioned by a list of dimensions.
- percentileContOver calculates the *n*th percentile based on a continuous distribution of the numbers of a measure partitioned by a list of dimensions.
- percentileDiscOver calculates the *n*th percentile based on the actual numbers of a measure partitioned by a list of dimensions.
- percentOfTotal calculates the percentage that a measure contributes to the total.
- periodOverPeriodDifference calculates the difference of a measure over two different time periods as specified by period granularity and offset.
- periodOverPeriodLastValue calculates the last (previous) value of a measure from a previous time period as specified by period granularity and offset.
- periodOverPeriodPercentDifference calculates the percent difference of a measure over two different time periods as specified by period granularity and offset.
- periodToDateAvgOverTime calculates the average of a measure for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDateCountOverTime calculates the count of a dimension or measure for a given time granularity (for instance, a quarter) up to a point in time.

- periodToDateMaxOverTime calculates the maximum of a measure or date for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDateMinOverTime calculates the minimum of a measure or date for a given time granularity (for instance, a quarter) up to a point in time.
- periodToDateSumOverTime calculates the sum of a measure for a given time granularity (for instance, a quarter) up to a point in time.
- sumOver calculates the sum of a measure over one or more dimensions.
- stdevOver calculates the standard deviation of the specified measure, partitioned by the chosen attribute or attributes, based on a sample.
- stdevpOver calculates the standard deviation of the specified measure, partitioned by the chosen attribute or attributes, based on a biased population.
- varOver calculates the variance of the specified measure, partitioned by the chosen attribute or attributes, based on a sample.
- varpOver calculates the variance of the specified measure, partitioned by the chosen attribute or attributes, based on a biased population.

Ranking functions

- Rank calculates the rank of a measure or a dimension.
- denseRank calculates the rank of a measure or a dimension, ignoring duplicates.
- percentileRank calculates the rank of a measure or a dimension, based on percentile.

Running functions

- runningAvg calculates a running average for a measure.
- runningCount calculates a running count for a measure.
- runningMax calculates a running maximum for a measure.
- runningMin calculates a running minimum for a measure.
- runningSum calculates a running sum for a measure.

Window functions

- firstValue calculates the first value of the aggregated measure or dimension partitioned and sorted by specified attributes.
- lastValue calculates the last value of the aggregated measure or dimension partitioned and sorted by specified attributes.
- windowAvg calculates the average of the aggregated measure in a custom window that is partitioned and sorted by specified attributes.
- windowCount calculates the count of the aggregated measure in a custom window that is partitioned and sorted by specified attributes.
- windowMax calculates the maximum of the aggregated measure in a custom window that is partitioned and sorted by specified attributes.
- windowMin calculates the minimum of the aggregated measure in a custom window that is partitioned and sorted by specified attributes.
- windowSum calculates the sum of the aggregated measure in a custom window that is partitioned and sorted by specified attributes.

Related topics

- Operators
- Functions
- Aggregate functions
- Table calculation functions

Functions

In this section, you can find a list of functions available in Insights. To view a list of functions sorted by category, with brief definitions, see Functions by category.

Topics

- addDateTime
- addWorkDays

- Abs
- Ceil
- Coalesce
- Concat
- contains
- decimalToInt
- dateDiff
- endsWith
- epochDate
- Exp
- Extract
- Floor
- formatDate
- Ifelse
- in
- intToDecimal
- isNotNull
- isNull
- isWorkDay
- Left
- Locate
- Log
- Ln
- Ltrim
- Mod

- netWorkDays
- Now
- notIn
- nullIf
- parseDate
- parseDecimal
- parseInt
- parseJson
- Replace
- Right
- Round
- Rtrim
- Split
- Sqrt
- startsWith
- Strlen
- Substring
- switch
- toLower
- toString
- toUpper
- trim
- truncDate

Related topics

- Operators
- Functions by category
- Aggregate functions
- Table calculation functions

addDateTime

`addDateTime` adds or subtracts a unit of time from a datetime value. For example, `addDateTime (2,'YYYY',parseDate('02-JUL-2018', 'dd-MMM-yyyy') )` returns `02-JUL-2020`. You can use this function to perform date math on your date and time data.

Syntax

```
addDateTime(amount, period, datetime)
```

Arguments

amount

A positive or negative integer value that represents the amount of time that you want to add or subtract from the provided datetime field.

period

A positive or negative value that represents the amount of time that you want to add or subtract from the provided datetime field. Valid periods are as follows:

- YYYY: This returns the year portion of the date.
- Q: This returns the quarter that the date belongs to (1–4).
- MM: This returns the month portion of the date.
- DD: This returns the day portion of the date.
- WK: This returns the week portion of the date. The week starts on Sunday in Insights.
- HH: This returns the hour portion of the date.
- MI: This returns the minute portion of the date.

- SS: This returns the second portion of the date.
- MS: This returns the millisecond portion of the date.

datetime

The date or time that you want to perform date math on.

Return type

Datetime

Example

Let's say you have a field called `purchase_date` that has the following values.

```
2018 May 13 13:24
2017 Jan 31 23:06
2016 Dec 28 06:45
```

Using the following calculations, `addDateTime` modifies the values as shown following.

```
addDateTime(-2, 'YYYY', purchaseDate)

2016 May 13 13:24
2015 Jan 31 23:06
2014 Dec 28 06:45


addDateTime(4, 'DD', purchaseDate)

2018 May 17 13:24
2017 Feb 4 23:06
2017 Jan 1 06:45


addDateTime(20, 'MI', purchaseDate)

2018 May 13 13:44
2017 Jan 31 23:26
2016 Dec 28 07:05
```

addWorkDays

`addWorkDays` adds or subtracts a designated number of work days to a given date value. The function returns a date for a work day, that falls a designated work days after or before a given input date value.

Syntax

```
addWorkDays(initDate, numWorkDays)
```

Arguments

initDate

A valid non-NULL date that acts as the start date for the calculation.

- **Dataset field** – Any `date` field from the dataset that you are adding this function to.
- **Date function** – Any date output from another `date` function, for example `parseDate`, `epochDate`, `addDateTime`, and so on.

  ```
  addWorkDays(epochDate(1659484800), numWorkDays)
  ```

- **Calculated fields** – Any Insights calculated field that returns a `date` value.

  ```
  calcFieldStartDate = addDateTime(10, “DD”, startDate)
  addWorkDays(calcFieldStartDate, numWorkDays)
  ```

- **Parameters** – Any Insights `datetime` parameter.

  ```
  addWorkDays($paramStartDate, numWorkDays)
  ```

- Any combination of the above stated argument values.

numWorkDays

A non-NULL integer that acts as the end date for the calculation.

- **Literal** – An integer literal directly typed in the expression editor.
- **Dataset field** – Any date field from the dataset.
- **Scalar function or calculation** – Any scalar Insights function that returns an integer output from another, for example `decimalToInt`, **abs**, and so on.

  ```
  addWorkDays(initDate, decimalToInt(sqrt (abs(numWorkDays)) ) )
  ```

- **Calculated field** – Any Insights calculated field that returns a `date` value.

```
someOtherIntegerCalcField = (num_days * 2) + 12
addWorkDays(initDate, someOtherIntegerCalcField)
```

- **Parameter** – Any Insights `datetime` parameter.

```
addWorkDays(initDate, $param_numWorkDays)
```

- Any combination of the above stated argument values.

Return type

Integer

Ouptut values

Expected output values include:

- Positive integer (when start_date < end_date)
- Negative integer (when start_date > end_date)
- NULL when one or both of the arguments get a null value from the `dataset field`.

Input errors

Disallowed argument values cause errors, as shown in the following examples.

- Using a literal NULL as an argument in the expression is disallowed.

```
addWorkDays(NULL, numWorkDays)
```

```
Error
At least one of the arguments in this function does not have correct type.
Correct the expression and choose Create again.
```

- Using a string literal as an argument, or any other data type other than a date, in the expression is disallowed. In the following example, the string `"2022-08-10"` looks like a date, but it is actually a string. To use it, you would have to use a function that converts to a date data type.

```
addWorkDays("2022-08-10", 10)
```

```
Error
Expression addWorkDays("2022-08-10", numWorkDays) for function addWorkDays has
incorrect argument type addWorkDays(String, Number).
Function syntax expects Date, Integer.
```

Example

A positive integer as `numWorkDays` argument will yield a date in the future of the input date. A negative integer as `numWorkDays` argument will yield a resultant date in the past of the input date. A zero value for the `numWorkDays` argument yields the same value as input date whether or not it falls on a work day or a weekend.

The `addWorkDays` function operates at the granularity: `DAY`. Accuracy cannot be preserved at any granularity which is lower or higher than `DAY` level.

```
addWorkDays(startDate, endDate)
```

Let's assume there is a field named `employmentStartDate` with the following values:

```
2022-08-10 2022-08-06 2022-08-07
```

Using the above field and following calculations, `addWorkDays` returns the modified values as shown below:

```
addWorkDays(employmentStartDate, 7)

2022-08-19
2022-08-16
2022-08-16

addWorkDays(employmentStartDate, -5)

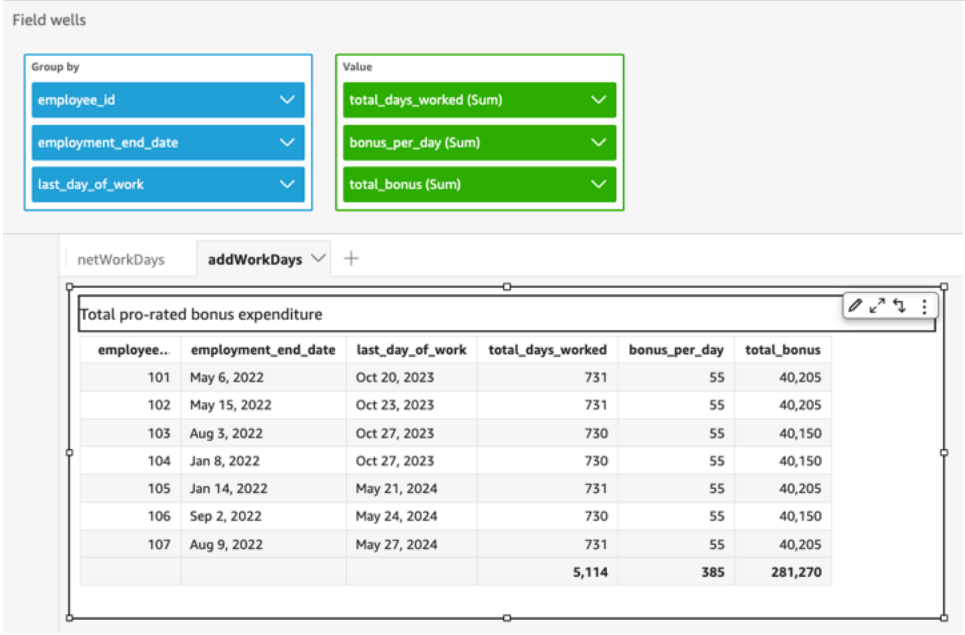
2022-08-02
2022-08-01
2022-08-03

addWorkDays(employmentStartDate, 0)

2022-08-10
2022-08-06
2022-08-07
```

The following example calculates the total pro-rated bonus to be paid to each employee for two years based on how many days each employee has actually worked.

```
last_day_of_work = addWorkDays(employment_start_date, 730)
total_days_worked = netWorkDays(employment_start_date, last_day_of_work)
total_bonus = total_days_worked * bonus_per_day
```



employee..	employment_end_date	last_day_of_work	total_days_worked	bonus_per_day	total_bonus
101	May 6, 2022	Oct 20, 2023	731	55	40,205
102	May 15, 2022	Oct 23, 2023	731	55	40,205
103	Aug 3, 2022	Oct 27, 2023	730	55	40,150
104	Jan 8, 2022	Oct 27, 2023	730	55	40,150
105	Jan 14, 2022	May 21, 2024	731	55	40,205
106	Sep 2, 2022	May 24, 2024	730	55	40,150
107	Aug 9, 2022	May 27, 2024	731	55	40,205
			5,114	385	281,270

Abs

`abs` returns the absolute value of a given expression.

Syntax

```
abs(expression)
```

Arguments

expression

The expression must be numeric. It can be a field name, a literal value, or another function.

Ceil

`ceil` rounds a decimal value to the next highest integer. For example, `ceil(29.02)` returns `30`.

Syntax

```
ceil(decimal)
```

Arguments

decimal

A field that uses the decimal data type, a literal value like `17.62`, or a call to another function that outputs a decimal.

Return type

Integer

Example

The following example rounds a decimal field to the next highest integer.

```
ceil(salesAmount)
```

The following are the given field values.

```
20.13
892.03
57.54
```

For these field values, the following values are returned.

```
21
893
58
```

Coalesce

`coalesce` returns the value of the first argument that is not null. When a non-null value is found, the remaining arguments in the list are not evaluated. If all arguments are null, the result is null. 0-length strings are valid values and are not considered equivalent to null.

Syntax

```
coalesce(expression1, expression2 [, expression3, ...])
```

Arguments

`coalesce` takes two or more expressions as arguments. All of the expressions must have the same data type or be able to be implicitly cast to the same data type.

expression

The expression can be numeric, datetime, or string. It can be a field name, a literal value, or another function.

Return type

`coalesce` returns a value of the same data type as the input arguments.

Example

The following example retrieves a customer's billing address if it exists, her street address if there is no billing address, or returns “No address listed” if neither address is available.

```
coalesce(billingAddress, streetAddress, 'No address listed')
```

Concat

`concat` concatenates two or more strings.

Syntax

```
concat(expression1, expression2 [, expression3 ...])
```

Arguments

`concat` takes two or more string expressions as arguments.

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like `'12 Main Street'`, or a call to another function that outputs a string.

Return type

String

Examples

The following example concatenates three string fields and adds appropriate spacing.

```
concat(salutation, ' ', firstName, ' ', lastName)
```

The following are the given field values.

```
salutation     firstName          lastName
-------------------------------------------------------
Ms.            Li                  Juan
Dr.            Ana Carolina        Silva
Mr.            Nikhil              Jayashankar
```

For these field values, the following values are returned.

```
Ms. Li Juan
Dr. Ana Carolina Silva
Mr. Nikhil Jayashankar
```

The following example concatenates two string literals.

```
concat('Hello', 'world')
```

The following value is returned.

```
Helloworld
```

contains

`contains` evaluates if the substring that you specify exists within an expression. If the expression contains the substring, contains returns true, and otherwise it returns false.

Syntax

```
contains(expression, substring, string-comparison-mode)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like `'12 Main Street'`, or a call to another function that outputs a string.

substring

The set of characters to check against the *expression*. The substring can occur one or more times in the *expression*.

string-comparison-mode

(Optional) Specifies the string comparison mode to use:

- `CASE_SENSITIVE` – String comparisons are case sensitive.
- `CASE_INSENSITIVE` – String comparisons are case insensitive.

This value defaults to `CASE_SENSITIVE` when blank.

Return type

Boolean

Examples

Default case-sensitive example

The following case-sensitive example evaluates if `state_nm` contains `New`.

```
contains(state_nm, "New")
```

The following are the given field values.

```
New York
new york
```

For these field values, the following values are returned.

```
true
false
```

Case-insensitive example

The following case-insensitive example evaluates if `state_nm` contains `new`.

```
contains(state_nm, "new", CASE_INSENSITIVE)
```

The following are the given field values.

```
New York
new york
```

For these field values, the following values are returned.

```
true
true
```

Example with conditional statements

The contains function can be used as the conditional statement within the following If functions: avgIf, minIf, distinct_countIf, countIf, maxIf, medianIf, stdevIf, stdevpIf, sumIf, varIf, and varpIf.

The following example sums `Sales` only if `state_nm` contains `New`.

```
sumIf(Sales,contains(state_nm, "New"))
```

Does NOT contain example

The conditional `NOT` operator can be used to evaluate if the expression does not contain the specified substring.

```
NOT(contains(state_nm, "New"))
```

Example using numeric values

Numeric values can be used in the expression or substring arguments by applying the `toString` function.

```
contains(state_nm, toString(5) )
```

decimalToInt

`decimalToInt` converts a decimal value to the integer data type by stripping off the decimal point and any numbers after it. `decimalToInt` does not round up. For example, `decimalToInt(29.99)` returns `29`.

Syntax

```
decimalToInt(decimal)
```

Arguments

decimal

A field that uses the decimal data type, a literal value like `17.62`, or a call to another function that outputs a decimal.

Return type

Integer

Example

The following example converts a decimal field to an integer.

```
decimalToInt(salesAmount)
```

The following are the given field values.

```
 20.13
892.03
 57.54
```

For these field values, the following values are returned.

```
 20
892
 57
```

dateDiff

`dateDiff` returns the difference in days between two date fields. If you include a value for the period, `dateDiff` returns the difference in the period interval, rather than in days.

Syntax

```
dateDiff(date1, date2,[period])
```

Arguments

`dateDiff` takes two dates as arguments. Specifying a period is optional.

date 1

The first date in the comparison. A date field or a call to another function that outputs a date.

date 2

The second date in the comparison. A date field or a call to another function that outputs a date.

period

The period of difference that you want returned, enclosed in quotes. Valid periods are as follows:

- YYYY: This returns the year portion of the date.
- Q: This returns the date of the first day of the quarter that the date belongs to.
- MM: This returns the month portion of the date.
- DD: This returns the day portion of the date.
- WK: This returns the week portion of the date. The week starts on Sunday in Insights.
- HH: This returns the hour portion of the date.
- MI: This returns the minute portion of the date.
- SS: This returns the second portion of the date.
- MS: This returns the millisecond portion of the date.

Return type

Integer

Example

The following example returns the difference between two dates.

```
dateDiff(orderDate, shipDate, "MM")
```

`dateDiff(orderDate, shipDate, "MM")`

The following are the given field values.

```
orderDate          shipdate
============================
01/01/18            03/05/18
09/13/17            10/20/17
```

For these field values, the following values are returned.

```
2
1
```

endsWith

`endsWith` evaluates if the expression ends with a substring that you specify. If the expression ends with the substring, `endsWith` returns true, and otherwise it returns false.

Syntax

```
endsWith(expression, substring, string-comparison-mode)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like `'12 Main Street'`, or a call to another function that outputs a string.

substring

The set of characters to check against the expression. The substring can occur one or more times in the expression.

string-comparison-mode

(Optional) Specifies the string comparison mode to use:

- `CASE_SENSITIVE` – String comparisons are case sensitive.
- `CASE_INSENSITIVE` – String comparisons are case insensitive.

This value defaults to `CASE_SENSITIVE` when blank.

Return type

Boolean

Examples

Default case-sensitive example

The following case-sensitive example evaluates if `state_nm` endsWith `"York"`.

```
endsWith(state_nm, "York")
```

The following are the given field values.

```
New York
new york
```

For these field values, the following values are returned.

```
true
false
```

Case-insensitive example

The following case-insensitive example evaluates if `state_nm` endsWith `"york"`.

```
endsWith(state_nm, "york", CASE_INSENSITIVE)
```

The following are the given field values.

```
New York
new york
```

For these field values, the following values are returned.

```
true
true
```

Example with conditional statements

The `endsWith` function can be used as the conditional statement within the following If functions: avgIf, minIf, distinct_countIf, countIf, maxIf, medianIf, stdevIf, stdevpIf, sumIf, varIf, and varpIf.

The following example sums `Sales` only if `state_nm` ends with `"York"`.

```
sumIf(Sales,endsWith(state_nm, "York"))
```

Does NOT contain example

The conditional `NOT` operator can be used to evaluate if the expression does not start with the specified substring.

```
NOT(endsWith(state_nm, "York"))
```

Example using numeric values

Numeric values can be used in the expression or substring arguments by applying the `toString` function.

```
endsWith(state_nm, toString(5) )
```

epochDate

`epochDate` converts an epoch date into a standard date in the format yyyy-MM-dd**T**kk:mm:ss.SSS**Z**, using the format pattern syntax specified in Class DateTimeFormat in the Joda project documentation. An example is `2015-10-15T19:11:51.003Z`.

`epochDate` is supported for use with analyses based on datasets stored in Insights (SPICE).

Syntax

```
epochDate(epochdate)
```

Arguments

epochdate

An epoch date, which is an integer representation of a date as the number of seconds since 00:00:00 UTC on January 1, 1970.

epochdate must be an integer. It can be the name of a field that uses the integer data type, a literal integer value, or a call to another function that outputs an integer. If the integer value is longer than 10 digits, the digits after the 10th place are discarded.

Return type

Date

Example

The following example converts an epoch date to a standard date.

```
epochDate(3100768000)
```

The following value is returned.

```
2068-04-04T12:26:40.000Z
```

Exp

`exp` returns the base of natural log e raised to the power of a given expression.

Syntax

```
exp(expression)
```

Arguments

expression

The expression must be numeric. It can be a field name, a literal value, or another function.

Extract

`extract` returns a specified portion of a date value. Requesting a time-related portion of a date that doesn't contain time information returns 0.

Syntax

```
extract(period, date)
```

Arguments

period

The period that you want extracted from the date value. Valid periods are as follows:

- YYYY: This returns the year portion of the date.
- Q: This returns the quarter that the date belongs to (1–4).
- MM: This returns the month portion of the date.
- DD: This returns the day portion of the date.
- WD: This returns the day of the week as an integer, with Sunday as 1.
- HH: This returns the hour portion of the date.
- MI: This returns the minute portion of the date.
- SS: This returns the second portion of the date.
- MS: This returns the millisecond portion of the date.

  NOTE Extracting milliseconds is not supported in Presto databases below version 0.216.

date

A date field or a call to another function that outputs a date.

Return type

Integer

Example

The following example extracts the day from a date value.

```
extract('DD', orderDate)
```

The following are the given field values.

```
orderDate
=========
01/01/14
09/13/16
```

For these field values, the following values are returned.

```
01
13
```

Floor

`floor` decrements a decimal value to the next lowest integer. For example, `floor(29.08)` returns `29`.

Syntax

```
floor(decimal)
```

Arguments

decimal

A field that uses the decimal data type, a literal value like `17.62`, or a call to another function that outputs a decimal.

Return type

Integer

Example

The following example decrements a decimal field to the next lowest integer.

```
floor(salesAmount)
```

The following are the given field values.

```
20.13
892.03
57.54
```

For these field values, the following values are returned.

```
20
892
57
```

formatDate

`formatDate` formats a date using a pattern you specify. When you are preparing data, you can use `formatDate` to reformat the date. To reformat a date in an analysis, you choose the format option from the context menu on the date field.

Syntax

```
formatDate(date, ['format'])
```

Arguments

date

A date field or a call to another function that outputs a date.

format

(Optional) A string containing the format pattern to apply.

If you don't specify a format, this string defaults to yyyy-MM-dd**T**kk:mm:ss:SSS.

Return type

String

Example

The following example formats a UTC date.

```
formatDate(orderDate, 'dd MMM yyyy')
```

The following are the given field values.

```
order date
=========
2012-12-14T00:00:00.000Z
2013-12-29T00:00:00.000Z
2012-11-15T00:00:00.000Z
```

For these field values, the following values are returned.

```
13 Dec 2012
28 Dec 2013
14 Nov 2012
```

Example

If the date contains single quotes or apostrophes, for example `yyyyMMdd'T'HHmmss`, you can handle this date format by using one of the following methods.

- Enclose the entire date in double quotes, as shown in the following example:

  ```
  formatDate({myDateField}, "yyyyMMdd'T'HHmmss")
  ```

- Escape the single quotes or apostrophes by adding a backslash (\ ) to the left of them, as shown in the following example:

  ```
  formatDate({myDateField}, 'yyyyMMdd\'T\'HHmmss')
  ```

Ifelse

`ifelse` evaluates a set of *if, then* expression pairings and returns the value of the *then* argument for the first *if* argument that evaluates to true. If none of the *if* arguments evaluate to true, then the value of the *else* argument is returned.

Syntax

```
ifelse(if-expression-1, then-expression-1 [, if-expression-n, then-expression-n
...], else-expression)
```

Arguments

`ifelse` requires one or more *if,then* expression pairings and requires exactly one expression for the *else* argument.

if-expression

The expression to be evaluated as true or not. It can be a field name like `address1`, a literal value like `'Unknown'`, or another function like `toString(salesAmount)`. An example is `isNotNull (FieldName)`.

If you use multiple AND and OR operators in the `if` argument, enclose statements in parentheses to identify processing order. For example, the following `if` argument returns records with a month of 1, 2, or 5 and a year of 2000.

```
ifelse((month = 5 OR month < 3) AND year = 2000, 'yes', 'no')
```

The next `if` argument uses the same operators but returns records with a month of 5 and any year, or with a month of 1 or 2 and a year of 2000.

```
ifelse(month = 5 OR (month < 3 AND year = 2000), 'yes', 'no')
```

then-expression

The expression to return if its *if* argument is evaluated as true. It can be a field name like `address1`, a literal value like `'Unknown'`, or a call to another function. The expression must have the same data type as the other `then` arguments and the `else` argument.

else-expression

The expression to return if none of the *if* arguments evaluate as true. It can be a field name like `address1`, a literal value like `'Unknown'`, or another function like `toString(salesAmount)`. The expression must have the same data type as all of the `then` arguments.

Return type

`ifelse` returns a value of the same data type as the values in *then-expression*. All data returned *then* and *else* expressions must be of the same data type or be converted to the same data type.

Examples

The following example generates a column of aliases for field `country`.

```
ifelse(country = "United States", "US", country = "China", "CN", country = "India",
"IN", "Others")
```

For such use cases evaluating each value in a field against a list of literals and returning the result corresponding to the first matching value, function switch is recommended to simplify your work. The previous example can be rewritten to the following statement using switch:

```
switch(country,"United States","US","China","CN","India","IN","Others")
```

The following example categorizes sales per customer into human-readable levels.

```
ifelse(salesPerCustomer < 1000, “VERY_LOW”, salesPerCustomer < 10000, “LOW”,
salesPerCustomer < 100000, “MEDIUM”, “HIGH”)
```

The following example uses AND, OR, and NOT to compare multiple expressions using conditional operators to tag top customers NOT in Washington or Oregon with a special promotion, who made more than 10 orders. If no values are returned, the value `'n/a'` is used.

```
ifelse(( (NOT (State = 'WA' OR State =  'OR')) AND Orders > 10),  'Special Promotion
XYZ',  'n/a')
```

The following examples use only OR to generate a new column that contains the name of the continent that corresponds to each `country`.

```
ifelse(country = "United States" OR country = "Canada", "North America", country =
"China" OR country = "India" OR country = "Japan", "Asia", "Others")
```

The previous example can be simplified as shown in the next example. The following example uses `ifelse` and in to create a value in a new column for any row where the tested value is in a literal list. You could use `ifelse` with notIn as well.

```
ifelse(in(country,["United States", "Canada"]), "North America", in(country,
["China","Japan","India"]),"Asia","Others")
```

Authors can save a literal list in a multivalue parameter and use it in the in or notIn functions. The following example is an equivalent of the previous example, except that the literal lists are stored in two multivalue parameters.

```
ifelse(in(country,${NorthAmericaCountryParam}), "North America", in
(country,${AsiaCountryParam}),"Asia", "Others")
```

The following example assigns a group to a sales record based on the sales total. The structure of each `if-then` phrase mimics the behavior of *between*, a keyword that doesn't currently work in calculated field expressions. For example, the result of the `comparison salesTotal >= 0 AND salesTotal < 500` returns the same values as the SQL comparison `salesTotal between 0 and 499`.

```
ifelse(salesTotal >= 0 AND salesTotal < 500, 'Group 1', salesTotal >= 500 AND
salesTotal < 1000, 'Group 2', 'Group 3')
```

The following example tests for a NULL value by using `coalesce` to return the first non-NULL value. Instead of needing to remember the meaning of a NULL in a date field, you can use a readable description. If the disconnect date is NULL, the example returns the suspend date, unless both of those are NULL. Then `coalesce(DiscoDate, SuspendDate, '12/31/2491')` returns `'12/31/2491'`. The return value must match the other data types. This date might seem like an unusual value, but a date in the 25th century reasonably simulates the “end of time,” defined as the highest date in a data mart.

```
ifelse (  (coalesce(DiscoDate, SuspendDate, '12/31/2491') = '12/31/2491'),  'Active
subscriber', 'Inactive subscriber')
```

The following shows a more complex example in a more readable format, just to show that you don't need to compress your code all into one long line. This example provides for multiple comparisons of the value in a survey result. It handles potential NULL values for this field and categorizes two acceptable ranges. It also labels one range that needs more testing and another that's not valid (out of range). For all remaining values, it applies the `else` condition and labels the row as needing a retest three years after the date on that row.

```
ifelse
(
    isNull({SurveyResult}), 'Untested',
    {SurveyResult}=1, 'Range 1',
    {SurveyResult}=2, 'Range 2',
```

```
    {SurveyResult}=3, 'Need more testing',
    {SurveyResult}=99, 'Out of Range',
    concat
    (
        'Retest by ',
        toString
        (
           addDateTime(3, "YYYY", {Date})
        )
    )
)
```

The following example assigns a “manually” created region name to a group of states. It also uses spacing and comments, wrapped in `/* */`, to make it easier to maintain the code.

```
ifelse
(    /* NE REGION*/
     locate('New York, New Jersey, Connecticut, Vermont, Maine, Rhode Island, New
Hampshire',{State}) > 0,
    'Northeast',

     /* SE REGION*/
     locate('Georgia, Alabama, South Carolina, Louisiana',{State}) > 0,
    'Southeast',

    'Other Region'
)
```

The logic for the region tagging breaks down as follows:

1. We list the states that we want for each region, enclosing each list in quotation marks to make each list a string, as follows:
    - `'New York, New Jersey, Connecticut, Vermont, Maine, Rhode Island, New Hampshire'`
    - `'Georgia, Alabama, South Carolina, Louisiana'`
    - You can add more sets, or use countries, cities, provinces, or What3Words if you want.
2. We ask if the value for `State` (for each row) is found in the list, by using the `locate` function to return a nonzero value if the state is found in the list, as follows.

    ```
    locate('New York, New Jersey, Connecticut, Vermont, Maine, Rhode Island, New
    Hampshire',{State})

    and
    ```

```
locate('Georgia, Alabama, South Carolina, Louisiana',{State})
```

3. The `locate` function returns a number instead of a `TRUE` or `FALSE`, but `ifelse` requires the `TRUE/FALSE` Boolean value. To get around this, we can compare the result of `locate` to a number. If the state is in the list, the return value is greater than zero.

    a. Ask if the state is present.

    ```
    locate('New York, New Jersey, Connecticut, Vermont, Maine, Rhode Island,
    New Hampshire',{State}) > 0
    ```

    b. If it's present, label it as the specific region, in this case a Northeast region.

    ```
    /*The if expression:*/     locate('New York, New Jersey, Connecticut,
    Vermont, Maine, Rhode Island, New Hampshire',{State}) > 0,
    /*The then expression:*/   'Northeast',
    ```

4. Because we have states that aren't in a list, and because `ifelse` requires a single `else` expression, we provide `'Other Region'` as the label for the leftover states.

    ```
    /*The if expression:*/     locate('New York, New Jersey, Connecticut, Vermont,
    Maine, Rhode Island, New Hampshire',{State}) > 0,
    /*The then expression:*/   'Northeast',
    /*The else expression:*/   'Other Region'
    ```

5. We wrap all that in the `ifelse( )` function to get the final version. The following example leaves out the Southeast-region states that were in the original. You can add them back in place of the `<insert more regions here>` tag.

    If you want to add more regions, you can construct more copies of those two lines and alter the list of states to suit your purpose. You can change the region name to something that suits you and change the field name from `State` to anything that you need.

    ```
    ifelse
    (
    /*The if expression:*/     locate('New York, New Jersey, Connecticut, Vermont,
    Maine, Rhode Island, New Hampshire',{State}) > 0,
    /*The then expression:*/   'Northeast',

    /*<insert more regions here>*/
    ```

```
/*The else expression:*/   'Other Region'
)
```

> **NOTE**
>
> There are other ways to do the initial comparison for the if expression. For example, suppose that you pose the question “What states are not missing from this list?” rather than “Which states are on the list?” If you do, you might phrase it differently. You might compare the locate statement to zero to find values that are missing from the list and then use the NOT operator to classify them as “not missing,” as follows.
>
> ```
> /*The if expression:*/      NOT (locate('New York, New Jersey, Connecticut,
> Vermont, Maine, Rhode Island, New Hampshire',{State}) = 0),
> ```
>
> Both versions are correct. The version that you choose should make the most sense to you and your team so you can maintain it easily. If all the options seem equal, choose the simplest.

in

`in` evaluates if an expression exists within a literal list. If the list contains the expression, in returns true, and otherwise it returns false. `in` is case sensitive for string-type inputs.

`in` accepts two kinds of literal lists. One is manually entered list, and the other is a multivalue parameter.

Syntax

Using a manually entered list:

```
in(expression, [literal-1, ...])
```

Using a multivalue parameter:

```
in(expression, $multivalue_parameter)
```

Arguments

expression

The expression to be compared with the elements in literal list. It can be a field name like `address`, a literal value like `‘ Unknown’`, a single value parameter, or a call to another scalar function—provided this function is not an aggregate function or a table calculation.

literal list

(required) This can be a manually entered list or a multivalue parameter. This argument accepts up to 5,000 elements. However, in a direct query to a third party data source, for example Oracle or Teradata, the restriction can be smaller.

- ***manually entered list*** – One or more literal values in a list to be compared with the expression. The list should be enclosed in square brackets. All the literals to compare must have the same datatype as the expression.
- ***multivalue parameter*** – A pre-defined multivalue parameter passed in as a literal list. The multivalue parameter must have the same datatype as the expression.

Return type

Boolean: TRUE/FALSE

Example with a static list

The following example evaluates the `origin_state_name` field for values in a list of strings. When comparing string-type input, `in` only supports case-sensitive comparison.

```
in(origin_state_name,["Georgia", "Ohio", "Texas"])
```

The following are the given field values.

```
"Washington"
        "ohio"
        "Texas"
```

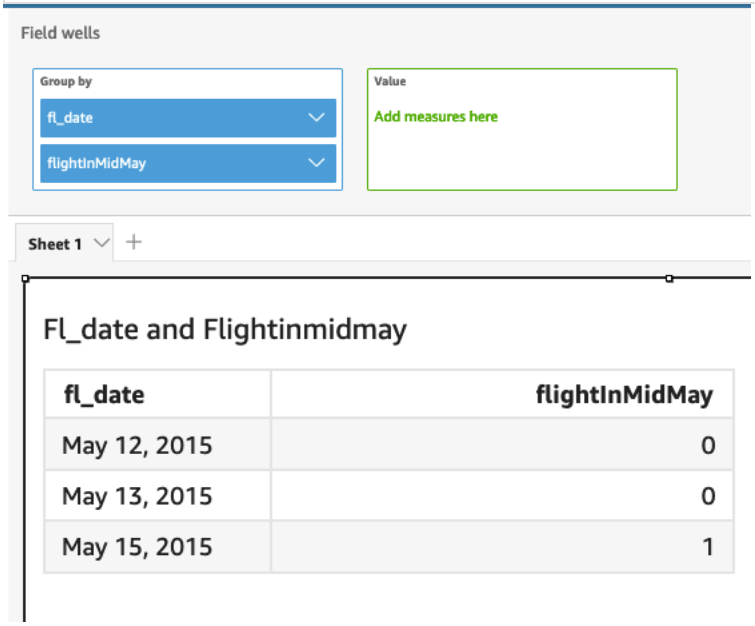
For these field values the following values are returned.

```
false
        false
        true
```

The third return value is true because only “Texas” is one of the included values.

The following example evaluates the `fl_date` field for values in a list of strings. In order to match the type, `toString` is used to cast the date type to string type.

```
in(toString(fl_date),["2015-05-14","2015-05-15","2015-05-16"])
```



Literals and NULL values are supported in expression argument to be compared with the literals in list. Both of the following two examples will generate a new column of TRUE values.

```
in("Washington",["Washington","Ohio"])
```

```
in(NULL,[NULL,"Ohio"])
```

Example with mutivalue parameter

Let's say an author creates a multivalue parameter that contains a list of all the state names. Then the author adds a control to allow the reader to select values from the list.

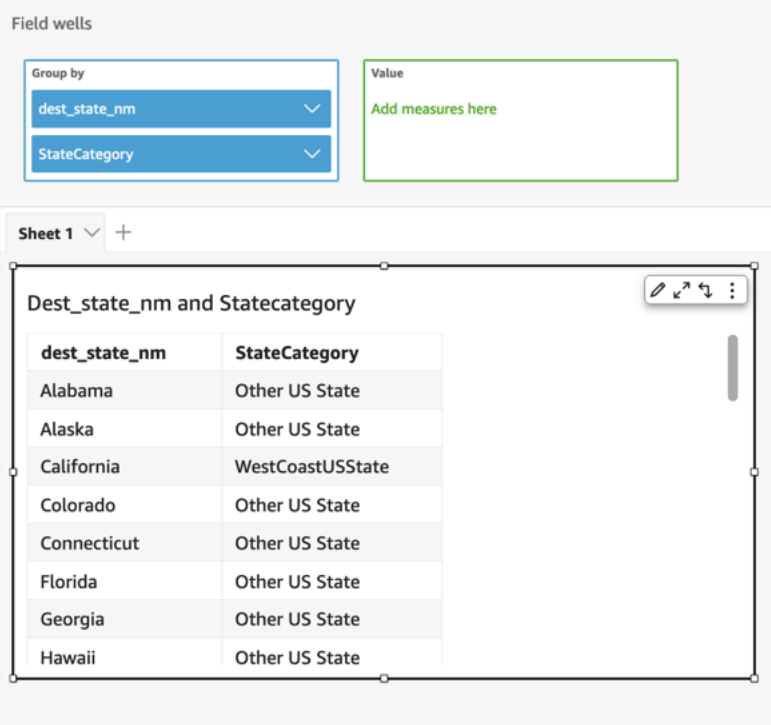
Next, the reader selects three values—”Georgia,” “Ohio,” and “Texas”—from the parameter's drop-down list control. In this case, the following expression is equivalent to the first example, where those three state names are passed as the literal list to be compared with the `original_state_name` field.

```
in (origin_state_name, ${stateName MultivalueParameter})
```

Example with `ifelse`

`in` can be nested in other functions as a boolean value. One example is that authors can evaluate any expression in a list and return the value they want by using `in` and `ifelse`. The following example evaluates if the `dest_state_name` of a flight is in a particular list of US states and returns different categories of the states based on the comparison.

```
ifelse(in(dest_state_name,["Washington", "Oregon","California"]),
"WestCoastUSState", "Other US State")
```



intToDecimal

`intToDecimal` converts an integer value to the decimal data type.

Syntax

```
intToDecimal(integer)
```

Arguments

int

A field that uses the integer data type, a literal value like `14`, or a call to another function that outputs an integer.

Return type

Decimal

Example

The following example converts an integer field to a decimal.

```
intToDecimal(price)
```

The following are the given field values.

```
20
892
57
```

For these field values, the following values are returned.

```
20.0
892.0
58.0
```

You can apply formatting inside an analysis, for example to format `price` as currency.

isNotNull

`isNotNull` evaluates an expression to see if it is not null. If the expression is not null, `isNotNull` returns true, and otherwise it returns false.

Syntax

```
isNotNull(expression)
```

Arguments

expression

The expression to be evaluated as null or not. It can be a field name like `address1` or a call to another function that outputs a string.

Return type

Boolean

Example

The following example evaluates the sales_amount field for null values.

```
isNotNull(salesAmount)
```

The following are the given field values.

```
20.13
(null)
57.54
```

For these field values, the following values are returned.

```
true
false
true
```

isNull

`isNull` evaluates an expression to see if it is null. If the expression is null, `isNull` returns true, and otherwise it returns false.

Syntax

```
isNull(expression)
```

Arguments

expression

The expression to be evaluated as null or not. It can be a field name like `address1` or a call to another function that outputs a string.

Return type

Boolean

Example

The following example evaluates the sales_amount field for null values.

```
isNull(salesAmount)
```

The following are the given field values.

```
20.13
(null)
57.54
```

For these field values, the following values are returned.

```
false
true
false
```

The following example tests for a NULL value in an `ifelse` statement and returns a human-readable value instead.

```
ifelse( isNull({ActiveFlag}) , 'Inactive',  'Active')
```

isWorkDay

`isWorkDay` evaluates a given date-time value to determine if the value is a workday or not.

`isWorkDay` assumes a standard five-day work week starting on Monday and ending on Friday. Saturday and Sunday are assumed to be weekends. The function always calculates its result at the `DAY` granularity and is exclusive of the given input date.

Syntax

```
isWorkDay(inputDate)
```

Arguments

inputDate

The date-time value that you want to evaluate. Valid values are as follows:

- Dataset fields: Any `date` field from the dataset that you are adding this function to.
- Date Functions: Any date output from another date function, for example, `parseDate`.
- Calculated fields: Any Insights calculated field that returns a `date` value.
- Parameters: Any Insights `DateTime` parameter.

Return type

Integer (`0` or `1`)

Example

The following example determines whether or not the `application_date` field is a work day.

Let's assume that there's a field named `application_date` with the following values:

```
2022-08-10
2022-08-06
2022-08-07
```

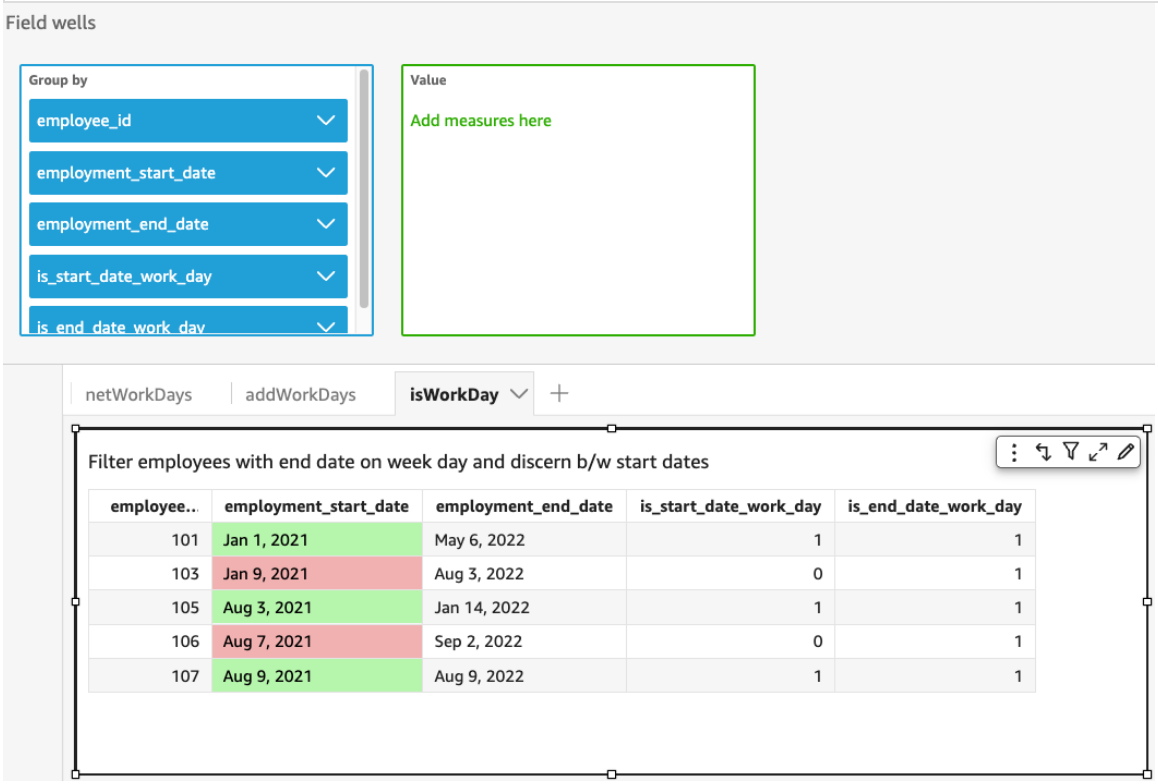
When you use these fields and add the following calculations, `isWorkDay` returns the below values:

```
isWorkDay({application_date})

1
0
0
```

The following example filters employees whose employment ends on a work day and determines whether their employment began on work day or a weekend using conditional formatting:

```
is_start_date_work_day = isWorkDay(employment_start_date)
is_end_date_work_day = isWorkDay(employment_end_date)
```



Left

`left` returns the leftmost characters from a string, including spaces. You specify the number of characters to be returned.

Syntax

```
left(expression, limit)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like `'12 Main Street'`, or a call to another function that outputs a string.

limit
The number of characters to be returned from *expression*, starting from the first character in the string.

Return type
String

Example
The following example returns the first three characters from a string.

```
left('Seattle Store #14', 3)
```

The following value is returned.

```
Sea
```

Locate
`locate` locates a substring that you specify within another string and returns the number of characters until the first character in the substring. The function returns 0 if it doesn't find the substring. The function is 1-based.

Syntax
```
locate(expression, substring, start)
```

Arguments
expression
The expression must be a string. It can be the name of a field that uses the string data type, a literal value like `'12 Main Street'`, or a call to another function that outputs a string.

substring
The set of characters in *expression* that you want to locate. The substring can occur one or more times in *expression*.

start

(Optional) If *substring* occurs more than once, use *start* to identify where in the string the function should start looking for the substring. For example, suppose that you want to find the second example of a substring and you think it typically occurs after the first ten characters. You specify a *start* value of 10. It should start from 1.

Return type

Integer

Examples

The following example returns information about where the first occurrence of the substring “and” appears in a string.

```
locate('1 and 2 and 3 and 4', 'and')
```

The following value is returned.

```
3
```

The following example returns information about where the first occurrence of the substring “and” appears in a string after the fourth character.

```
locate('1 and 2 and 3 and 4', 'and', 4)
```

The following value is returned.

```
9
```

Log

log returns the base 10 logarithm of a given expression.

Syntax

```
log(expression)
```

Arguments

expression

The expression must be numeric. It can be a field name, a literal value, or another function.

Ln

ln returns the natural logarithm of a given expression.

Syntax

```
ln(expression)
```

Arguments

expression

The expression must be numeric. It can be a field name, a literal value, or another function.

Ltrim

ltrim removes preceding blank space from a string.

Syntax

```
ltrim(expression)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '12 Main Street', or a call to another function that outputs a string.

Return type

String

Example

The following example removes the preceding spaces from a string.

```
ltrim('   Seattle Store #14')
```

The following value is returned.

```
Seattle Store #14
```

Mod

Use the mod function to find the remainder after dividing the number by the divisor. You can use the mod function or the modulo operator (%) interchangeably.

Syntax

```
mod(number, divisor)
```

```
number%divisor
```

Arguments

number

The number is the positive integer that you want to divide and find the remainder for.

divisor

The divisor is the positive integer that you are dividing by. If the divisor is zero, this function returns an error on dividing by 0.

Example

The following examples return the modulo of 17 when dividing by 6. The first example uses the % operator, and the second example uses the mod function.

```
17%6
```

```
mod( 17, 6 )
```

The following value is returned.

```
5
```

netWorkDays

netWorkDays returns the number of working days between the provided two date fields or even custom date values generated using other Insights date functions such as parseDate or epochDate as an integer.

netWorkDays assumes a standard 5-day work week starting from Monday and ending on Friday. Saturday and Sunday are assumed to be weekends. The calculation is inclusive of both startDate and endDate. The function operates on and shows results for DAY granularity.

Syntax

```
netWorkDays(startDate, endDate)
```

Arguments

startDate

A valid non-NULL date that acts as the start date for the calculation.

- Dataset fields: Any date field from the dataset that you are adding this function to.
- Date Functions: Any date output from another date function, for example, parseDate.
- Calculated fields: Any Insights calculated field that returns a date value.
- Parameters: Any Insights DateTime parameter.
- Any combination of the above stated argument values.

endDate

A valid non-NULL date that acts as the end date for the calculation.

- Dataset fields: Any date field from the dataset that you are adding this function to.
- Date Functions: Any date output from another date function, for example, parseDate.
- Calculated fields: Any Insights calculated field that returns a date value.

- Parameters: Any Insights DateTime parameter.
- Any combination of the above stated argument values.

Return type

Integer

Ouptut values

Expected output values include:

- Positive integer (when start_date < end_date)
- Negative integer (when start_date > end_date)
- NULL when one or both of the arguments get a null value from the dataset field.

Example

The following example returns the number of work days falling between two dates.

Let's assume that there's a field named application_date with the following values:

```
netWorkDays({startDate}, {endDate})
```

The following are the given field values.

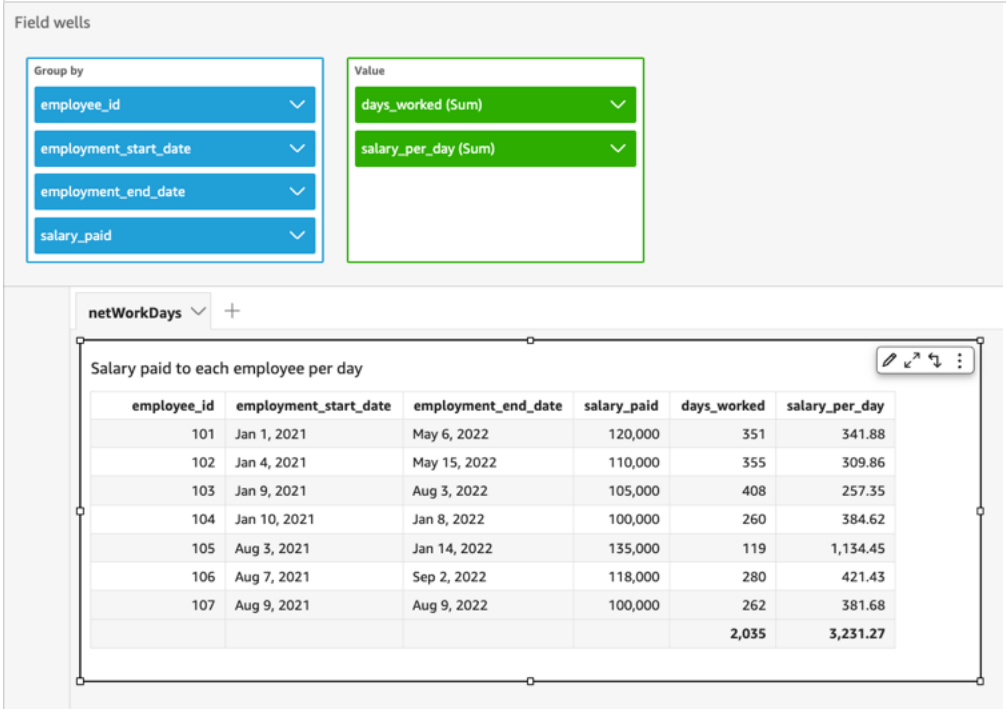
```
startDate    endDate    netWorkDays
        9/4/2022    9/11/2022    5
        9/9/2022    9/2/2022    -6
        9/10/2022    9/11/2022    0
        9/12/2022    9/12/2022    1
```

The following example calculates the number of days worked by each employee and the salary expended per day for each employee:

```
days_worked = netWorkDays({employment_start_date}, {employment_end_date})
        salary_per_day = {salary}/{days_worked}
```

The following example filters employees whose employment ends on a work day and determines whether their employment began on work day or a weekend using conditional formatting:

```
is_start_date_work_day = netWorkDays(employment_start_date)
        is_end_date_work_day = netWorkDays(employment_end_date)
```



employee_id	employment_start_date	employment_end_date	salary_paid	days_worked	salary_per_day
101	Jan 1, 2021	May 6, 2022	120,000	351	341.88
102	Jan 4, 2021	May 15, 2022	110,000	355	309.86
103	Jan 9, 2021	Aug 3, 2022	105,000	408	257.35
104	Jan 10, 2021	Jan 8, 2022	100,000	260	384.62
105	Aug 3, 2021	Jan 14, 2022	135,000	119	1,134.45
106	Aug 7, 2021	Sep 2, 2022	118,000	280	421.43
107	Aug 9, 2021	Aug 9, 2022	100,000	262	381.68
				2,035	3,231.27

Now

For database datasets that directly query the database, now returns the current date and time using the settings and format specified by the database server. For SPICE and Salesforce data sets, now returns the UTC date and time, in the format yyyy-MM-ddTkk:mm:ss:SSSZ (for example, 2015-10-15T19:11:51:003Z).

Syntax

```
now()
```

Return type

Date

notIn

notIn evaluates if an expression exists within a literal list. If the list doesn't contain the expression, notIn returns true, and otherwise it returns false. notIn is case sensitive for string type inputs.

notIn accepts two kinds of literal list, one is manually entered list and the other is a multivalue parameter.

Syntax

Using a manually entered list:

```
notIn(expression, [literal-1, ...])
```

Using a multivalue parameter:

```
notIn(expression, $multivalue_parameter)
```

Arguments

expression

The expression to be compared with the elements in literal list. It can be a field name like address, a literal value like ‘ Unknown’, a single value parameter, or a call to another scalar function—provided this function is not an aggregate function or a table calculation.

literal list

(required) This can be a manually entered list or a multivalue parameter. This argument accepts up to 5,000 elements. However, in a direct query to a third party data source, for example Oracle or Teradata, the restriction can be smaller.

- manually entered list – One or more literal values in a list to be compared with the expression. The list should be enclosed in square brackets. All the literals to compare must have the same datatype as the expression.
- multivalue parameter – A pre-defined multivalue parameter passed in as a literal list. The multivalue parameter must have the same datatype as the expression.

Return type

Boolean: TRUE/FALSE

Example with a manually entered list

The following example evaluates the origin_state_name field for values in a list of string. When comparing string type input, notIn only supports case sensitive comparison.

```
notIn(origin_state_name,["Georgia", "Ohio", "Texas"])
```

The following are the given field values.

```
"Washington"
        "ohio"
        "Texas"
```

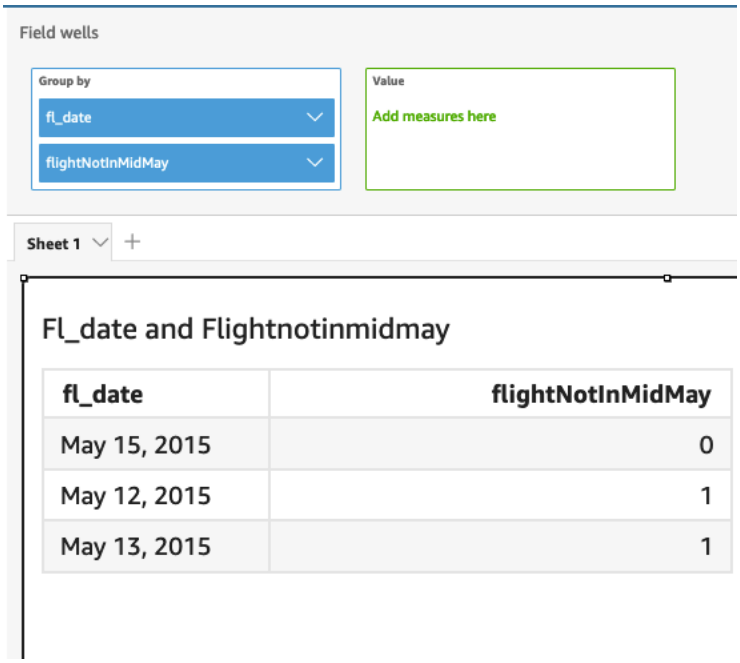
For these field values the following values are returned.

```
true
        true
        false
```

The third return value is false because only "Texas" is one of the excluded values.

The following example evaluates the fl_date field for values in a list of string. In order to match the type, toString is used to cast the date type to string type.

```
notIn(toString(fl_date),["2015-05-14","2015-05-15","2015-05-16"])
```



Literals and NULL values are supported in expression argument to be compared with the literals in list. Both of the following two examples will generate a new column of FALSE values.

```
notIn("Washington",["Washington","Ohio"])
```

```
notIn(NULL,[NULL,"Ohio"])
```

Example with mutivalue parameter

Let's say an author creates a multivalue parameter that contains a list of all the state names. Then the author adds a control to allow the reader to select values from the list.

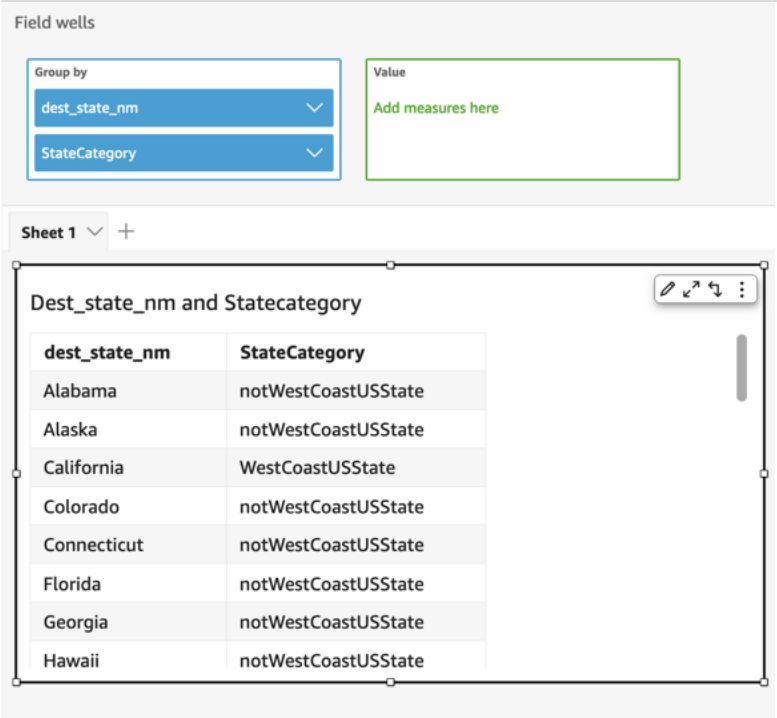
Next, the reader selects three values—"Georgia", "Ohio", and "Texas"—from the parameter's drop down list control. In this case, the following expression is equivalent to the first example, where those three state names are passed as the literal list to be compared with the original_state_name field.

```
notIn (origin_state_name, ${stateName MultivalueParameter})
```

Example with ifelse

notIn can be nested in other functions as a boolean value. One example is that authors can evaluate any expression in a list and return the value they want by using notIn and ifelse. The following example evaluates if the dest_state_name of a flight is in a particular list of US states and returns different categories of the states based on the comparison.

```
ifelse(notIn(dest_state_name,["Washington", "Oregon","California"]),
"notWestCoastUSState", "WestCoastUSState")
```



dest_state_nm	StateCategory
Alabama	notWestCoastUSState
Alaska	notWestCoastUSState
California	WestCoastUSState
Colorado	notWestCoastUSState
Connecticut	notWestCoastUSState
Florida	notWestCoastUSState
Georgia	notWestCoastUSState
Hawaii	notWestCoastUSState

nullIf

nullIf compares two expressions. If they are equal, the function returns null. If they are not equal, the function returns the first expression.

Syntax

```
nullIf(expression1, expression2)
```

Arguments

nullIf takes two expressions as arguments.

expression

The expression can be numeric, datetime, or string. It can be a field name, a literal value, or another function.

Return type

String

Example

The following example returns nulls if the reason for a shipment delay is unknown.

```
nullIf(delayReason, 'unknown')
```

The following are the given field values.

```
delayReason
============
unknown
back ordered
weather delay
```

For these field values, the following values are returned.

```
(null)
back ordered
weather delay
```

parseDate

parseDate parses a string to determine if it contains a date value, and returns a standard date in the format yyyy-MM-ddTkk:mm:ss.SSSZ (using the format pattern syntax specified in Class DateTimeFormat in the Joda project documentation), for example 2015-10-15T19:11:51.003Z. This function returns all rows that contain a date in a valid format and skips any rows that don't, including rows that contain null values.

Insights supports dates in the range from Jan 1, 1900 00:00:00 UTC to Dec 31, 2037 23:59:59 UTC. For more information, see Supported date formats.

Syntax

```
parseDate(expression, ['format'])
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '1/1/2016', or a call to another function that outputs a string.

format

(Optional) A string containing the format pattern that date_string must match. For example, if you are using a field with data like 01/03/2016, you specify the format 'MM/dd/yyyy'. If you don't specify a format, it defaults to yyyy-MM-dd. Rows whose data doesn't conform to format are skipped.

Different date formats are supported based on the type of dataset used. Use the following table to see details of supported date formats.

Date source type	Supported date formats
File, Amazon Athena, and Salesforce data sets	All date format patterns specified in Supported date formats.
Direct query of Amazon Aurora, MariaDB, and MySQL databases	■ MM/dd/yyyy ■ dd/MM/yyyy ■ yyyy/MM/dd ■ MMM/dd/yyyy ■ dd/MMM/yyyy ■ yyyy/MMM/dd ■ MM/dd/yyyy HH:mm:ss ■ dd/MM/yyyy HH:mm:ss ■ yyyy/MM/dd HH:mm:ss ■ MMM/dd/yyyy HH:mm:ss ■ dd/MMM/yyyy HH:mm:ss ■ yyyy/MMM/dd HH:mm:ss ■ MM-dd-yyyy

Date source type	Supported date formats
	■ dd-MM-yyyy ■ yyyy-MM-dd ■ MMM-dd-yyyy ■ dd-MMM-yyyy ■ yyyy-MMM-dd ■ MM-dd-yyyy HH:mm:ss ■ dd-MM-yyyy HH:mm:ss ■ yyyy-MM-dd HH:mm:ss ■ MMM-dd-yyyy HH:mm:ss ■ dd-MMM-yyyy HH:mm:ss ■ yyyy-MMM-dd HH:mm:ss ■ MM/dd/yyyy HH:mm:ss.SSS ■ dd/MM/yyyy HH:mm:ss.SSS ■ yyyy/MM/dd HH:mm:ss.SSS ■ MMM/dd/yyyy HH:mm:ss.SSS ■ dd/MMM/yyyy HH:mm:ss.SSS ■ yyyy/MMM/dd HH:mm:ss.SSS ■ MM-dd-yyyy HH:mm:ss.SSS ■ dd-MM-yyyy HH:mm:ss.SSS ■ yyyy-MM-dd HH:mm:ss.SSS ■ MMM-dd-yyyy HH:mm:ss.SSS ■ dd-MMM-yyyy HH:mm:ss.SSS ■ yyyy-MMM-dd HH:mm:ss.SSS

Date source type	Supported date formats
Direct query of Snowflake	■ dd/MM/yyyy ■ dd/MM/yyyy HH:mm:ss ■ dd-MM-yyyy ■ dd-MM-yyyy HH:mm:ss ■ MM/dd/yyyy ■ MM/dd/yyyy HH:mm:ss ■ MM-dd-yyyy ■ MM-dd-yyyy HH:mm:ss ■ yyyy/MM/dd ■ yyyy/MM/dd HH:mm:ss ■ yyyy-MM-dd ■ yyyy-MM-dd HH:mm:ss ■ MM/dd/yyyy HH:mm:ss.SSS ■ dd/MM/yyyy HH:mm:ss.SSS ■ yyyy/MM/dd HH:mm:ss.SSS ■ MMM/dd/yyyy HH:mm:ss.SSS ■ dd/MMM/yyyy HH:mm:ss.SSS ■ yyyy/MMM/dd HH:mm:ss.SSS ■ MM-dd-yyyy HH:mm:ss.SSS ■ dd-MM-yyyy HH:mm:ss.SSS ■ yyyy-MM-dd HH:mm:ss.SSS ■ MMM-dd-yyyy HH:mm:ss.SSS ■ dd-MMM-yyyy HH:mm:ss.SSS

Date source type	Supported date formats
	■ yyyy-MMM-dd HH:mm:ss.SSS
Direct query of Microsoft SQL Server databases	■ dd-MM-yyyy ■ MM/dd/yyyy ■ dd/MM/yyyy ■ yyyy/MM/dd ■ MMM/dd/yyyy ■ dd/MMM/yyyy ■ yyyy/MMM/dd ■ dd/MM/yyyy HH:mm:ss ■ yyyy/MM/dd HH:mm:ss ■ MMM/dd/yyyy HH:mm:ss ■ dd/MMM/yyyy HH:mm:ss ■ yyyy/MMM/dd HH:mm:ss ■ MM-dd-yyyy ■ yyyy-MM-dd ■ MMM-dd-yyyy ■ yyyy-MMM-dd ■ MM-dd-yyyy HH:mm:ss ■ dd-MM-yyyy HH:mm:ss ■ yyyy-MM-dd HH:mm:ss ■ MMM-dd-yyyy HH:mm:ss ■ dd-MMM-yyyy HH:mm:ss ■ yyyy-MMM-dd HH:mm:ss

Date source type	Supported date formats
	■ MM/dd/yyyy HH:mm:ss.SSS ■ dd/MM/yyyy HH:mm:ss.SSS ■ yyyy/MM/dd HH:mm:ss.SSS ■ MMM/dd/yyyy HH:mm:ss.SSS ■ dd/MMM/yyyy HH:mm:ss.SSS ■ yyyy/MMM/dd HH:mm:ss.SSS ■ MM-dd-yyyy HH:mm:ss.SSS ■ dd-MM-yyyy HH:mm:ss.SSS ■ yyyy-MM-dd HH:mm:ss.SSS ■ MMM-dd-yyyy HH:mm:ss.SSS ■ dd-MMM-yyyy HH:mm:ss.SSS ■ yyyy-MMM-dd HH:mm:ss.SSS
Direct query of Amazon Redshift or PostgreSQL databases Also, datasets from any DBMS that are stored in Insights SPICE	■ MM/dd/yyyy ■ dd/MM/yyyy ■ yyyy/MM/dd ■ MMM/dd/yyyy ■ dd/MMM/yyyy ■ yyyy/MMM/dd ■ MM/dd/yyyy HH:mm:ss ■ dd/MM/yyyy HH:mm:ss ■ yyyy/MM/dd HH:mm:ss ■ MMM/dd/yyyy HH:mm:ss ■ dd/MMM/yyyy HH:mm:ss

Date source type	Supported date formats
	■ yyyy/MMM/dd HH:mm:ss ■ MM-dd-yyyy ■ dd-MM-yyyy ■ yyyy-MM-dd ■ MMM-dd-yyyy ■ dd-MMM-yyyy ■ yyyy-MMM-dd ■ MM-dd-yyyy HH:mm:ss ■ dd-MM-yyyy HH:mm:ss ■ yyyy-MM-dd HH:mm:ss ■ MMM-dd-yyyy HH:mm:ss ■ dd-MMM-yyyy HH:mm:ss ■ yyyy-MMM-dd HH:mm:ss ■ yyyyMMdd'T'HHmmss ■ yyyy-MM-dd'T'HH:mm:ss ■ MM/dd/yyyy HH:mm:ss.SSS ■ dd/MM/yyyy HH:mm:ss.SSS ■ yyyy/MM/dd HH:mm:ss.SSS ■ MMM/dd/yyyy HH:mm:ss.SSS ■ dd/MMM/yyyy HH:mm:ss.SSS ■ yyyy/MMM/dd HH:mm:ss.SSS ■ MM-dd-yyyy HH:mm:ss.SSS ■ dd-MM-yyyy HH:mm:ss.SSS

Date source type	Supported date formats
	■ yyyy-MM-dd HH:mm:ss.SSS ■ MMM-dd-yyyy HH:mm:ss.SSS ■ dd-MMM-yyyy HH:mm:ss.SSS ■ yyyy-MMM-dd HH:mm:ss.SSS

Return type

Date

Example

The following example evaluates prodDate to determine if it contains date values.

```
parseDate(prodDate, 'MM/dd/yyyy')
```

The following are the given field values.

```
prodDate
--------
01-01-1999
12/31/2006
1/18/1982
7/4/2010
```

For these field values, the following rows are returned.

```
12-31-2006T00:00:00.000Z
01-18-1982T00:00:00.000Z
07-04-2010T00:00:00.000Z
```

parseDecimal

parseDecimal parses a string to determine if it contains a decimal value. This function returns all rows that contain a decimal, integer, or null value, and skips any rows that don't. If the row contains an integer value, it is returned as a decimal with up to 4 decimal places. For example, a value of '2' is returned as '2.0'.

Syntax

```
parseDecimal(expression)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '9.62', or a call to another function that outputs a string.

Return type

Decimal

Example

The following example evaluates fee to determine if it contains decimal values.

```
parseDecimal(fee)
```

The following are the given field values.

```
fee
--------
2
2a
12.13
3b
3.9
(null)
198.353398
```

For these field values, the following rows are returned.

```
2.0
12.13
3.9
(null)
198.3533
```

parseInt

parseInt parses a string to determine if it contains an integer value. This function returns all rows that contain a decimal, integer, or null value, and skips any rows that don't. If the row contains a decimal value, it is returned as the nearest integer, rounded down. For example, a value of '2.99' is returned as '2'.

Syntax

```
parseInt(expression)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '3', or a call to another function that outputs a string.

Return type

Integer

Example

The following example evaluates feeType to determine if it contains integer values.

```
parseInt(feeType)
```

The following are the given field values.

```
feeType
--------
2
2.1
2a
3
3b
(null)
5
```

For these field values, the following rows are returned.

```
2
2
3
(null)
5
```

parseJson

Use parseJson to extract values from a JSON object.

If your dataset is stored in Insights SPICE, you can use parseJson when you are preparing a data set, but not in calculated fields during analysis.

For direct query, you can use parseJson both during data preparation and analysis. The parseJson function applies to either strings or to JSON native data types, depending on the dialect, as shown in the following table.

Dialect	Type
PostgreSQL	JSON
Amazon Redshift	String
Microsoft SQL Server	String
MySQL	JSON
Teradata	JSON
Oracle	String
Presto	String
Snowflake	Semistructured data type object and array
Hive	String

Syntax

```
parseJson(fieldName, path)
```

Arguments

fieldName

The field containing the JSON object that you want to parse.

path

The path to the data element you want to parse from the JSON object. Valid path syntax includes:

- $ – Root object
- . – Child operator
- [ ] – Subscript operator for array

Return type

String

Example

The following example evaluates incoming JSON to retrieve a value for item quantity. By using this during data preparation, you can create a table out of the JSON.

```
parseJson({jsonField}, “$.items.qty”)
```

The following shows the JSON.

```
{
    "customer": "John Doe",
    "items": {
        "product": "Beer",
        "qty": 6
    },
    "list1": [
        "val1",
        "val2"
    ],
    "list2": [
        {
            "list21key1": "list1value1"
        }
    ]
}
```

For this example, the following value is returned.

```
6
```

Example

The following example evaluates JSONObject1 to extract the first key value pair (KVP), labeled "State", and assign the value to the calculated field that you are creating.

```
parseJson(JSONObject1, “$.state”)
```

The following are the given field values.

```
JSONObject1
-----------
{"State":"New York","Product":"Produce","Date Sold":"1/16/2018","Sales
Amount":"$3423.39"}
{"State":"North Carolina","Product":"Bakery Products","Date Sold":"2/1/2018","Sales
Amount":"$3226.42"}
{"State":"Utah","Product":"Water","Date Sold":"4/24/2018","Sales Amount":"$7001.52"}
```

For these field values, the following rows are returned.

```
New York
North Carolina
Utah
```

Replace

replace replaces part of a string with another string that you specify.

Syntax

```
replace(expression, substring, replacement)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '12 Main Street', or a call to another function that outputs a string.

substring

The set of characters in expression that you want to replace. The substring can occur one or more times in expression.

replacement

The string you want to have substituted for substring.

Return type

String

Example

The following example replaces the substring 'and' with 'or'.

```
replace('1 and 2 and 3', 'and', 'or')
```

The following string is returned.

```
1 or 2 or 3
```

Right

right returns the rightmost characters from a string, including spaces. You specify the number of characters to be returned.

Syntax

```
right(expression, limit)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '12 Main Street', or a call to another function that outputs a string.

limit

The number of characters to be returned from expression, starting from the last character in the string.

Return type

String

Example

The following example returns the last five characters from a string.

```
right('Seattle Store#14', 12)
```

The following value is returned.

```
tle Store#14
```

Round

round rounds a decimal value to the closest integer if no scale is specified, or to the closest decimal place if scale is specified.

Syntax

```
round(decimal, scale)
```

Arguments

decimal

A field that uses the decimal data type, a literal value like 17.62, or a call to another function that outputs a decimal.

scale

The number of decimal places to use for the return values.

Return type

Decimal

Example

The following example rounds a decimal field to the closest second decimal place.

```
round(salesAmount, 2)
```

The following are the given field values.

```
20.1307
892.0388
57.5447
```

For these field values, the following values are returned.

```
20.13
892.04
58.54
```

Rtrim

rtrim removes following blank space from a string.

Syntax

```
rtrim(expression)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '12 Main Street', or a call to another function that outputs a string.

Return type

String

Example

The following example removes the following spaces from a string.

```
rtrim('Seattle Store #14   ')
```

For these field values, the following values are returned.

```
Seattle Store #14
```

Split

split splits a string into an array of substrings, based on a delimiter that you choose, and returns the item specified by the position.

You can only add split to a calculated field during data preparation, not to an analysis. This function is not supported in direct queries to Microsoft SQL Server.

Syntax

```
split(expression, delimiter , position)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '12 Main Street;1402 35th Ave;1818 Elm Ct;11 Janes Lane', or a call to another function that outputs a string.

delimiter

The character that delimits where the string is broken into substrings. For example, split('one|two|three', '|', 2) becomes the following.

```
one
two
three
```

If you choose position = 2, split returns 'two'.

position

(Required) The position of the item to return from the array. The position of the first item in the array is 1.

Return type

String array

Example

The following example splits a string into an array, using the semicolon character (;) as the delimiter, and returns the third element of the array.

```
split('123 Test St;1402 35th Ave;1818 Elm Ct;11 Janes Lane', ';', 3)
```

The following item is returned.

```
1818 Elm Ct
```

This function skips items containing null values or empty strings.

Sqrt

sqrt returns the square root of a given expression.

Syntax

```
sqrt(expression)
```

Arguments

expression

The expression must be numeric. It can be a field name, a literal value, or another function.

startsWith

startsWith evaluates if the expression starts with a substring that you specify. If the expression starts with the substring, startsWith returns true, and otherwise it returns false.

Syntax

```
startsWith(expression, substring, string-comparison-mode)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '12 Main Street', or a call to another function that outputs a string.

substring

The set of characters to check against the expression. The substring can occur one or more times in the expression.

string-comparison-mode

(Optional) Specifies the string comparison mode to use:

- CASE_SENSITIVE – String comparisons are case-sensitive.
- CASE_INSENSITIVE – String comparisons are case-insensitive.

This value defaults to CASE_SENSITIVE when blank.

Return type

Boolean

Examples

Default case sensitive example

The following case sensitive example evaluates if state_nm startsWith New.

```
startsWith(state_nm, "New")
```

The following are the given field values.

```
New York
new york
```

For these field values, the following values are returned.

```
true
false
```

Case insensitive example

The following case insensitive example evaluates if state_nm startsWith new.

```
startsWith(state_nm, "new", CASE_INSENSITIVE)
```

The following are the given field values.

```
New York
new york
```

For these field values, the following values are returned.

```
true
true
```

Example with conditional statements

The startsWith function can be used as the conditional statement within the following If functions: avgIf, minIf, distinct_countIf, countIf, maxIf, medianIf, stdevIf, stdevpIf, sumIf, varIf, and varpIf.

The following example sums Sales only if state_nm starts with New.

```
sumIf(Sales,startsWith(state_nm, "New"))
```

Does NOT contain example

The conditional NOT operator can be used to evaluate if the expression does not start with the specified substring.

```
NOT(startsWith(state_nm, "New"))
```

Example using numeric values

Numeric values can be used in the expression or substring arguments by applying the toString function.

```
startsWith(state_nm, toString(5) )
```

Strlen

strlen returns the number of characters in a string, including spaces.

Syntax

```
strlen(expression)
```

Arguments

expression

An expression can be the name of a field that uses the string data type like address1, a literal value like 'Unknown', or another function like substring(field_name,0,5).

Return type

Integer

Example

The following example returns the length of the specified string.

```
strlen('1421 Main Street')
```

The following value is returned.

```
16
```

Substring

substring returns the characters in a string, starting at the location specified by the start argument and proceeding for the number of characters specified by the length arguments.

Syntax

```
substring(expression, start, length)
```

Arguments

expression

An expression can be the name of a field that uses the string data type like address1, a literal value like 'Unknown', or another function like substring(field_name,1,5).

start

The character location to start from. start is inclusive, so the character at the starting position is the first character in the returned value. The minimum value for start is 1.

length

The number of additional characters to include after start. length is inclusive of start, so the last character returned is (length - 1) after the starting character.

Return type

String

Example

The following example returns the 13th through 19th characters in a string. The beginning of the string is index 1, so you begin counting at the first character.

```
substring('Fantasy and Science Fiction',13,7)
```

The following value is returned.

```
Science
```

switch

switch compares a condition-expression with the literal labels, within a set of literal label and return-expression pairings. It then returns the return-expression corresponding to the first literal label that's equal to the condition-expression. If no label equals to the condition-expression, switch returns the default-expression. Every return-expression and default-expression must have the same datatype.

Syntax

```
switch(condition-expression, label-1, return-expression-1 [, label-n, return-
expression-n ...],
        default-expression)
```

Arguments

switch requires one or more if,then expression pairings, and requires exactly one expression for the else argument.

condition-expression

The expression to be compared with the label-literals. It can be a field name like address, a literal value like 'Unknown', or another scalar function like toString(salesAmount).

label

The literal to be compared with the condition-expression argument, all of the literals must have the same data type as condition-expression argument. switch accepts up to 5000 labels.

return-expression

The expression to return if the value of its label equals to the value of the condition-expression. It can be a field name like address, a literal value like 'Unknown', or another scalar function like toString(salesAmount). All of the return-expression arguments must have the same data type as the default-expression.

default-expression

The expression to return if no value of any label arguments equals to the value of condition-expression. It can be a field name like address, a literal value like 'Unknown', or another scalar function like toString (salesAmount). The default-expression must have the same data type as all of the return-expression arguments.

Return type

switch returns a value of the same data type as the values in return-expression. All data returned return-expression and default-expression must be of the same data type or be converted to the same data type.

Use switch to replace ifelse

The following ifelse use case is an equivalent of the previous example, for ifelse evaluating whether values of one field equals to different literal values, using switch instead is a better choice.

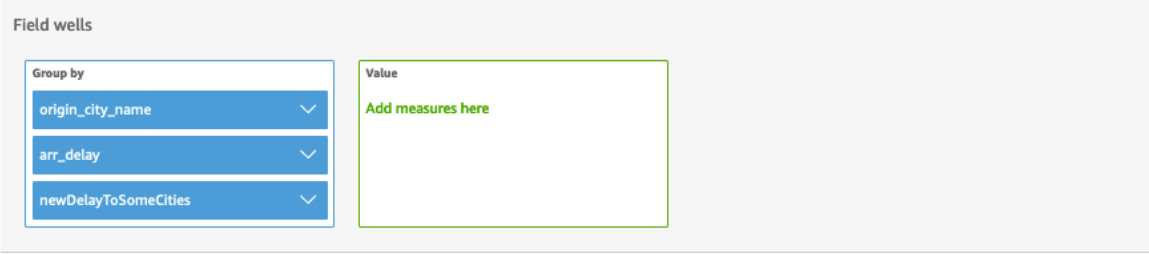
```
ifelse(region_name = "US East (N. Virginia)", "us-east-1",
               region_name = "Europe (Ireland)", "eu-west-1",
               region_name = "US West (N. California)", "us-west-1",
               "other regions")
```

Expression as return value

The following example uses expressions in return-expressions:

```
switch({origin_city_name},
               "Albany, NY", {arr_delay} + 20,
               "Alexandria, LA", {arr_delay} - 10,
               "New York, NY", {arr_delay} * 2,
               {arr_delay})
```

The preceding example changes the expected delay time for each flight from a particular city.



Sheet 1

Origin_city_name, Arr_delay, and Newdelaytosomecities

origin_city_name	arr_delay	newDelayToSomeCities
New York, NY	-33	-66
New York, NY	-23	-46
New York, NY	-20	-40
New York, NY	-14	-28
Alexandria, LA	-11	-21
New York, NY	-9	-18
New York, NY	-1	-2
Albany, NY	-20	0
Albany, NY	-5	15
New York, NY	9	18
Albany, NY	14	34
New York, NY	20	40

toLower

toLower formats a string in all lowercase. toLower skips rows containing null values.

Syntax

```
toLower(expression)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '12 Main Street', or a call to another function that outputs a string.

Return type

String

Example

The following example converts a string value into lowercase.

```
toLower('Seattle Store #14')
```

The following value is returned.

```
seattle store #14
```

toString

toString formats the input expression as a string. toString skips rows containing null values.

Syntax

```
toString(expression)
```

Arguments

expression

An expression can be a field of any data type, a literal value like 14.62, or a call to another function that returns any data type.

Return type

String

Example

The following example returns the values from payDate (which uses the date data type) as strings.

```
toString(payDate)
```

The following are the given field values.

```
payDate
--------
1992-11-14T00:00:00.000Z
2012-10-12T00:00:00.000Z
1973-04-08T00:00:00.000Z
```

For these field values, the following rows are returned.

```
1992-11-14T00:00:00.000Z
2012-10-12T00:00:00.000Z
1973-04-08T00:00:00.000Z
```

toUpper

toUpper formats a string in all uppercase. toUpper skips rows containing null values.

Syntax

```
toUpper(expression)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '12 Main Street', or a call to another function that outputs a string.

Return type

String

Example

The following example converts a string value into uppercase.

```
toUpper('Seattle Store #14')
```

The following value is returned.

```
SEATTLE STORE #14
```

trim

trim removes both preceding and following blank space from a string.

Syntax

```
trim(expression)
```

Arguments

expression

The expression must be a string. It can be the name of a field that uses the string data type, a literal value like '12 Main Street', or a call to another function that outputs a string.

Return type

String

Example

The following example removes the following spaces from a string.

```
trim('   Seattle Store #14   ')
```

For these field values, the following values are returned.

```
Seattle Store #14
```

truncDate

truncDate returns a date value that represents a specified portion of a date. For example, requesting the year portion of the value 2012-09-02T00:00:00.000Z returns 2012-01-01T00:00:00.000Z. Specifying a time-related period for a date that doesn't contain time information returns the initial date value unchanged.

Syntax

```
truncDate('period', date)
```

Arguments

period

The period of the date that you want returned. Valid periods are as follows:

- YYYY: This returns the year portion of the date.
- Q: This returns the date of the first day of the quarter that the date belongs to.
- MM: This returns the month portion of the date.
- DD: This returns the day portion of the date.
- WK: This returns the week portion of the date. The week starts on Sunday in Insights.
- HH: This returns the hour portion of the date.
- MI: This returns the minute portion of the date.
- SS: This returns the second portion of the date.
- MS: This returns the millisecond portion of the date.

date

A date field or a call to another function that outputs a date.

Return type

Date

Example

The following example returns a date representing the month of the order date.

```
truncDate('MM', orderDate)
```

The following are the given field values.

```
orderDate
=========
2012-12-14T00:00:00.000Z
2013-12-29T00:00:00.000Z
2012-11-15T00:00:00.000Z
```

For these field values, the following values are returned.

```
2012-12-01T00:00:00.000Z
2013-12-01T00:00:00.000Z
2012-11-01T00:00:00.000Z
```

Aggregate functions

Aggregate functions are only available during analysis and visualization. Each of these functions returns values grouped by the chosen dimension or dimensions. For each aggregation, there is also a conditional aggregation. These perform the same type of aggregation, based on a condition.

When a calculated field formula contains an aggregation, it becomes a custom aggregation. To make sure that your data is accurately displayed, Insights applies the following rules:

- Custom aggregations can't contain nested aggregate functions. For example, this formula doesn't work: sum(avg(x)/avg(y)). However, nesting nonaggregated functions inside or outside aggregate functions does work. For example, ceil(avg(x)) works. So does avg(ceil(x)).
- Custom aggregations can't contain both aggregated and nonaggregated fields, in any combination. For example, this formula doesn't work: Sum(sales)+quantity.
- Filter groups can't contain both aggregated and nonaggregated fields.
- Custom aggregations can't be converted to a dimension. They also can't be dropped into the field well as a dimension.
- In a pivot table, custom aggregations can't be added to table calculations.
- Scatter plots with custom aggregations need at least one dimension under Group/Color in the field wells.

For more information about supported functions and operators, see Calculated field function and operator reference for Insights.

The aggregate functions for calculated fields in Insights include the following.

Topics

- avg
- avgIf
- count
- countIf
- distinct_count
- distinct_countIf
- max
- maxIf
- median
- medianIf
- min
- minIf
- percentile
- percentileCont
- percentileDisc (percentile)
- periodToDateAvg
- periodToDateCount
- periodToDateMax
- periodToDateMedian
- periodToDateMin
- periodToDatePercentile

- periodToDatePercentileCont
- periodToDateStDev
- periodToDateStDevP
- periodToDateSum
- periodToDateVar
- periodToDateVarP
- stdev
- stdevp
- stdevIf
- stdevpIf
- sum
- sumIf
- var
- varIf
- varp
- varpIf

avg

The avg function averages the set of numbers in the specified measure, grouped by the chosen dimension or dimensions. For example, avg(salesAmount) returns the average for that measure grouped by the (optional) chosen dimension.

Syntax

```
avg(decimal, [group-by level])
```

Arguments

decimal

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

group-by level

(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example calculates the average sales.

```
avg({Sales})
```

You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the average sales at the Country level, but not across other dimensions (Region or Product) in the visual.

```
avg({Sales}, [{Country}])
```

Avg(sales), Sum of Avg(sales and [Country]) by Region, Country, and Product

Regi...	Country	Product	avg(sales)	avg(sales, [Country])
AMER	Argentina	Big Ol Database	3,299.95	275.11
AMER	Argentina	ChatBot Plugin	67.53	275.11
AMER	Argentina	ContactMatcher	232.22	275.11
AMER	Argentina	Data Smasher	113.73	275.11
AMER	Argentina	FinanceHub	209.86	275.11
AMER	Argentina	Marketing Suite	1,137.94	275.11
AMER	Argentina	Marketing Suite - Gold	518.79	275.11
AMER	Argentina	OneView	323.41	275.11
AMER	Argentina	SaaS Connector Pack	67.93	275.11
AMER	Argentina	SaaS Connector Pack - Gold	38.43	275.11
AMER	Argentina	Site Analytics	397.53	275.11
AMER	Argentina	Storage	10.82	275.11
AMER	Argentina	Support	73.15	275.11
APJ	Australia	Alchemy	1,479.97	162.94
APJ	Australia	Big Ol Database	751.26	162.94
APJ	Australia	ChatBot Plugin	25.14	162.94
APJ	Australia	ContactMatcher	113.16	162.94
APJ	Australia	Data Smasher	167.75	162.94

avgIf

Based on a conditional statement, the avgIf function averages the set of numbers in the specified measure, grouped by the chosen dimension or dimensions. For example, avgIf(ProdRev,CalendarDay >= ${BasePeriodStartDate} AND CalendarDay <= ${BasePeriodEndDate} AND SourcingType <> 'Indirect') returns the average for that measure grouped by the (optional) chosen dimension, if the condition evaluates to true.

Syntax

```
avgIf(dimension or measure, condition)
```

Arguments

decimal

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

count

The count function calculates the number of values in a dimension or measure, grouped by the chosen dimension or dimensions. For example, count(product type) returns the total number of product types grouped by the (optional) chosen dimension, including any duplicates. The count(sales) function returns the total number of sales completed grouped by the (optional) chosen dimension, for example salesperson.

Syntax

```
count(dimension or measure, [group-by level])
```

Arguments

dimension or measure

The argument must be a measure or a dimension. Null values are omitted from the results. Literal values don't work. The argument must be a field.

group-by level

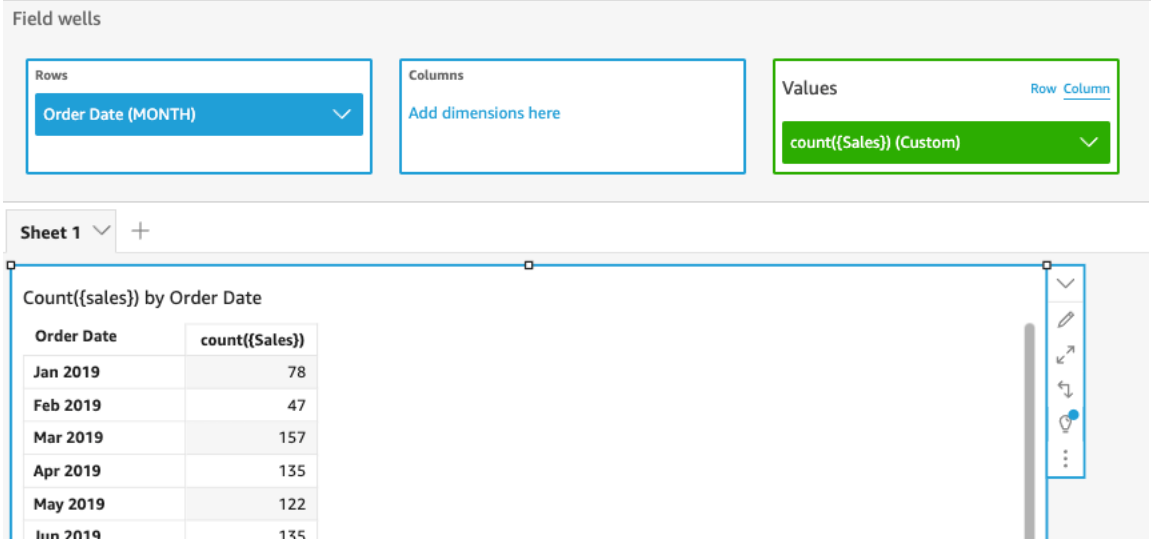
(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example calculates the count of sales by a specified dimension in the visual. In this example, the count of sales by month are shown.

```
count({Sales})
```



You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the count of sales at the Country level, but not across other dimensions (Region or Product) in the visual.

```
count({Sales}, [{Country}])
```

Count(sales), Sum of Count(sales and [Country]) by Region, Country, and Product

Regi...	Country	Product	count(Sales)	count(Sales, [Country])
AMER	Argentina	Big Ol Database	3	130
AMER	Argentina	ChatBot Plugin	11	130
AMER	Argentina	ContactMatcher	17	130
AMER	Argentina	Data Smasher	9	130
AMER	Argentina	FinanceHub	13	130
AMER	Argentina	Marketing Suite	2	130
AMER	Argentina	Marketing Suite - Gold	9	130
AMER	Argentina	OneView	13	130
AMER	Argentina	SaaS Connector Pack	14	130
AMER	Argentina	SaaS Connector Pack - Gold	4	130
AMER	Argentina	Site Analytics	9	130
AMER	Argentina	Storage	5	130
AMER	Argentina	Support	21	130
APJ	Australia	Alchemy	4	492
APJ	Australia	Big Ol Database	5	492
APJ	Australia	ChatBot Plugin	37	492
APJ	Australia	ContactMatcher	98	492

countIf

Based on a conditional statement, the countIf function calculates the number of values in a dimension or measure, grouped by the chosen dimension or dimensions.

Syntax

```
countIf(dimension or measure, condition)
```

Arguments

dimension or measure

The argument must be a measure or a dimension. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

Return type

Integer

Example

The following function returns a count of the sales transactions (Revenue) that meet the conditions, including any duplicates.

```
countIf (
    Revenue,
    # Conditions
        CalendarDay >= ${BasePeriodStartDate} AND
        CalendarDay <= ${BasePeriodEndDate} AND
        SourcingType <> 'Indirect'
)
```

distinct_count

The distinct_count function calculates the number of distinct values in a dimension or measure, grouped by the chosen dimension or dimensions. For example, distinct_count(product type) returns the total number of unique product types grouped by the (optional) chosen dimension, without any duplicates. The distinct_count (ship date) function returns the total number of dates when products were shipped grouped by the (optional) chosen dimension, for example region.

Syntax

```
distinct_count(dimension or measure, [group-by level])
```

Arguments

dimension or measure

The argument must be a measure or a dimension. Null values are omitted from the results. Literal values don't work. The argument must be a field.

group-by level

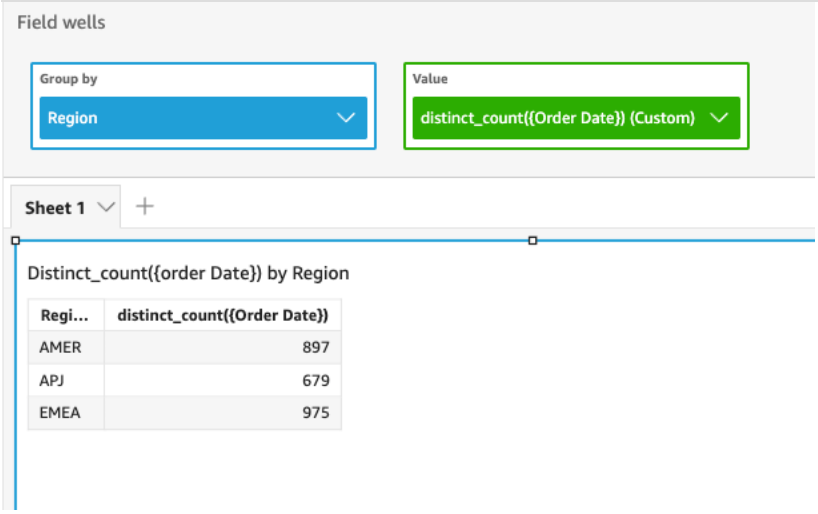
(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Example

The following example calculates the total number of dates when products were ordered grouped by the (optional) chosen dimension in the visual, for example region.

```
distinct_count({Order Date})
```



You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the average sales at the Country level, but not across other dimensions (Region) in the visual.

```
distinct_count({Order Date}, [Country])
```

Distinct_count(order Date), Sum of Distinct_count(order Date and [Country] by Region

Regi...	distinct_count(Order Date)	distinct_count(Order Date, [Country]
AMER	897	1,391
APJ	679	932
EMEA	975	1,885

distinct_countIf

Based on a conditional statement, the distinct_countIf function calculates the number of distinct values in a dimension or measure, grouped by the chosen dimension or dimensions. For example, distinct_countIf (product type) returns the total number of unique product types grouped by the (optional) chosen dimension,

without any duplicates. The distinct_countIf(ProdRev,CalendarDay >= ${BasePeriodStartDate} AND CalendarDay <= ${BasePeriodEndDate} AND SourcingType <> 'Indirect') function returns the total number of dates when products were shipped grouped by the (optional) chosen dimension, for example region, if the condition evaluates to true.

Syntax

```
distinct_countIf(dimension or measure, condition)
```

Arguments

dimension or measure

The argument must be a measure or a dimension. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

max

The max function returns the maximum value of the specified measure or date, grouped by the chosen dimension or dimensions. For example, max(sales goal) returns the maximum sales goals grouped by the (optional) chosen dimension.

Syntax

```
max(measure, [group-by level])
```

max(measure, [group-by level])

Arguments

measure

The argument must be a measure or a date. Null values are omitted from the results. Literal values don't work. The argument must be a field.

Maximum dates work only in the Value field well of tables and pivot tables.

group-by level

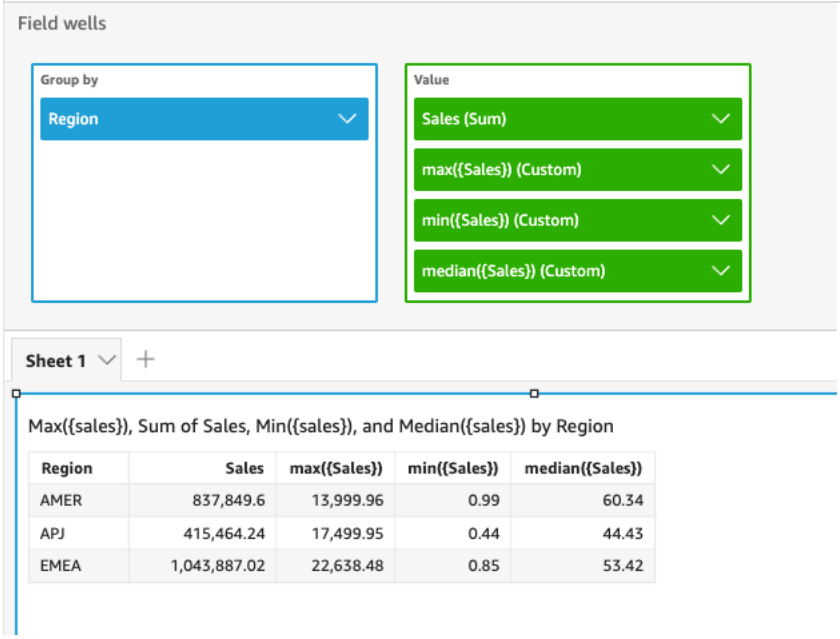
(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example returns the max sales value for each region. It is compared to the total, minimum, and median sales values.

```
max({Sales})
```



You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the max sales at the Country level, but not across other dimensions (Region) in the visual.

```
max({Sales}, [Country])
```

Max(sales), Sum of Max(sales and [Country]) by Region

Regi...	max(Sales)	max(Sales, [Country])
AMER	13,999.96	51,730.23
APJ	17,499.95	47,417.48
EMEA	22,638.48	128,301.12

maxIf

Based on a conditional statement, the maxIf function returns the maximum value of the specified measure, grouped by the chosen dimension or dimensions. For example, maxIf(ProdRev,CalendarDay >= ${BasePeriodStartDate} AND CalendarDay <= ${BasePeriodEndDate} AND SourcingType <> 'Indirect') returns the maximum sales goals grouped by the (optional) chosen dimension, if the condition evaluates to true.

Syntax

```
maxIf(measure, condition)
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

median

The median aggregation returns the median value of the specified measure, grouped by the chosen dimension or dimensions. For example, median(revenue) returns the median revenue grouped by the (optional) chosen dimension.

Syntax

```
median(measure, [group-by level])
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

group-by level

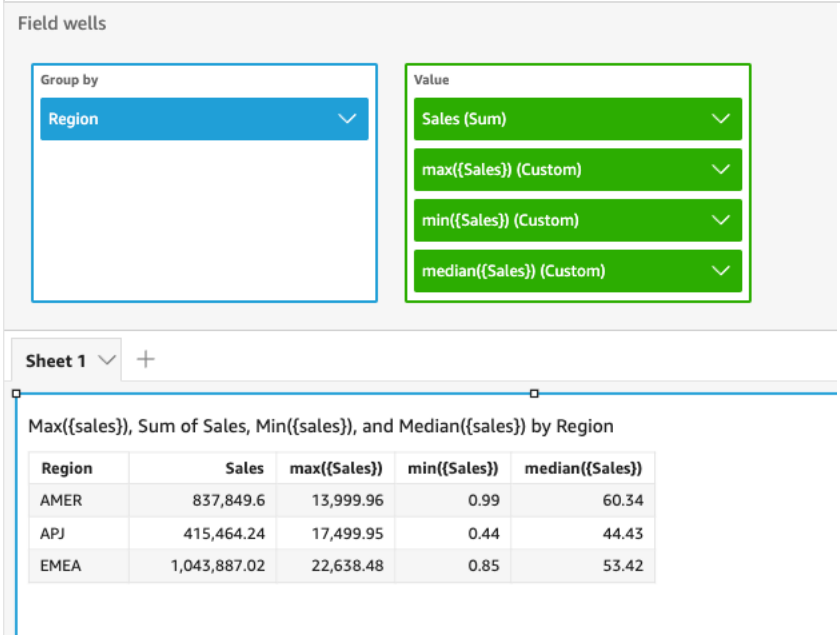
(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example returns the median sales value for each region. It is compared to the total, maximum, and minimum sales.

```
median({Sales})
```



You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the median sales at the Country level, but not across other dimensions (Region) in the visual.

```
median({Sales}, [Country])
```

Median(sales), Sum of Median(sales and [Country]) by Region

Regi...	median(Sales)	median(Sales, [Country])
AMER	60.34	489.27
APJ	44.43	641.82
EMEA	53.42	3,656.93

medianIf

Based on a conditional statement, the medianIf aggregation returns the median value of the specified measure, grouped by the chosen dimension or dimensions. For example, medianIf(Revenue,SaleDate >= ${BasePeriodStartDate} AND SaleDate <= ${BasePeriodEndDate}) returns the median revenue grouped by the (optional) chosen dimension, if the condition evaluates to true.

Syntax

```
medianIf(measure, condition)
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

min

The min function returns the minimum value of the specified measure or date, grouped by the chosen dimension or dimensions. For example, min(return rate) returns the minimum rate of returns grouped by the (optional) chosen dimension.

Syntax

```
min(measure, [group-by level])
```

Arguments

measure

The argument must be a measure or a date. Null values are omitted from the results. Literal values don't work. The argument must be a field.

Minimum dates work only in the Value field well of tables and pivot tables.

group-by level

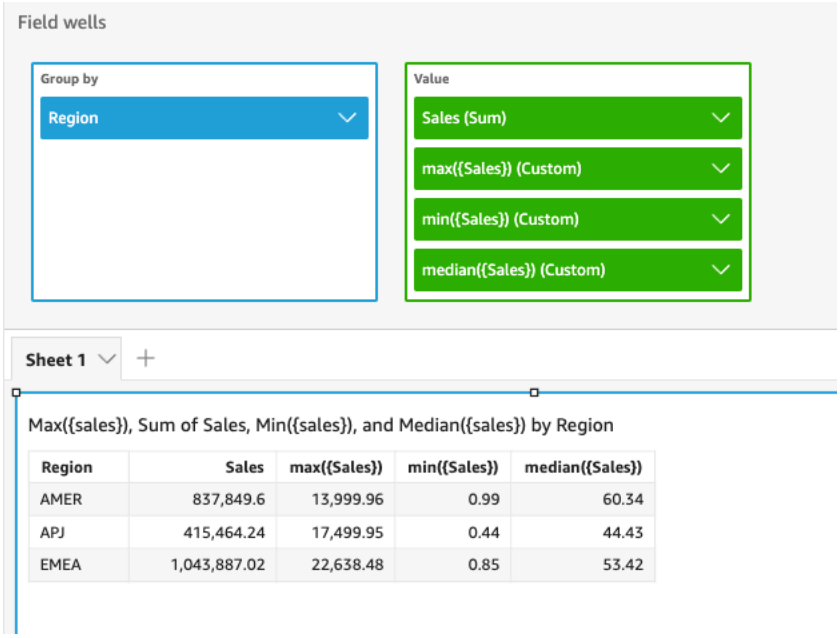
(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example returns the minimum sales value for each region. It is compared to the total, max, and median sales.

```
min({Sales})
```



You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the minimum sales at the Country level, but not across other dimensions (Region) in the visual.

```
min({Sales}, [Country])
```

Min(sales), Sum of Min(sales and [Country]) by Region

Regi...	min(Sales)	min(Sales, [Country])
AMER	0.99	22.65
APJ	0.44	28.18
EMEA	0.85	1,716.48

minIf

Based on a conditional statement, the minIf function returns the minimum value of the specified measure, grouped by the chosen dimension or dimensions. For example, minIf(ProdRev,CalendarDay >= ${BasePeriodStartDate} AND CalendarDay <= ${BasePeriodEndDate} AND SourcingType <> 'Indirect') returns the minimum rate of returns grouped by the (optional) chosen dimension, if the condition evaluates to true.

Syntax

```
minIf(measure, condition)
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

percentile

The percentile function calculates the percentile of the values in measure, grouped by the dimension that's in the field well. There are two varieties of percentile calculation available in Insights:

- percentileCont uses linear interpolation to determine result.
- percentileDisc (percentile) uses actual values to determine result.

The percentile function is an alias of percentileDisc.

percentileCont

The percentileCont function calculates percentile based on a continuous distribution of the numbers in the measure. It uses the grouping and sorting that are applied in the field wells. It answers questions like: What values are representative of this percentile? To return an exact percentile value that might not be present in your dataset, use percentileCont. To return the nearest percentile value that is present in your dataset, use percentileDisc instead.

Syntax

```
percentileCont(expression, percentile, [group-by level])
```

Arguments

measure

Specifies a numeric value to use to compute the percentile. The argument must be a measure or metric. Nulls are ignored in the calculation.

percentile

The percentile value can be any numeric constant 0–100. A percentile value of 50 computes the median value of the measure.

group-by level

(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Returns

The result of the function is a number.

Usage notes

The percentileCont function calculates a result based on a continuous distribution of the values from a specified measure. The result is computed by linear interpolation between the values after ordering them based on settings in the visual. It's different from percentileDisc, which simply returns a value from the set of values that are aggregated over. The result from percentileCont might or might not exist in the values from the specified measure.

Examples of percentileCont

The following examples help explain how percentileCont works.

Example Comparing median, percentileCont, and percentileDisc

The following example shows the median for a dimension (category) by using the median, percentileCont, and percentileDisc functions. The median value is the same as the percentileCont value. percentileCont interpolates a value, which might or might not be in the data set. However, because percentileDisc always displays a value that exists in the dataset, the two results might not match. The last column in this example shows the difference between the two values. The code for each calculated field is as follows:

- 50%Cont = percentileCont(example , 50)
- median = median(example)
- 50%Disc = percentileDisc(example , 50)
- Cont-Disc = percentileCont(example , 50) − percentileDisc(example , 50)
- example = left(category, 1) (To make a simpler example, we used this expression to shorten the names of categories down to their first letter.)

example	median	50%Cont	50%Disc	Cont-Disc
A	22.48	22.48	22.24	0.24
B	20.96	20.96	20.95	0.01
C	24.92	24.92	24.92	0
D	24.935	24.935	24.92	0.015
E	14.48	14.48	13.99	0.49

Example 100th percentile as maximum

The following example shows a variety of percentileCont values for the example field. The calculated fields n%Cont are defined as percentileCont({example} ,n). The interpolated values in each column represent the numbers that fall into that percentile bucket. In some cases, the actual data values match the interpolated values. For example, the column 100%Cont shows the same value for every row because 6783.02 is the highest number.

example	50%Cont	75%Cont	99%Cont	100%Cont
A	20.97	84.307	699.99	6783.02
B	20.99	88.84	880.98	6783.02
C	20.99	90.48	842.925	6783.02
D	21.38	85.99	808.49	6783.02

You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the 30th percentile based on a continuous distribution of the numbers at the Country level, but not across other dimensions (Region) in the visual.

```
percentileCont({Sales}, 30, [Country])
```

Percentilecont(sales, 30), Sum of Percentilecont(sales, 30 and [Country]) by Region

Regi...	percentileCont(Sales, 30)	percentileCont(Sales, 30, [Country])
AMER	23.84	188.74
APJ	16.77	239.59
EMEA	22.32	2,480.17

percentileDisc (percentile)

The percentileDisc function calculates the percentile based on the actual numbers in measure. It uses the grouping and sorting that are applied in the field wells. The percentile function is an alias of percentileDisc.

Use this function to answer the following question: Which actual data points are present in this percentile? To return the nearest percentile value that is present in your dataset, use percentileDisc. To return an exact percentile value that might not be present in your dataset, use percentileCont instead.

Syntax

```
percentileDisc(expression, percentile, [group-by level])
```

Arguments

measure

Specifies a numeric value to use to compute the percentile. The argument must be a measure or metric. Nulls are ignored in the calculation.

percentile

The percentile value can be any numeric constant 0–100. A percentile value of 50 computes the median value of the measure.

group-by level

(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Returns

The result of the function is a number.

Usage notes

percentileDisc is an inverse distribution function that assumes a discrete distribution model. It takes a percentile value and a sort specification and returns an element from the given set.

For a given percentile value P, percentileDisc uses the sorted values in the visual and returns the value with the smallest cumulative distribution value that is greater than or equal to P.

Examples of percentileDisc

The following examples help explain how percentileDisc works.

Example Comparing median, percentileDisc, and percentileCont

The following example shows the median for a dimension (category) by using the percentileCont, and percentileDisc, and median functions. The median value is the same as the percentileCont value. percentileCont interpolates a value, which might or might not be in the data set. However, because percentileDisc always displays the closest value that exists in the dataset, the two results might not match. The last column in this example shows the difference between the two values. The code for each calculated field is as follows:

- 50%Cont = percentileCont(example , 50)
- median = median(example)
- 50%Disc = percentileDisc(example , 50)
- Cont-Disc = percentileCont(example , 50) − percentileDisc(example , 50)
- example = left(category, 1) (To make a simpler example, we used this expression to shorten the names of categories down to their first letter.)

example	median	50%Cont	50%Disc	Cont-Disc
A	22.48	22.48	22.24	0.24
B	20.96	20.96	20.95	0.01
C	24.92	24.92	24.92	0
D	24.935	24.935	24.92	0.015
E	14.48	14.48	13.99	0.49

Example 100th percentile as maximum

The following example shows a variety of percentileDisc values for the example field. The calculated fields n%Disc are defined as percentileDisc({example} ,n). The values in each column are actual numbers that come from the dataset.

```
example     50%Disc      75%Disc        99%Disc      100%Disc
-------- ----------- ------------ -------------- ------------
A            20.97        73.98         699.99       6783.02
B            42.19        88.84         820.08       6783.02
C            30.52        90.48         733.44       6783.02
D            41.38        85.99         901.29       6783.0
```

You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the 30th percentile based on a continuous distribution of the numbers at the Country level, but not across other dimensions (Region) in the visual.

```
percentile({Sales}, 30, [Country])
```

Percentile(sales, 30), Sum of Percentile(sales, 30 and [Country]) by Region

Regi...	percentile(Sales, 30)	percentile(Sales, 30, [Country])
AMER	23.84	187.64
APJ	16.74	237.73
EMEA	22.32	2,472.33

periodToDateAvg

The periodToDateAvg function averages the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time, relative to that period.

Syntax

```
periodToDateAvg(
    measure,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

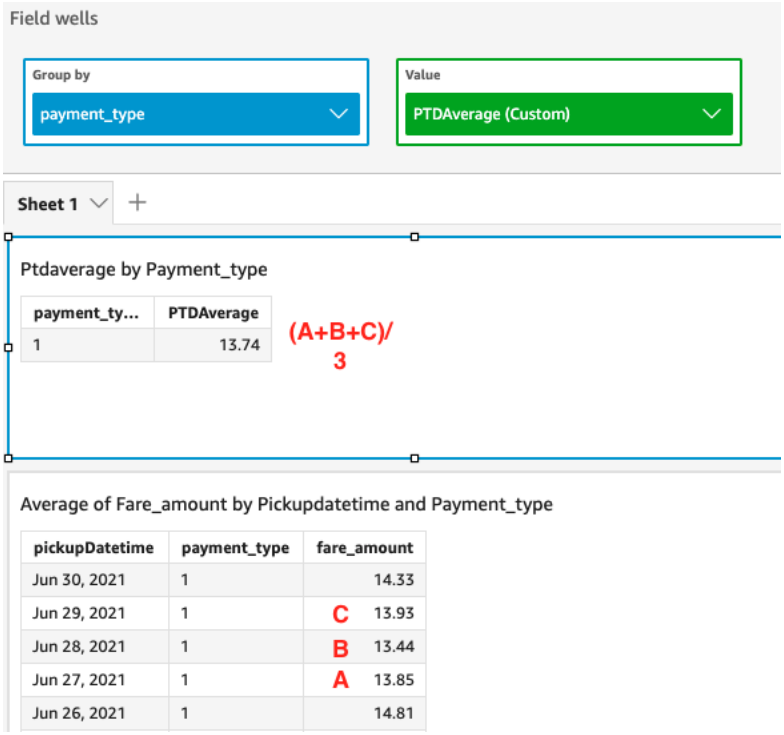
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date minimum fare amount per payment type, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateAvg(fare_amount, pickUpDatetime, WEEK, parseDate("06-30-2021", "MM-dd-
yyyy")
```



periodToDateCount

The periodToDateCount function calculates the number of values in a dimension or measure, including duplicates, for a given time granularity (for instance, a quarter) up to a point in time, relative to that period.

Syntax

```
periodToDateCount(
    measure,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

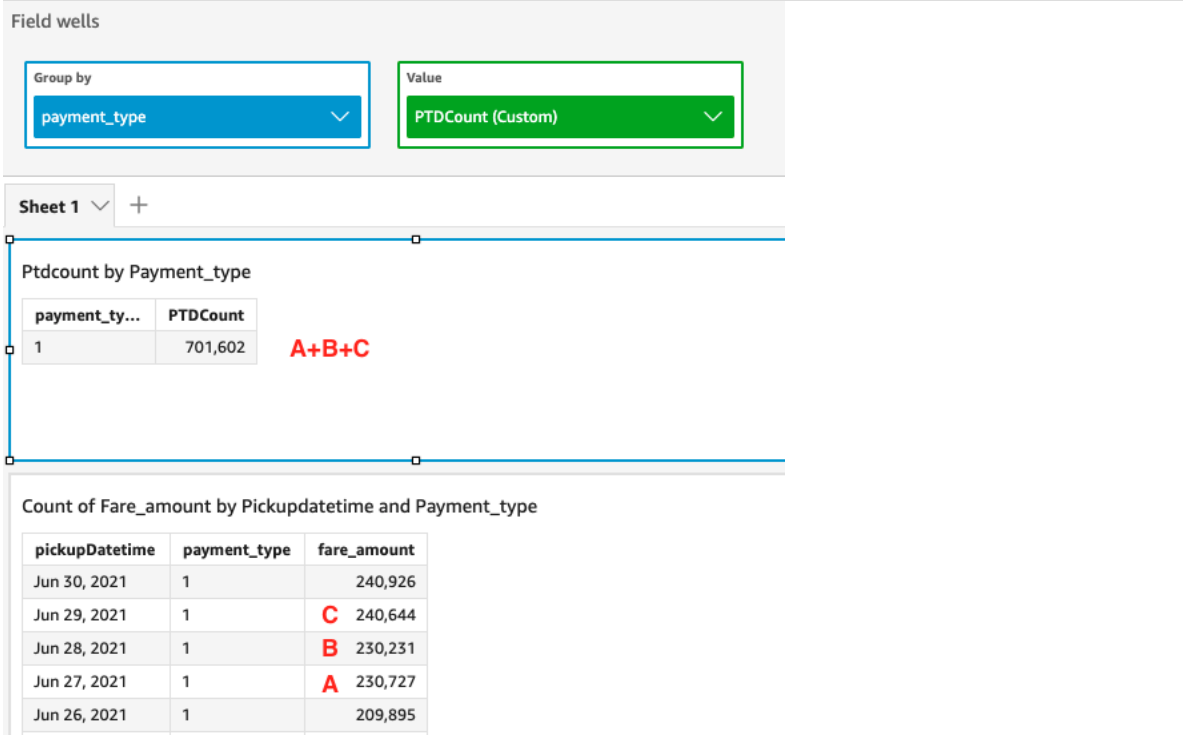
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date minimum fare amount per payment type, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateCount(fare_amount, pickUpDatetime, WEEK, parseDate("06-30-2021", "MM-dd-yyyy")
```



periodToDateMax

The periodToDateMax function returns the maximum value of the specified measure for a given time granularity (for instance, a quarter) up to a point in time, relative to that point.

Syntax

```
periodToDateMax(
    measure,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

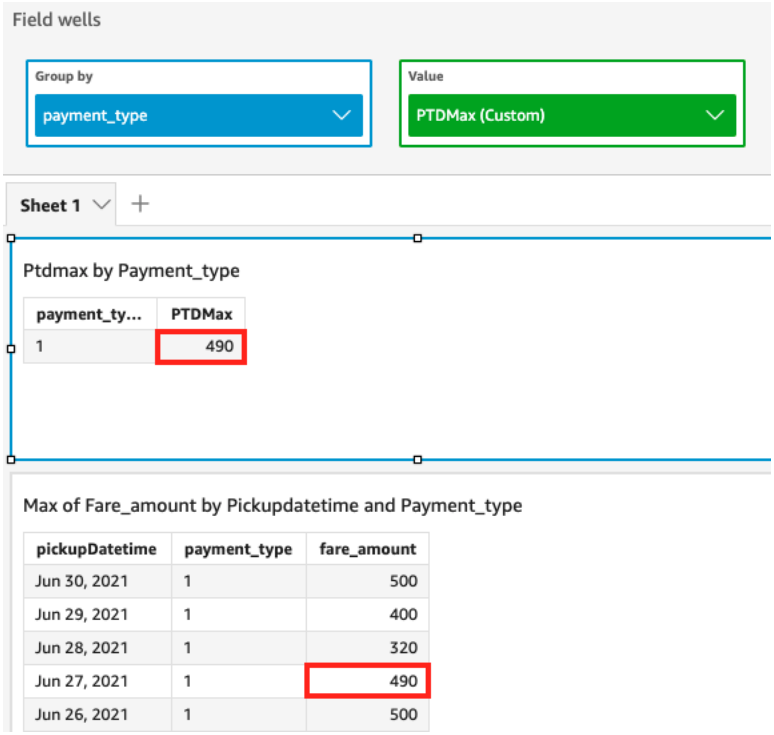
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date minimum fare amount per payment type, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateMax(fare_amount, pickUpDatetime, WEEK, parseDate("06-30-2021", "MM-dd-
yyyy")
```



periodToDateMedian

The periodToDateMedian function returns the median value of the specified measure for a given time granularity (for instance, a quarter) up to a point in time, relative to that period.

Syntax

```
periodToDateMedian(
    measure,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

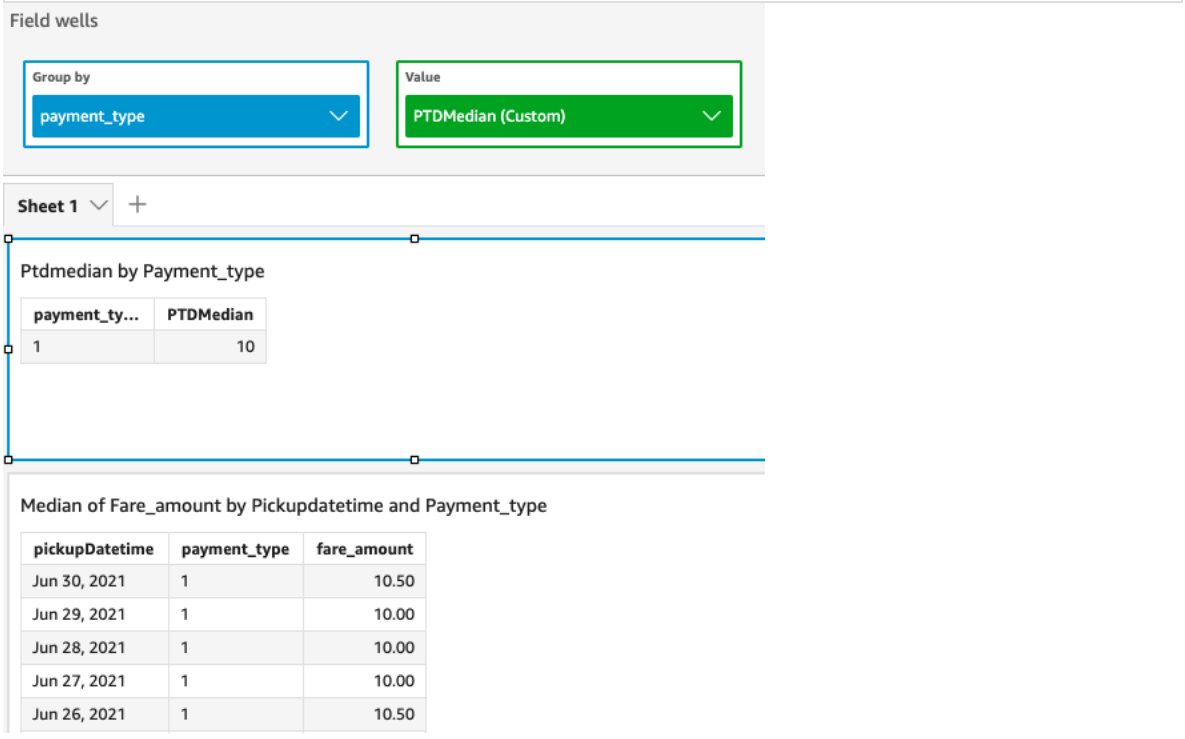
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date minimum fare amount per payment type, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateMedian(fare_amount, pickUpDatetime, WEEK, parseDate("06-30-2021", "MM-dd-yyyy")
```



periodToDateMin

The periodToDateMin function returns the minimum value of the specified measure or date, or a given time granularity (for instance, a quarter) up to a point in time, relative to that period.

Syntax

```
periodToDateMin(
    measure,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

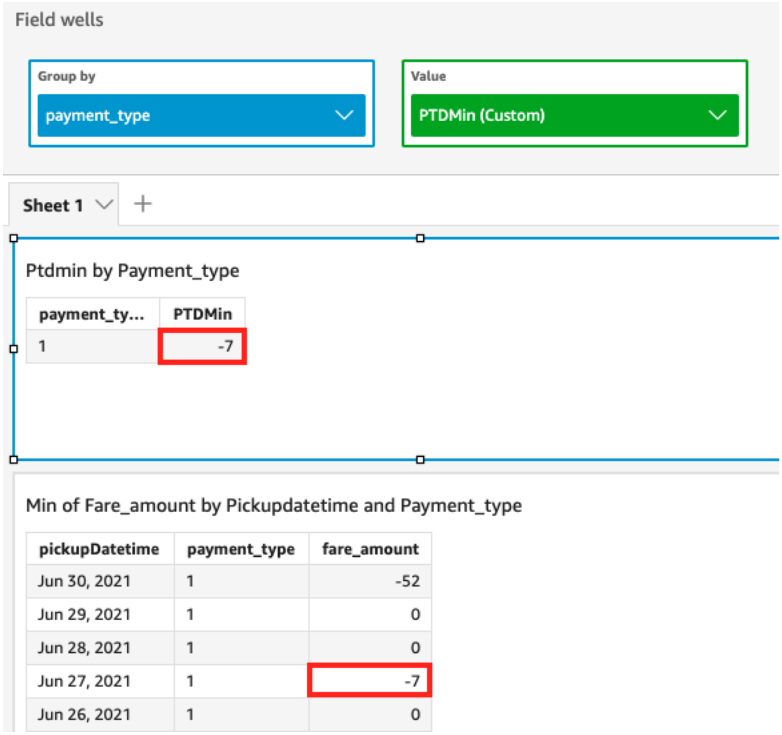
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date minimum fare amount per payment type, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateMin(fare_amount, pickUpDatetime, WEEK, parseDate("06-30-2021", "MM-dd-
yyyy")
```



periodToDatePercentile

The periodToDatePercentile function calculates the percentile based on the actual numbers in measure for a given time granularity (for instance, a quarter) up to a point in time, relative to that period. It uses the grouping and sorting that are applied in the field wells.

To return the nearest percentile value that is present in your dataset, use periodToDatePercentile. To return an exact percentile value that might not be present in your dataset, use periodToDatePercentileCont instead.

Syntax

```
periodToDatePercentile(
    measure,
    percentile,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

percentile

The percentile value can be any numeric constant 0-100. A percentile of 50 computes the median value of the measure.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

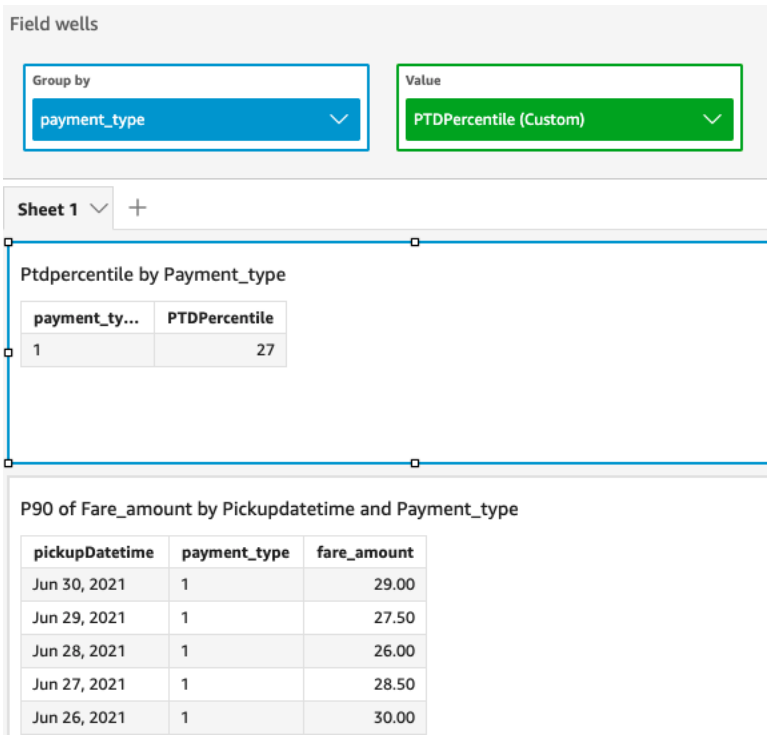
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date, 90th percentile of fare amount per payment type for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example. that is 06-27-21.

```
periodToDatePercentile(fare_amount, 90, pickupDatetime, WEEK, parseDate("06-30-
2021", "MM-dd-yyyy")
```



periodToDatePercentileCont

The periodToDatePercentileCont function calculates percentile based on a continuous distribution of the numbers in the measure for a given time granularity (for instance, a quarter) up to a point in time in that period. It uses the grouping and sorting that are applied in the field wells.

To return an exact percentile value that might not be present in your dataset, use periodToDatePercentileCont. To return the nearest percentile value that is present in your dataset, use periodToDatePercentile instead.

Syntax

```
periodToDatePercentileCont(
    measure,
    percentile,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

percentile

The percentile value can be any numeric constant 0-100. A percentile of 50 computes the median value of the measure.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

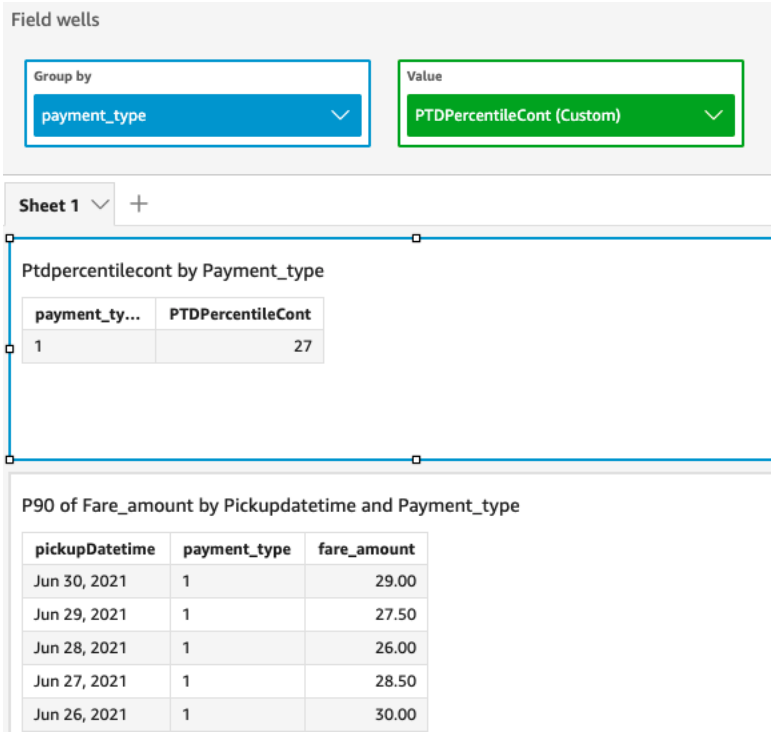
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date, 90th percentile of fare amount per payment type for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDatePercentileCont(fare_amount, 90, pickupDatetime, WEEK, parseDate("06-30-
2021", "MM-dd-yyyy")
```



periodToDateStDev

The periodToDateStDev function calculates the standard deviation of the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time, based on a sample and relative to that period.

Syntax

```
periodToDateStDev(
    measure,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

(Optional) The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

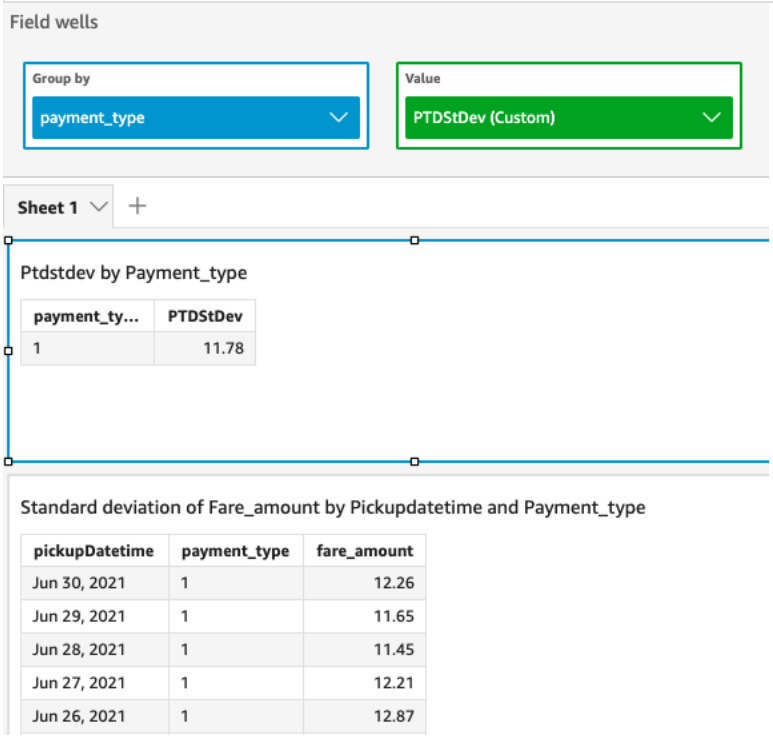
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date minimum fare amount per payment type, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateStDev(fare_amount, pickUpDatetime, WEEK, parseDate("06-30-2021", "MM-dd-yyyy")
```



periodToDateStDevP

The periodToDateStDevP function calculates the population standard deviation of the set of numbers in the specified measure, for a given time granularity (for instance, a quarter) up to a point in time, based on a sample in that period.

Syntax

```
periodToDateStDevP(
    measure,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

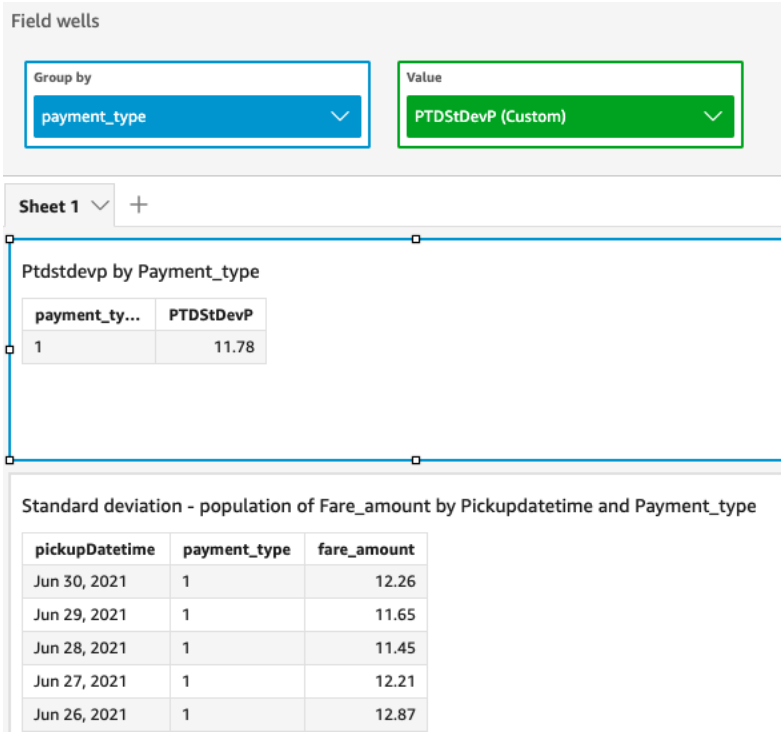
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date minimum fare amount per payment type, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateStDevP(fare_amount, pickUpDatetime, WEEK, parseDate("06-30-2021", "MM-
dd-yyyy")
```



periodToDateSum

The periodToDateSum function adds the specified measure for a given time granularity (for instance, a quarter) up to a point in time, relative to that period.

Syntax

```
periodToDateSum(
    measure,
    dateTime,
    period,
    endDate)
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

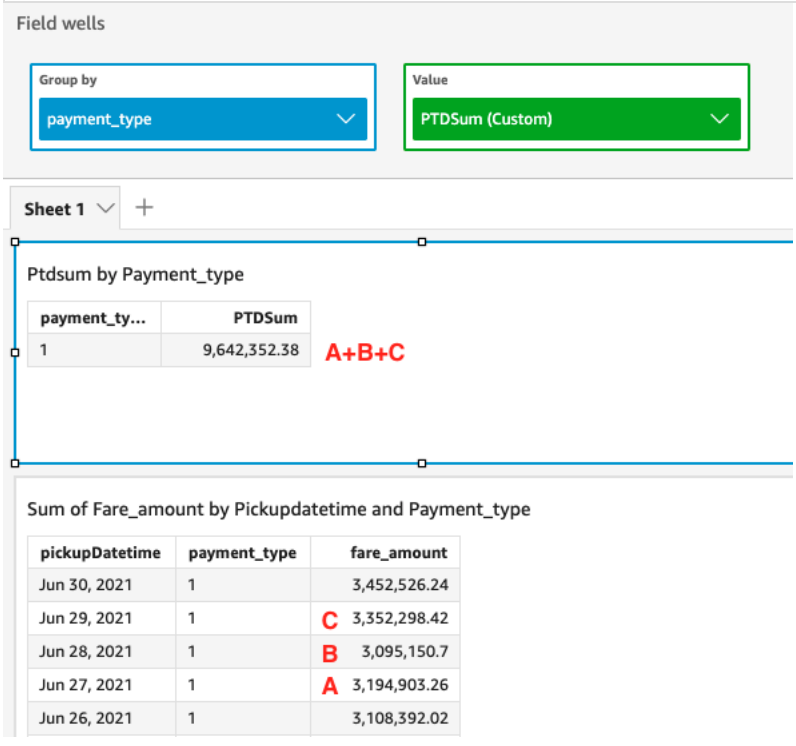
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following function calculates the week to date sum of fare amount per payment, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateSum(fare_amount, pickUpDateTime, WEEK, parseDate("06-30-2021", "MM-dd-
yyyy")
```



periodToDateVar

The periodToDateVar function calculates the sample variance of the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time in that period.

Syntax

```
periodToDateVar(
    measure,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

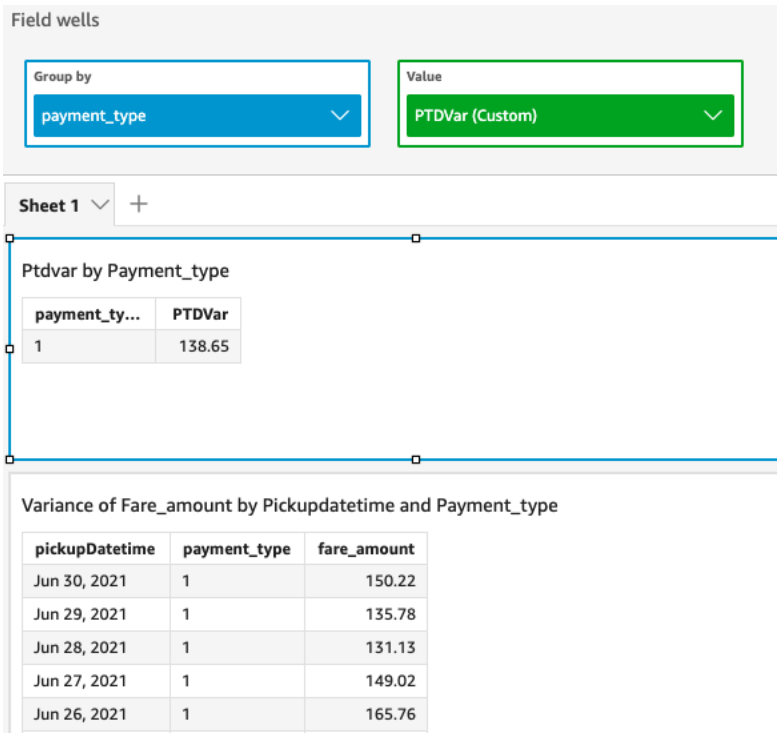
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date minimum fare amount per payment type, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateVar(fare_amount, pickUpDatetime, WEEK, parseDate("06-30-2021", "MM-dd-
yyyy")
```



periodToDateVarP

The periodToDateVarP function calculates the population variance of the set of numbers in the specified measure for a given time granularity (for instance, a quarter) up to a point in time, relevant to that period.

Syntax

```
periodToDateVarP(
    measure,
    dateTime,
    period,
    endDate (optional))
```

Arguments

measure

The argument must be a field. Null values are omitted from the results. Literal values don't work.

dateTime

The Date dimension over which you're computing PeriodToDate aggregations.

period

The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

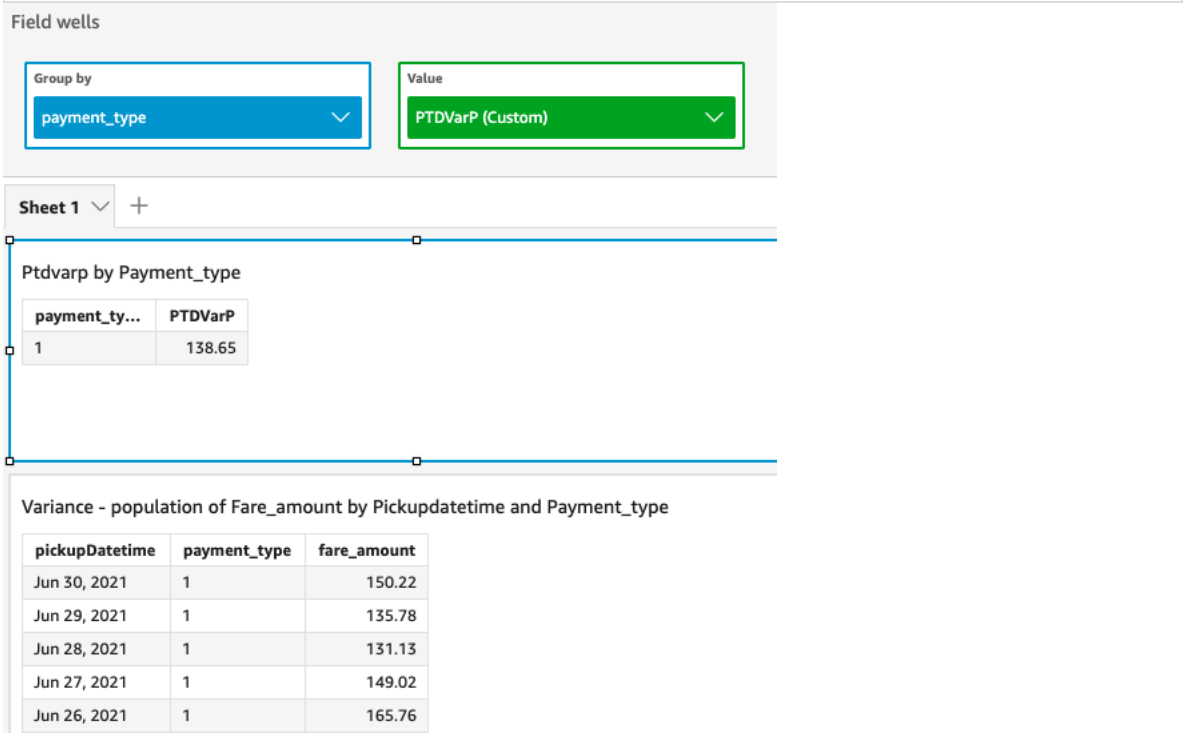
endDate

(Optional) The date dimension that you're ending computing periodToDate aggregations. It defaults to now() if omitted.

Example

The following example calculates the week-to-date minimum fare amount per payment type, for the week of 06-30-21. For simplicity in the example, we filtered out only a single payment. 06-30-21 is Wednesday. Insights begins the week on Sundays. In our example, that is 06-27-21.

```
periodToDateVarP(fare_amount, pickUpDatetime, WEEK, parseDate("06-30-2021", "MM-dd-
yyyy")
```



stdev

The stdev function calculates the standard deviation of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a sample.

Syntax

```
stdev(measure, [group-by level])
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

group-by level

(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example returns the standard deviation of test scores for a class, using a sample of the test scores recorded.

```
stdev({Score})
```

You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the standard deviation of test scores at the subject level, but not across other dimensions (Class) in the visual.

```
stdev({Score}, [Subject])
```

stdevp

The stdevp function calculates the population standard deviation of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions.

Syntax

```
stdevp(measure, [group-by level])
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

group-by level

(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example returns the standard deviation of test scores for a class using all the scores recorded.

```
stdevp({Score})
```

You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the standard deviation of test scores at the subject level, but not across other dimensions (Class) in the visual using all the scores recorded.

```
stdevp({Score}, [Subject])
```

stdevIf

Based on a conditional statement, the stdevIf function calculates the standard deviation of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a sample.

Syntax

```
stdevIf(measure, conditions)
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

stdevpIf

Based on a conditional statement, the stdevpIf function calculates the standard deviation of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a biased population.

Syntax

```
stdevpIf(measure, conditions)
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

sum

The sum function adds the set of numbers in the specified measure, grouped by the chosen dimension or dimensions. For example, sum(profit amount) returns the total profit amount grouped by the (optional) chosen dimension.

Syntax

```
sum(measure, [group-by level])
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

group-by level

(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example returns the sum of sales.

```
sum({Sales})
```

You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example calculates the sum of sales at the Country level, but not across other dimensions (Region and Product) in the visual.

```
sum(Sales, [Country])
```

Sum(sales), Sum of Sum(sales and [Country]) by Region, Product, and Country

Regi...	Country	Product	sum(Sales)	sum(Sales, [Country])
AMER	Argentina	Big Ol Database	9,899.85	35,764.31
AMER	Argentina	ChatBot Plugin	742.8	35,764.31
AMER	Argentina	ContactMatcher	3,947.81	35,764.31
AMER	Argentina	Data Smasher	1,023.56	35,764.31
AMER	Argentina	FinanceHub	2,728.24	35,764.31
AMER	Argentina	Marketing Suite	2,275.88	35,764.31
AMER	Argentina	Marketing Suite - Gold	4,669.08	35,764.31
AMER	Argentina	OneView	4,204.36	35,764.31
AMER	Argentina	SaaS Connector Pack	950.97	35,764.31
AMER	Argentina	SaaS Connector Pack - Gold	153.7	35,764.31
AMER	Argentina	Site Analytics	3,577.75	35,764.31
AMER	Argentina	Storage	54.12	35,764.31
AMER	Argentina	Support	1,536.19	35,764.31
APJ	Australia	Alchemy	5,919.89	80,166.1
APJ	Australia	Big Ol Database	3,756.31	80,166.1
APJ	Australia	ChatBot Plugin	930.03	80,166.1

sumIf

Based on a conditional statement, the sumIf function adds the set of numbers in the specified measure, grouped by the chosen dimension or dimensions. For example, sumIf(ProdRev,CalendarDay >= ${BasePeriodStartDate} AND CalendarDay <= ${BasePeriodEndDate} AND SourcingType <> 'Indirect') returns the total profit amount grouped by the (optional) chosen dimension, if the condition evaluates to true.

Syntax

```
sumIf(measure, conditions)
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

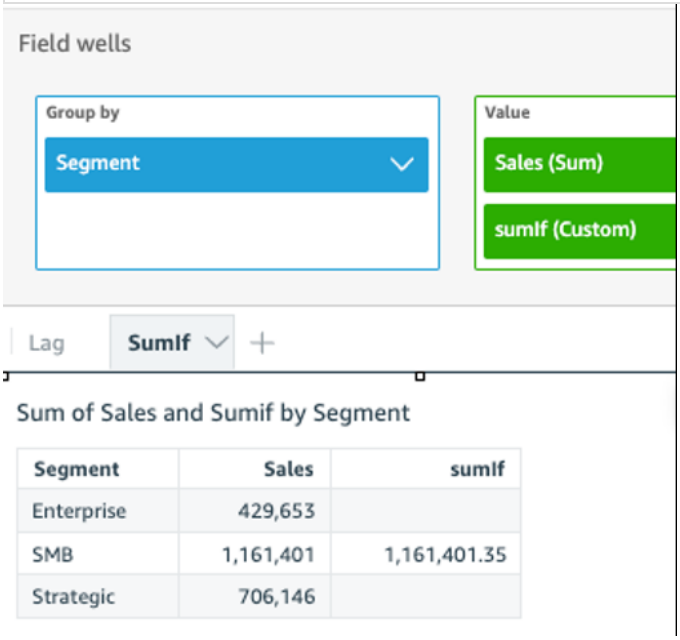
condition

One or more conditions in a single statement.

Examples

The following example uses a calculated field with sumIf to display the sales amount if Segment is equal to SMB.

```
sumIf(Sales, Segment='SMB')
```



The following example uses a calculated field with sumIf to display the sales amount if Segment is equal to SMB and Order Date greater than year 2022.

```
sumIf(Sales, Segment='SMB' AND {Order Date} >='2022-01-01')
```

var

The var function calculates the sample variance of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions.

Syntax

```
var(measure, [group-by level])
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

group-by level

(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example returns the variance of a sample of test scores.

```
var({Scores})
```

You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example returns the variance of a sample of test scores at the subject level, but not across other dimensions (Class) in the visual.

```
var({Scores}, [Subject]
```

varIf

Based on a conditional statement, the varIf function calculates the variance of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a sample.

Syntax

```
varIf(measure, conditions)
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

varp

The varp function calculates the population variance of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions.

Syntax

```
varp(measure, [group-by level])
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

group-by level

(Optional) Specifies the level to group the aggregation by. The level added can be any dimension or dimensions independent of the dimensions added to the visual.

The argument must be a dimension field. The group-by level must be enclosed in square brackets [ ]. For more information, see LAC-A functions.

Examples

The following example returns the variance of a population of test scores.

```
varp({Scores})
```

You can also specify at what level to group the computation using one or more dimensions in the view or in your dataset. This is called a LAC-A function. For more information about LAC-A functions, see LAC-A functions. The following example returns the variance of a population test scores at the subject level, but not across other dimensions (Class) in the visual.

```
varp({Scores}, [Subject]
```

varpIf

Based on a conditional statement, the varpIf function calculates the variance of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a biased population.

Syntax

```
varpIf(measure, conditions)
```

Arguments

measure

The argument must be a measure. Null values are omitted from the results. Literal values don't work. The argument must be a field.

condition

One or more conditions in a single statement.

Table calculation functions

When you are analyzing data in a specific visual, you can apply table calculations to the current set of data to discover how dimensions influence measures or each other. Visualized data is your result set based on your current dataset, with all the filters, field selections, and customizations applied. To see exactly what this result set is, you can export your visual to a file. A table calculation function performs operations on the data to reveal relationships between fields.

In this section, you can find a list of the functions available in table calculations that you can perform on visualized data in Insights.

To view a list of functions sorted by category, with brief definitions, see Functions by category.

Topics

- Difference
- distinctCountOver
- Lag

- Lead
- percentDifference
- avgOver
- countOver
- maxOver
- minOver
- percentileOver
- percentileContOver
- percentileDiscOver
- percentOfTotal
- periodOverPeriodDifference
- periodOverPeriodLastValue
- periodOverPeriodPercentDifference
- periodToDateAvgOverTime
- periodToDateCountOverTime
- periodToDateMaxOverTime
- periodToDateMinOverTime
- periodToDateSumOverTime
- stdevOver
- stdevpOver
- varOver
- varpOver
- sumOver
- denseRank

- Rank
- percentileRank
- runningAvg
- runningCount
- runningMax
- runningMin
- runningSum
- firstValue
- lastValue
- windowAvg
- windowCount
- windowMax
- windowMin
- windowSum

Difference

The difference function calculates the difference between a measure based on one set of partitions and sorts, and a measure based on another.

The difference function is supported for use with analyses based on SPICE and direct query data sets.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
difference
    (
         measure
         ,[ sortorder_field ASC_or_DESC, ... ]
         ,lookup_index,
         ,[ partition field, ... ]
    )
```

Arguments

measure

An aggregated measure that you want to see the difference for.

sort order field

One or more measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

lookup index

The lookup index can be positive or negative, indicating a following row in the sort (positive) or a previous row in the sort (negative). The lookup index can be 1–2,147,483,647. For the engines MySQL, MariaDB and Aurora MySQL-Compatible Edition, the lookup index is limited to just 1.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the difference between of sum({Billed Amount}), sorted by Customer Region ascending, compared to the next row, and partitioned by Service Line.

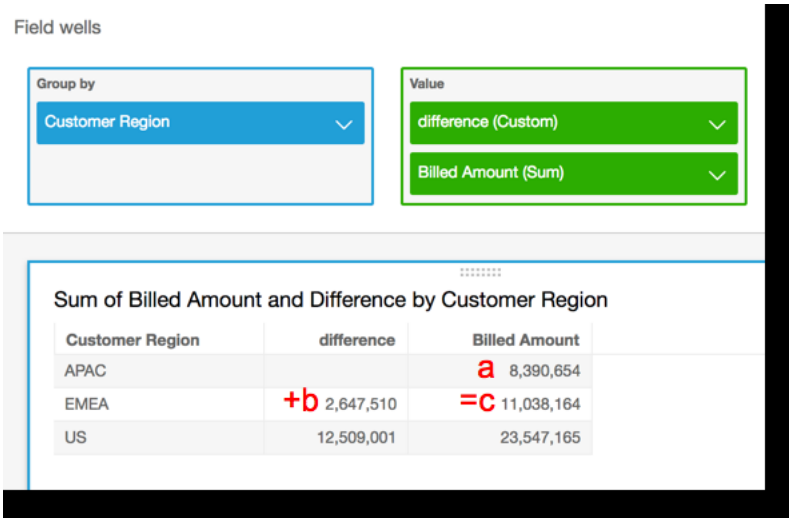
```
difference(
     sum( {Billed Amount} ),
     [{Customer Region} ASC],
     1,
     [{Service Line}]
)
```

The following example calculates the difference between Billed Amount compared to the next line, partitioned by ([{Customer Region}]). The fields in the table calculation are in the field wells of the visual.

```
difference(
     sum( {Billed Amount} ),
```

```
      [{Customer Region} ASC],
      1
)
```

The red highlights show how each amount is added (a + b = c) to show the difference between amounts a and c.



distinctCountOver

The distinctCountOver function calculates the distinct count of the operand partitioned by the specified attributes at a specified level. Supported levels are PRE_FILTER and PRE_AGG. The operand must be unaggregated.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
distinctCountOver
(
  measure or dimension field
  ,[ partition_field, ... ]
  ,calculation level
)
```

Arguments

measure or dimension field

The measure or dimension that you want to do the calculation for, for example {Sales Amt}. Valid values are PRE_FILTER and PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.

This value defaults to POST_AGG_FILTER when blank. POST_AGG_FILTER is not a valid level for this operation and will result in an error message. For more information, see Using level-aware calculations in Insights.

Example

The following example gets the distinct count of Sales partitioned over City and State at the PRE_AGG level.

```
distinctCountOver
(
  Sales,
  [City, State], PRE_AGG
)
```

Lag

The lag function calculates the lag (previous) value for a measure based on specified partitions and sorts.

lag is supported for use with analyses based on SPICE and direct query data sets.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
lag
(
     measure>
     ,[ sortorder_field ASC_or_DESC, ... ]
     ,lookup_index,
     ,[ partition_field, ... ]
)
```

Arguments

measure

The measure that you want to get the lag for. This can include an aggregate, for example sum({Sales Amt}).

sort order field

One or more measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

lookup index

The lookup index can be positive or negative, indicating a following row in the sort (positive) or a previous row in the sort (negative). The lookup index can be 1–2,147,483,647. For the engines MySQL, MariaDB, and Amazon Aurora MySQL-Compatible Edition, the lookup index is limited to just 1.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the previous sum(sales), partitioned by the state of origin, in the ascending sort order on cancellation_code.

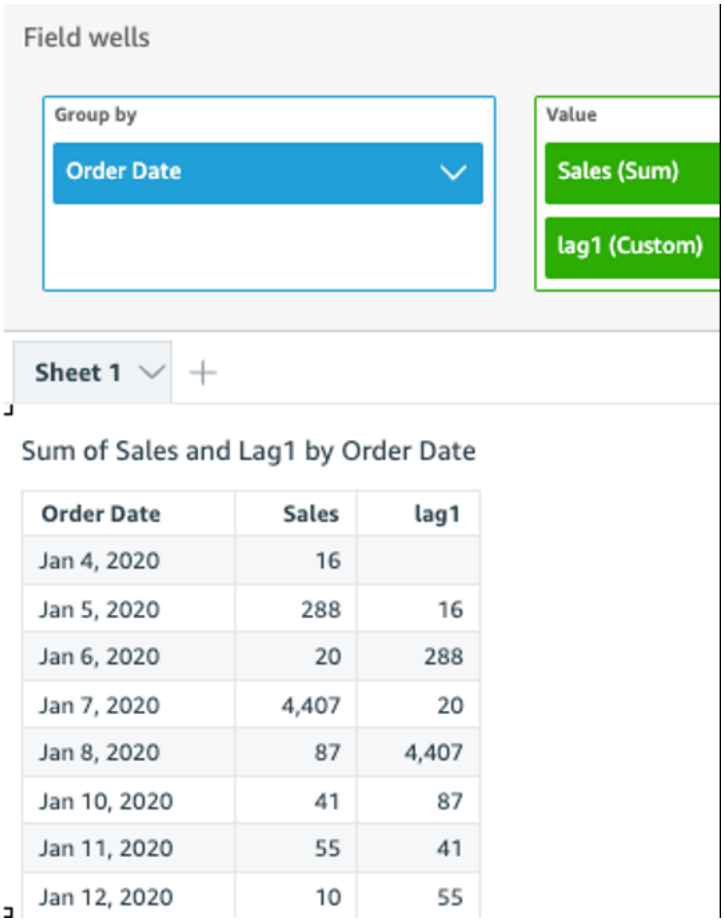
```
lag
(
     sum(Sales),
```

```
      [cancellation_code ASC],
      1,
      [origin_state_nm]
)
```

The following example uses a calculated field with lag to display sales amount for the previous row next to the amount for the current row, sorted by Order Date. The fields in the table calculation are in the field wells of the visual.

```
lag(
      sum({Sales}),
      [{Order Date} ASC],
      1
)
```

The following screenshot shows the results of the example.

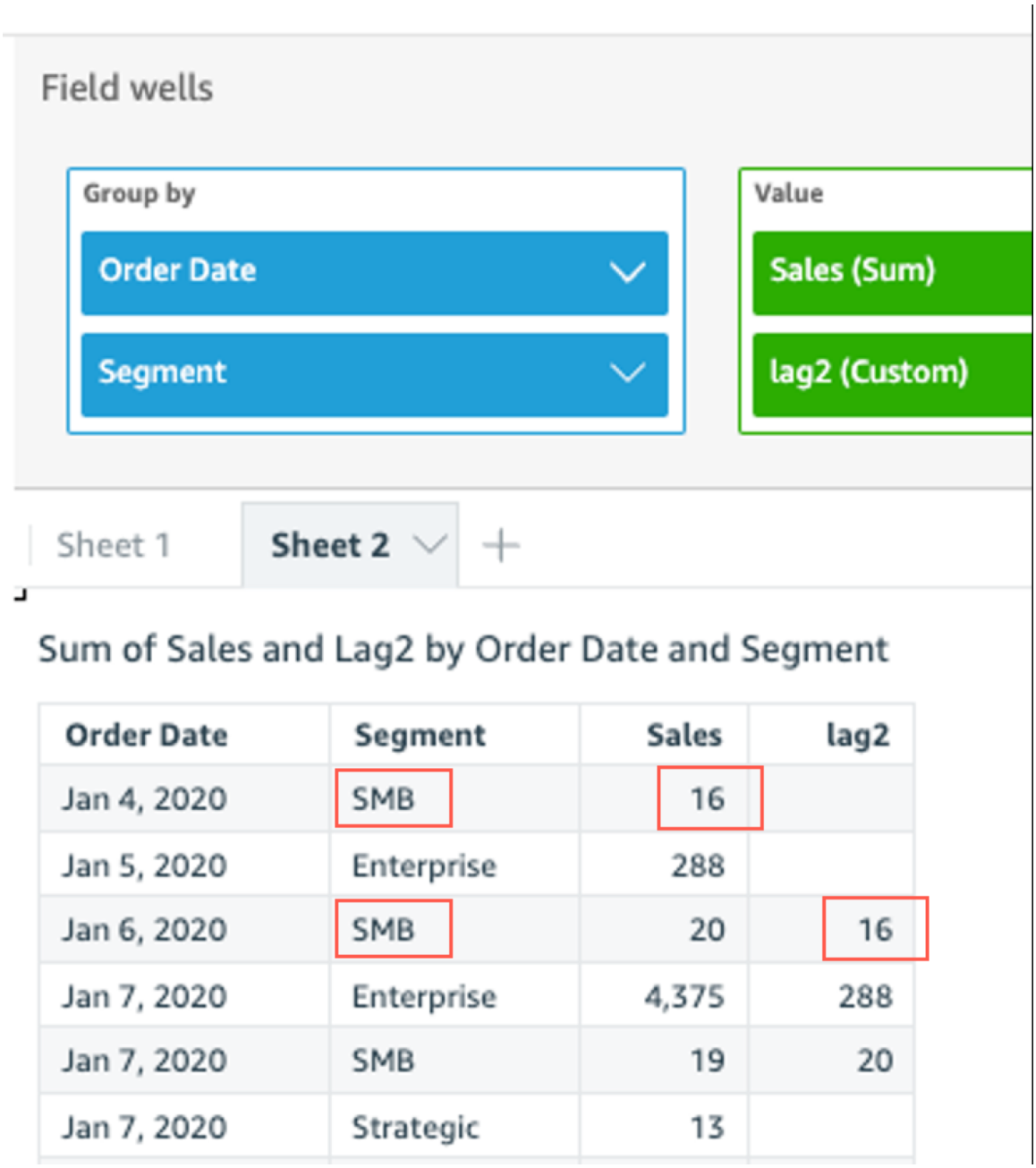


Order Date	Sales	lag1
Jan 4, 2020	16	
Jan 5, 2020	288	16
Jan 6, 2020	20	288
Jan 7, 2020	4,407	20
Jan 8, 2020	87	4,407
Jan 10, 2020	41	87
Jan 11, 2020	55	41
Jan 12, 2020	10	55

The following example uses a calculated field with lag to display the sales amount for the previous row next to the amount for the current row, sorted by Order Date partitioned by Segment.

```
lag
    (
        sum(Sales),
        [Order Date ASC],
        1, [Segment]
    )
```

The following screenshot shows the results of the example.



Lead

The lead function calculates the lead (following) value for a measure based on specified partitions and sorts.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
lead
(
     measure
     ,[ sortorder_field ASC_or_DESC, ... ]
     ,lookup_index,
     ,[ partition_field, ... ]
)
```

Arguments

measure

The measure that you want to get the lead for. This can include an aggregate, for example sum({Sales Amt}).

sort order field

One or more measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

lookup index

The lookup index can be positive or negative, indicating a following row in the sort (positive) or a previous row in the sort (negative). The lookup index can be 1–2,147,483,647. For the engines MySQL, MariaDB, and Amazon Aurora MySQL-Compatible Edition, the lookup index is limited to just 1.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the next sum(sales), partitioned by the state of origin, in the ascending sort order on cancellation_code.

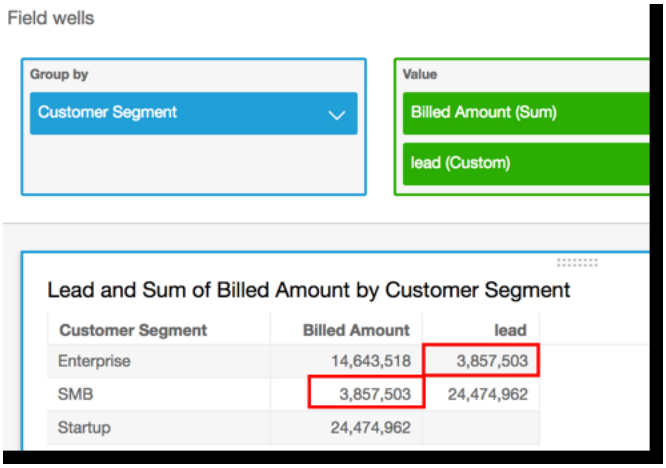
```
lead
```

```
(
     sum(sales),
     [cancellation_code ASC],
     1,
     [origin_state_nm]
)
```

The following example uses a calculated field with lead to display the amount for the next row beside the amount for the current row, sorted by Customer Segment. The fields in the table calculation are in the field wells of the visual.

```
lead(
     sum({Billed Amount}),
     [{Customer Segment} ASC],
     1
)
```

The following screenshot shows the results of the example.



percentDifference

The percentDifference function calculates the percentage difference between the current value and a comparison value, based on partitions, sorts, and lookup index.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
percentDifference
(
  measure
```

```
  ,[ sortorder_field ASC_or_DESC, ... ]
  ,lookup index
  ,[ partition_field, ... ]
)
```

Arguments

measure

An aggregated measure that you want to see the percent difference for.

sort order field

One or more measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

lookup index

The lookup index can be positive or negative, indicating a following row in the sort (positive) or a previous row in the sort (negative). The lookup index can be 1–2,147,483,647. For the engines MySQL, MariaDB and Aurora MySQL-Compatible Edition, the lookup index is limited to just 1.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the percentage of difference between the sum(Sales) for the current and the previous State, sorted by Sales.

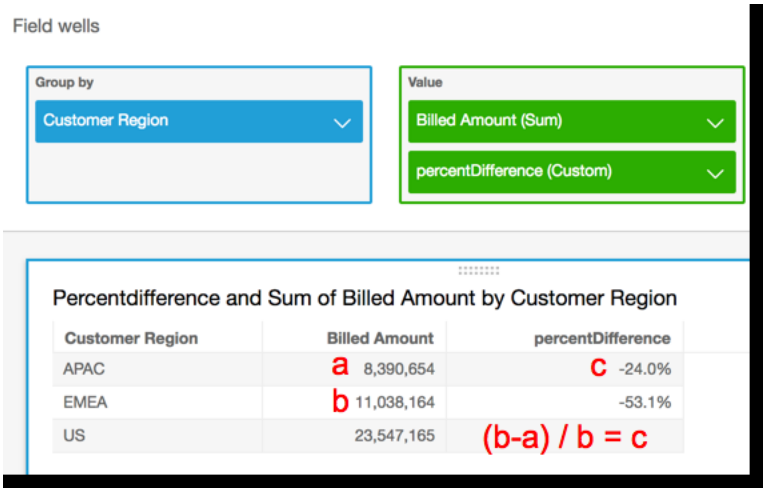
```
percentDifference
(
  sum(amount),
  [sum(amount) ASC],
  -1,
  [State]
```

```
)
```

The following example calculates the percent that a specific Billed Amount is of another Billed Amount, sorted by ([{Customer Region} ASC]). The fields in the table calculation are in the field wells of the visual.

```
percentDifference
(
  sum( {Billed Amount} ),
  [{Customer Region} ASC],
  1
)
```

The following screenshot shows the results of the example. The red letters show that the total Billed Amount for the Customer Region APAC is 24 percent less than the amount for the EMEA region.



avgOver

The avgOver function calculates the average of a measure partitioned by a list of dimensions.

Syntax

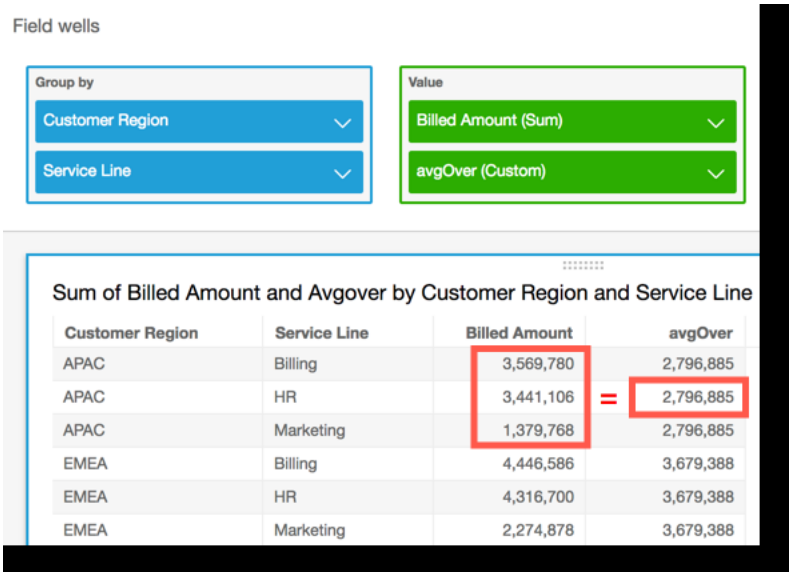
The brackets are required. To see which arguments are optional, see the following descriptions.

```
avgOver
(
     measure
     ,[ partition_field, ... ]
     ,calculation level
)
```

The following example shows the average Billed Amount over Customer Region. The fields in the table calculation are in the field wells of the visual.

```
avgOver
(
     sum({Billed Amount}),
     [{Customer Region}]
)
```

The following screenshot shows the results of the example. With the addition of Service Line, the total amount billed for each is displayed, and the average of these three values displays in the calculated field.



Arguments

measure

The measure that you want to do the calculation for, for example sum({Sales Amt}). Use an aggregation if the calculation level is set to NULL or POST_AGG_FILTER. Don't use an aggregation if the calculation level is set to PRE_FILTER or PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (Default) Table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

The following example gets the average sum(Sales) partitioned over City and State.

```
avgOver
(
     sum(Sales),
     [City, State]
)
```

countOver

The countOver function calculates the count of a dimension or measure partitioned by a list of dimensions.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
countOver
(
  measure or dimension field
  ,[ partition_field, ... ]
  ,calculation level
)
```

Arguments

measure or dimension field

The measure or dimension that you want to do the calculation for, for example sum({Sales Amt}). Use an aggregation if the calculation level is set to NULL or POST_AGG_FILTER. Don't use an aggregation if the calculation level is set to PRE_FILTER or PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (Default) Table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

The following example gets the count of Sales partitioned over City and State.

```
countOver
(
  Sales,
  [City, State]
)
```

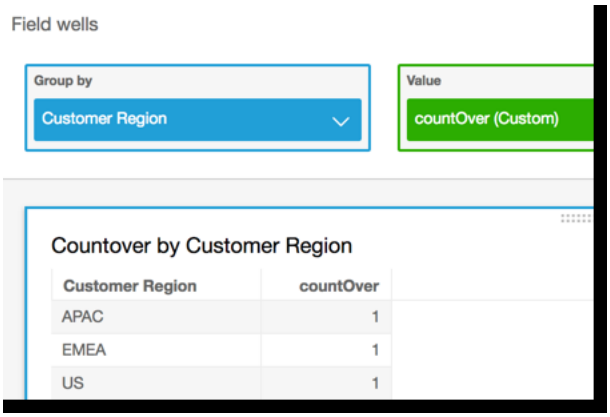
The following example gets the count of {County} partitioned over City and State.

```
countOver
(
  {County},
  [City, State]
)
```

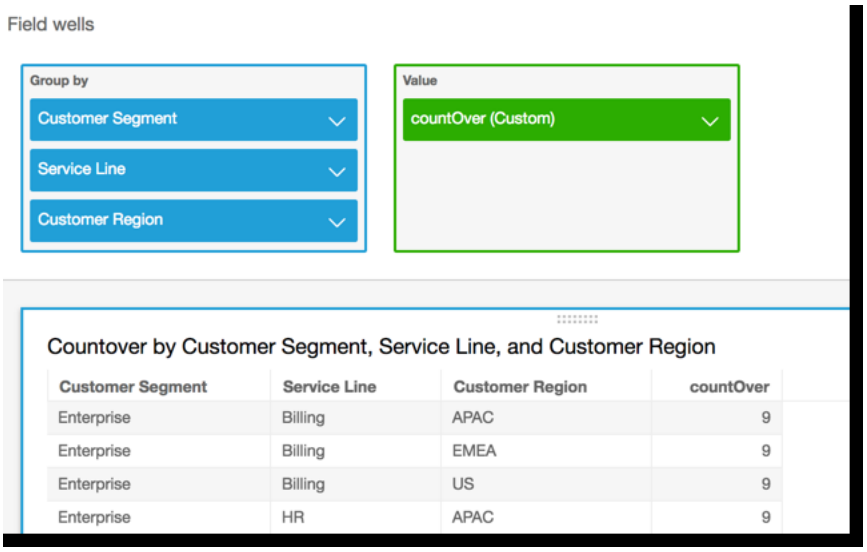
The following example shows the count of Billed Amount over Customer Region. The fields in the table calculation are in the field wells of the visual.

```
countOver
(
  sum({Billed Amount}),
  [{Customer Region}]
)
```

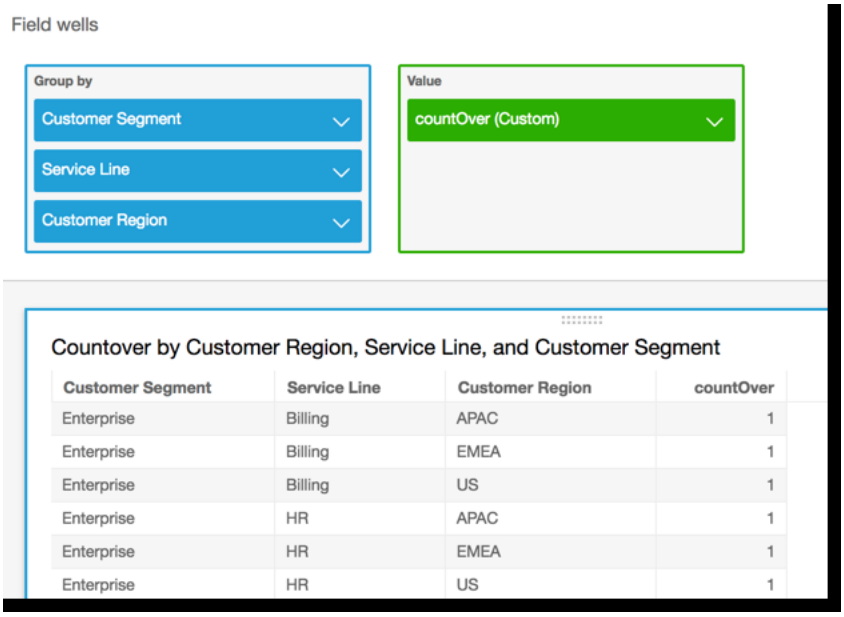
The following screenshot shows the results of the example. Because there are no other fields involved, the count is one for each region.



If you add additional fields, the count changes. In the following screenshot, we add Customer Segment and Service Line. Each of those fields contains three unique values. With 3 segments, 3 service lines, and 3 regions, the calculated field shows 9.



If you add the two additional fields to the partitioning fields in the calculated field, countOver(sum({Billed Amount}), [{Customer Region}, {Customer Segment}, {Service Line}], then the count is again 1 for each row.



maxOver

The maxOver function calculates the maximum of a measure or date partitioned by a list of dimensions.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
maxOver
(
     measure
     ,[ partition_field, ... ]
     ,calculation level
)
```

Arguments

measure

The measure that you want to do the calculation for, for example sum({Sales Amt}). Use an aggregation if the calculation level is set to NULL or POST_AGG_FILTER. Don't use an aggregation if the calculation level is set to PRE_FILTER or PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (Default) Table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

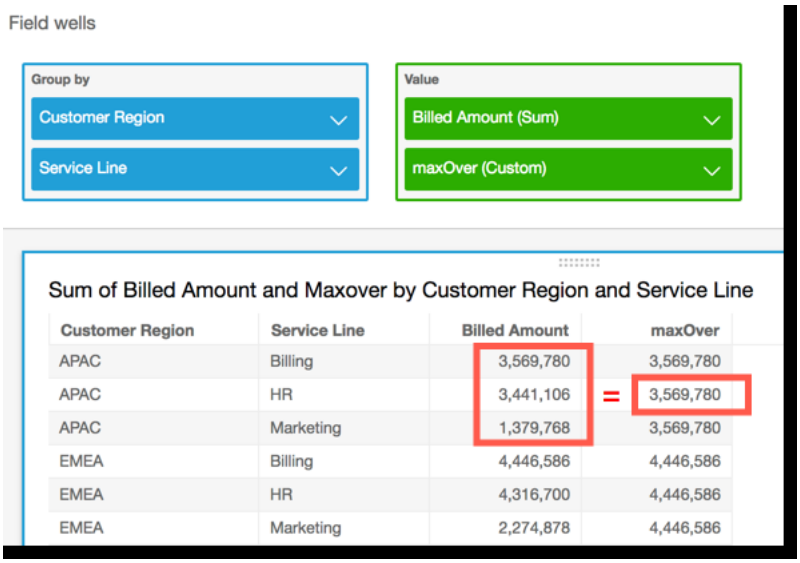
The following example calculates the maximum sum(Sales), partitioned by City and State.

```
maxOver
(
     sum(Sales),
     [City, State]
)
```

The following example shows the maximum Billed Amount over Customer Region. The fields in the table calculation are in the field wells of the visual.

```
maxOver
(
     sum({Billed Amount}),
     [{Customer Region}]
)
```

The following screenshot shows the results of the example. With the addition of Service Line, the total amount billed for each is displayed, and the maximum of these three values displays in the calculated field.



minOver

The minOver function calculates the minimum of a measure or date partitioned by a list of dimensions.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
minOver
(
     measure
     ,[ partition_field, ... ]
     ,calculation level
)
```

Arguments

measure

The measure that you want to do the calculation for, for example sum({Sales Amt}). Use an aggregation if the calculation level is set to NULL or POST_AGG_FILTER. Don't use an aggregation if the calculation level is set to PRE_FILTER or PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (Default) Table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

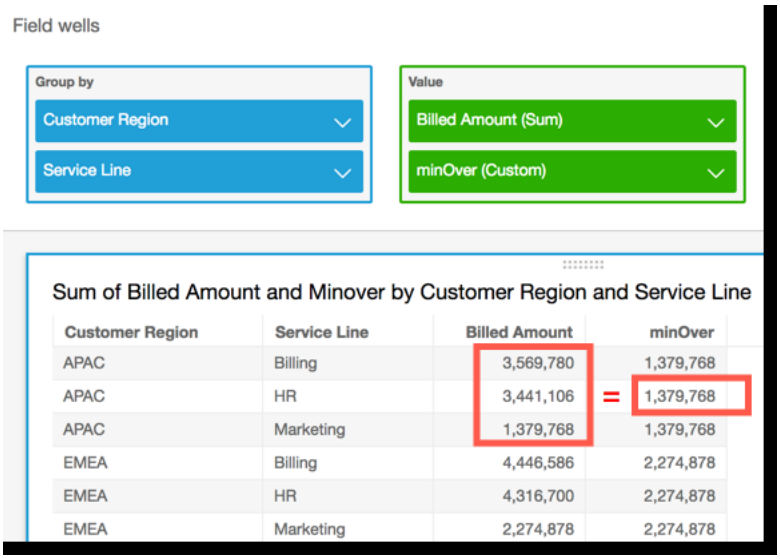
The following example calculates the min sum(Sales), partitioned by City and State.

```
minOver
(
     sum(Sales),
     [City, State]
)
```

The following example shows the minimum Billed Amount over Customer Region. The fields in the table calculation are in the field wells of the visual.

```
minOver
(
     sum({Billed Amount}),
     [{Customer Region}]
)
```

The following screenshot shows the results of the example. With the addition of Service Line, the total amount billed for each is displayed, and the minimum of these three values displays in the calculated field.



percentileOver

The percentileOver function calculates the nth percentile of a measure partitioned by a list of dimensions. There are two varieties of the percentileOver calculation available in Insights:

- percentileContOver uses linear interpolation to determine result.
- percentileDiscOver uses actual values to determine result.

The percentileOver function is an alias of percentileDiscOver.

percentileContOver

The percentileContOver function calculates the percentile based on the actual numbers in measure. It uses the grouping and sorting that are applied in the field wells. The result is partitioned by the specified dimension at the specified calculation level.

Use this function to answer the following question: Which actual data points are present in this percentile? To return the nearest percentile value that is present in your dataset, use percentileDiscOver. To return an exact percentile value that might not be present in your dataset, use percentileContOver instead.

Syntax

```
percentileDiscOver (
    measure
  , percentile-n
  , [partition-by, …]
  , calculation-level
)
```

Arguments

measure

Specifies a numeric value to use to compute the percentile. The argument must be a measure or metric. Nulls are ignored in the calculation.

percentile-n

The percentile value can be any numeric constant 0–100. A percentile value of 50 computes the median value of the measure.

partition-by

(Optional) One or more dimensions that you want to partition by, separated by commas. Each field in the list is enclosed in { } (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation-level

Specifies where to perform the calculation in relation to the order of evaluation. There are three supported calculation levels:

- PRE_FILTER
- PRE_AGG
- POST_AGG_FILTER (default) – To use this calculation level, specify an aggregation on measure, for example sum(measure).

PRE_FILTER and PRE_AGG are applied before the aggregation occurs in a visualization. For these two calculation levels, you can't specify an aggregation on measure in the calculated field expression. To learn more about calculation levels and when they apply, see Order of evaluation in Insights and Using level-aware calculations in Insights.

Returns

The result of the function is a number.

Example of percentileContOver

The following example helps explain how percentileContOver works.

Example Comparing calculation levels for the median

The following example shows the median for a dimension (category) by using different calculation levels with the percentileContOver function. The percentile is 50. The dataset is filtered by a region field. The code for each calculated field is as follows:

- example = left(category, 1) (A simplified example.)
- pre_agg = percentileContOver ({Revenue} , 50 , [example] , PRE_AGG)
- pre_filter = percentileContOver ({Revenue} , 50 , [example] , PRE_FILTER)
- post_agg_filter = percentileContOver (sum ({Revenue}) , 50 , [example], POST_AGG_FILTER)

```
example   pre_filter     pre_agg      post_agg_filter
-------------------------------------------------------
0            106,728     119,667            4,117,579
1            102,898      95,946            2,307,547
2             97,807      93,963              554,570
3            101,043     112,585            2,709,057
4             96,533      99,214            3,598,358
5            106,293      97,296            1,875,648
6             97,118      69,159            1,320,672
7            100,201      90,557              969,807
```

percentileDiscOver

The percentileDiscOver function calculates the percentile based on the actual numbers in measure. It uses the grouping and sorting that are applied in the field wells. The result is partitioned by the specified dimension at the specified calculation level. The percentileOver function is an alias of percentileDiscOver.

Use this function to answer the following question: Which actual data points are present in this percentile? To return the nearest percentile value that is present in your dataset, use percentileDiscOver. To return an exact percentile value that might not be present in your dataset, use percentileContOver instead.

Syntax

```
percentileDiscOver (
     measure
   , percentile-n
   , [partition-by, …]
   , calculation-level
)
```

Arguments

measure

Specifies a numeric value to use to compute the percentile. The argument must be a measure or metric. Nulls are ignored in the calculation.

percentile-n

The percentile value can be any numeric constant 0–100. A percentile value of 50 computes the median value of the measure.

partition-by

(Optional) One or more dimensions that you want to partition by, separated by commas. Each field in the list is enclosed in { } (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation-level

Specifies where to perform the calculation in relation to the order of evaluation. There are three supported calculation levels:

- PRE_FILTER
- PRE_AGG
- POST_AGG_FILTER (default) – To use this calculation level, you need to specify an aggregation on measure, for example sum(measure).

PRE_FILTER and PRE_AGG are applied before the aggregation occurs in a visualization. For these two calculation levels, you can't specify an aggregation on measure in the calculated field expression. To learn more about calculation levels and when they apply, see Order of evaluation in Insights and Using level-aware calculations in Insights.

Returns

The result of the function is a number.

Example of percentileDiscOver

The following example helps explain how percentileDiscOver works.

Example Comparing calculation levels for the median

The following example shows the median for a dimension (category) by using different calculation levels with the percentileDiscOver function. The percentile is 50. The dataset is filtered by a region field. The code for each calculated field is as follows:

- example = left(category, 1) (A simplified example.)
- pre_agg = percentileDiscOver ({Revenue} , 50 , [example] , PRE_AGG)
- pre_filter = percentileDiscOver ({Revenue} , 50 , [example] , PRE_FILTER)
- post_agg_filter = percentileDiscOver (sum ({Revenue}) , 50 , [example], POST_AGG_FILTER)

```
example   pre_filter     pre_agg      post_agg_filter
-------------------------------------------------------
0            106,728     119,667            4,117,579
1            102,898      95,946            2,307,547
2             97,629      92,046              554,570
3            100,867     112,585            2,709,057
4             96,416      96,649            3,598,358
5            106,293      97,296            1,875,648
6             97,118      64,395            1,320,672
7             99,915      90,557              969,807
```

Example The median

The following example calculates the median (the 50th percentile) of Sales partitioned by City and State.

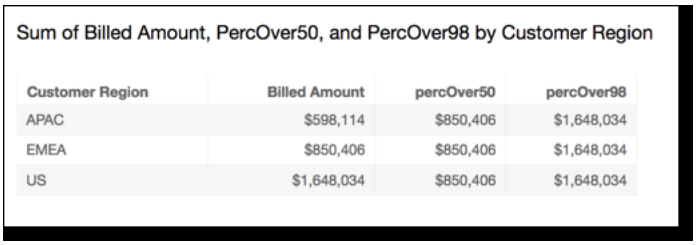
```
percentileDiscOver
(
  Sales,
  50,
  [City, State]
)
```

The following example calculates the 98th percentile of sum({Billed Amount}) partitioned by Customer Region. The fields in the table calculation are in the field wells of the visual.

```
percentileDiscOver
(
```

```
  sum({Billed Amount}),
  98,
  [{Customer Region}]
)
```

The following screenshot shows the how these two examples look on a chart.



percentOfTotal

The percentOfTotal function calculates the percentage a measure contributes to the total, based on the dimensions specified.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
percentOfTotal
(
     measure
     ,[ partition_field, ... ]
)
```

Arguments

measure

An aggregated measure that you want to see the percent of total for. Currently, the distinct count aggregation is not supported for percentOfTotal.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

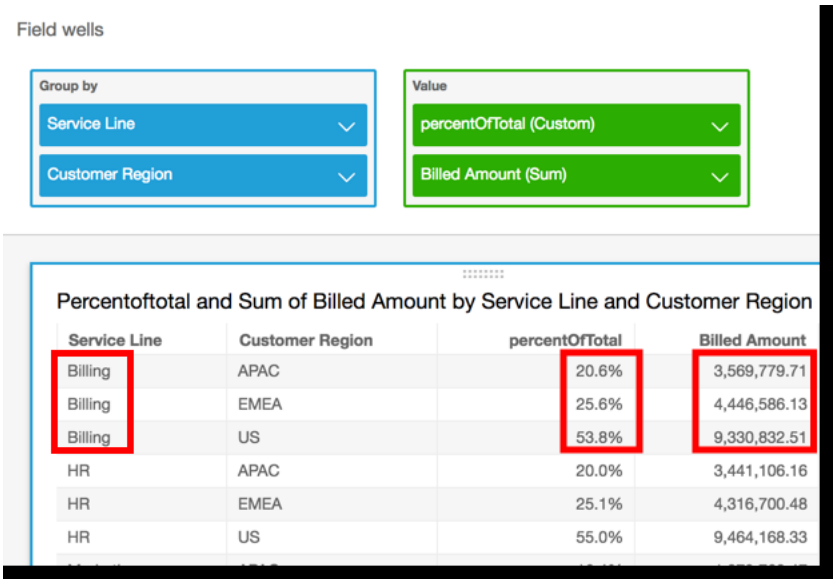
The following example creates a calculation for the percent of total Sales contributed by each State.

```
percentOfTotal
(
     sum(Sales),
     [State]
)
```

The following example calculates the percent that a specific Billed Amount is when compared to the total Billed Amount, partitioned by ([{Service Line} ASC]). The fields in the table calculation are in the field wells of the visual.

```
percentOfTotal
(
     sum( {Billed Amount} ),
     [{Service Line}]
)
```

The following screenshot shows the results of the example. The red highlights show that the partition field with the value "Billing" has three entries, one for each region. The total billed amount for this service line is divided into three percentages, which total 100 percent. Percentages are rounded and might not always add up to exactly 100 percent.



periodOverPeriodDifference

The periodOverPeriodDifference function calculates the difference of a measure over two different time periods as specified by period granularity and offset. Unlike a difference calculation, this function uses a date-based offset instead of a fixed sized offset. This ensures that only the correct dates are compared, even if data points are missing in the dataset.

Syntax

```
periodOverPeriodDifference(
    measure,
    date,
    period,
    offset)
```

Arguments

measure

An aggregated measure that you want to perform the periodOverPeriod calculation on.

dateTime

The Date dimension over which we are computing Period-Over-Period calculations.

period

(Optional) The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

The defaults value is the visual date dimension granularity.

offset

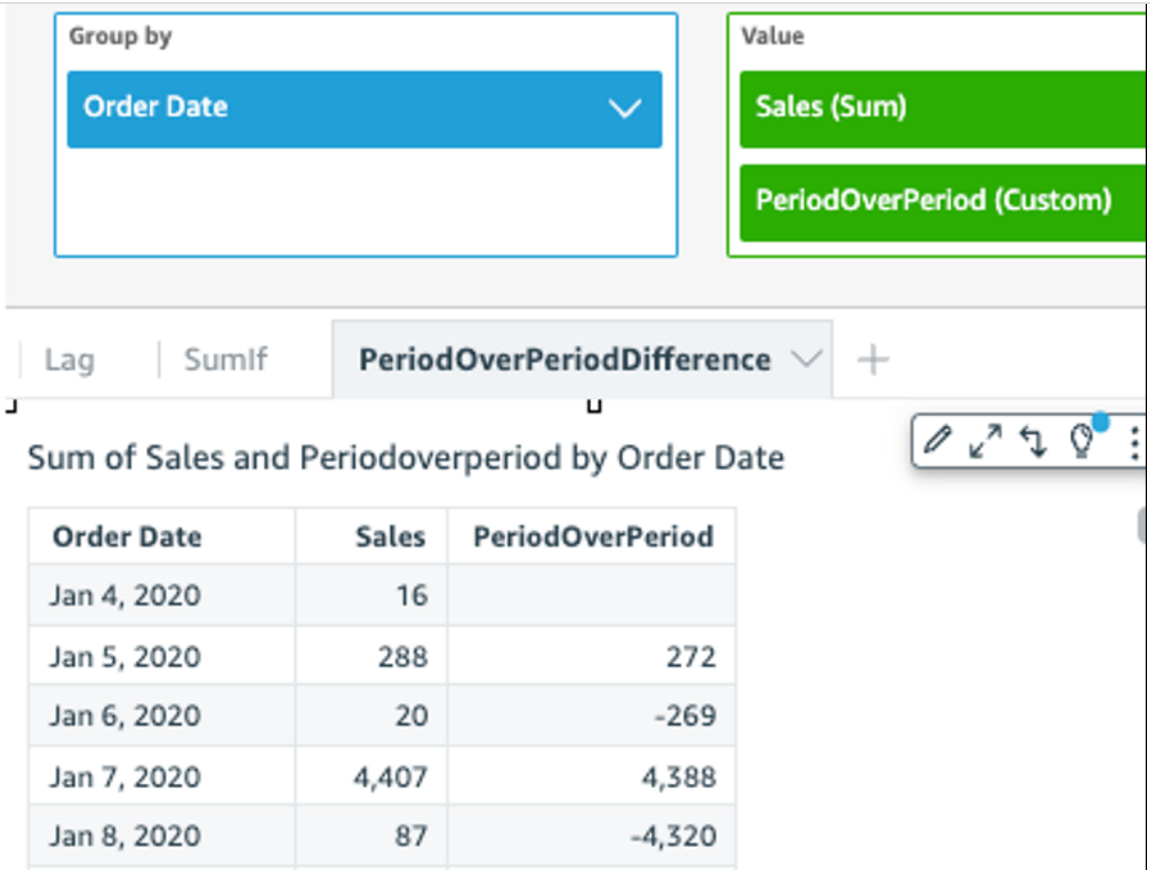
(Optional) The offset can be a positive or negative integer representing the prior time period (specified by period) that you want to compare against. For instance, period of a quarter with offset 1 means comparing against the previous quarter.

The default value is 1.

Example

The following example uses a calculated field PeriodOverPeriod to display the sales amount difference of yesterday.

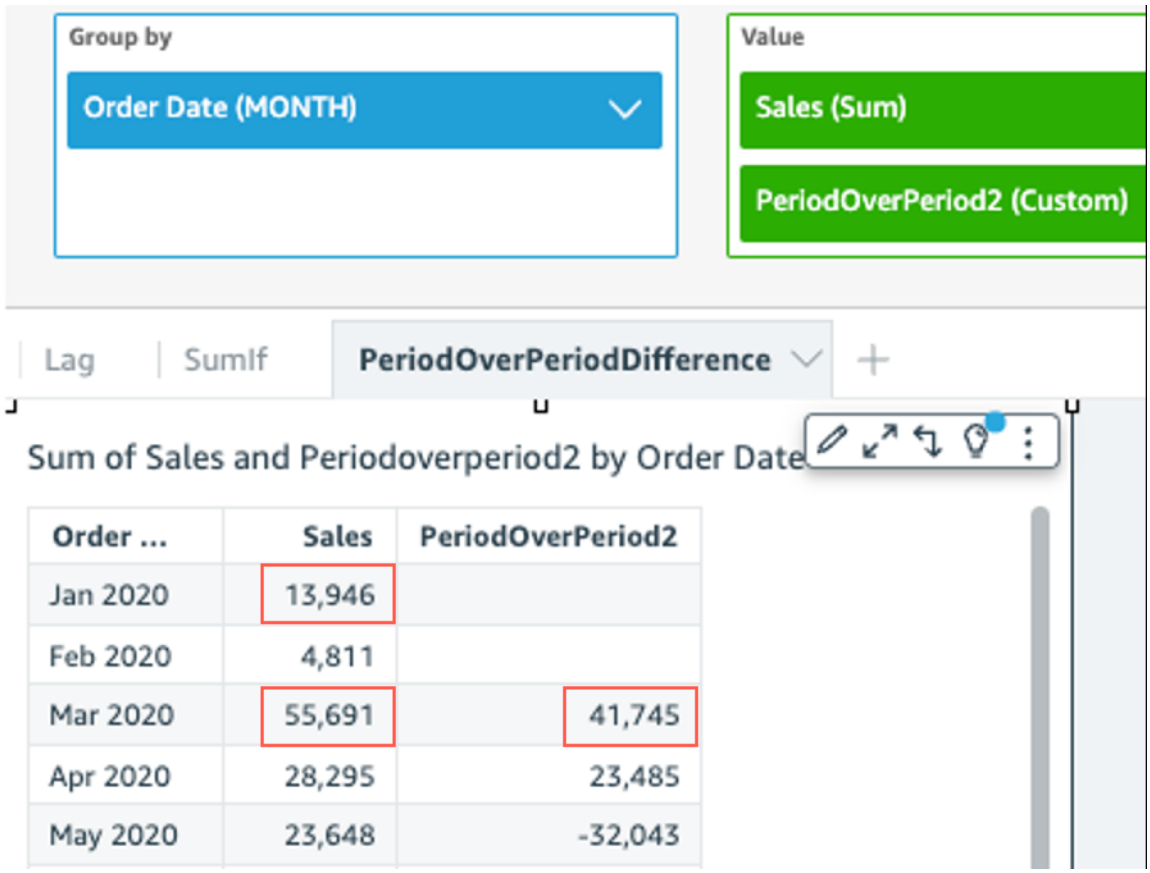
```
periodOverPeriodDifference(sum(Sales), {Order Date})
```



Order Date	Sales	PeriodOverPeriod
Jan 4, 2020	16	
Jan 5, 2020	288	272
Jan 6, 2020	20	-269
Jan 7, 2020	4,407	4,388
Jan 8, 2020	87	-4,320

The following example uses a calculated field PeriodOverPeriod to display the sales amount difference of previous 2 months. Below example is comparing sales of Mar2020 with Jan2020.

```
periodOverPeriodDifference(sum(Sales),{Order Date}, MONTH, 1)
```



periodOverPeriodLastValue

The periodOverPeriodLastValue function calculates the last (previous) value of a measure from the previous time period as specified by the period granularity and offset. This function uses a date-based offset instead of a fixed sized offset. This ensures only the correct dates are compared, even if data points are missing in the dataset.

Syntax

```
periodOverPeriodLastValue(
    measure,
    date,
    period,
    offset)
```

Arguments

measure

An aggregated measure that you want to see the difference for.

date

The date dimension over which you're computing periodOverPeriod calculations.

period

(Optional) The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

This argument defaults to the granularity of the visual aggregation

offset

(Optional) The offset can a positive or negative integer representing the prior time period (specified by period) that you want to compare against. For instance, period of a quarter with offset 1 means comparing against the previous quarter.

This argument default value is 1.

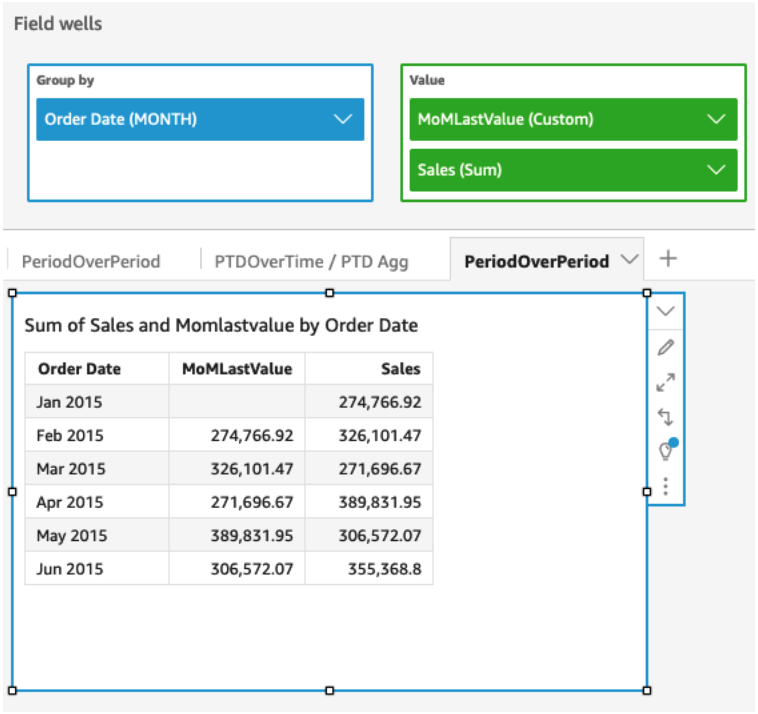
Example

The following example calculates the month over month value in sales with the visual dimension granularity and default offset of 1.

```
periodOverPeriodLastValue(sum(Sales), {Order Date})
```

The following example calculates the month over month value in sales with a fixed granularity of MONTH and fixed offset of 1.

```
periodOverPeriodLastValue(sum(Sales), {Order Date},MONTH, 1)
```



periodOverPeriodPercentDifference

The periodOverPeriodPercentDifference function calculates the percent difference of a measure over two different time periods as specified by the period granularity and offset. Unlike percentDifference, this function uses a date-based offset instead of a fixed sized offset. This ensures only the correct dates are compared, even if data points are missing in the dataset.

Syntax

```
periodOverPeriodPercentDifference(
    measure,
    date,
    period,
    offset)
```

Arguments

measure

An aggregated measure that you want to see the difference for.

date

The date dimension over which you're computing periodOverPeriod calculations.

period

(Optional) The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

This argument defaults to the granularity of the visual aggregation

offset

(Optional) The offset can a positive or negative integer representing the prior time period (specified by period) that you want to compare against. For instance, period of a quarter with offset 1 means comparing against the previous quarter.

This argument default value is 1.

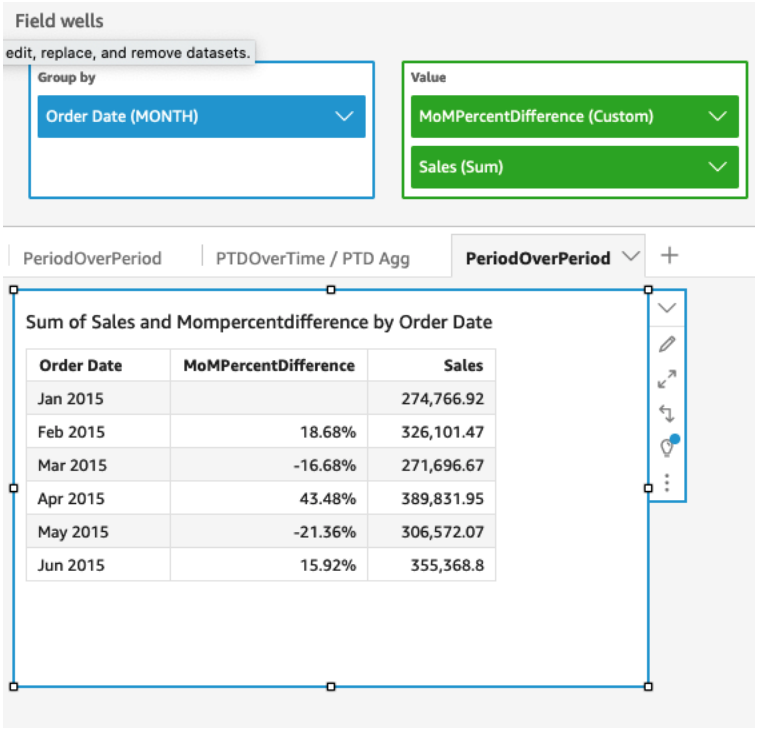
Example

The following example calculates the month over month percent difference in sales with the visual dimension granularity and default offset of 1.

```
periodOverPeriodPercentDifference(sum(Sales),{Order Date})
```

The following example calculates the month over month percent difference in sales with a fixed granularity of MONTH and fixed offset of 1.

```
periodOverPeriodPercentDifference(sum(Sales), {Order Date}, MONTH, 1)
```



periodToDateAvgOverTime

The periodToDateAvgOverTime function calculates the average of a measure for a given time granularity (for instance, a quarter) up to a point in time.

Syntax

```
periodToDateAvgOverTime(
    measure,
    dateTime,
    period)
```

Arguments

measure

An aggregated measure that you want to do the calculation

dateTime

The date dimension over which you're computer PeriodOverTime calculations.

period

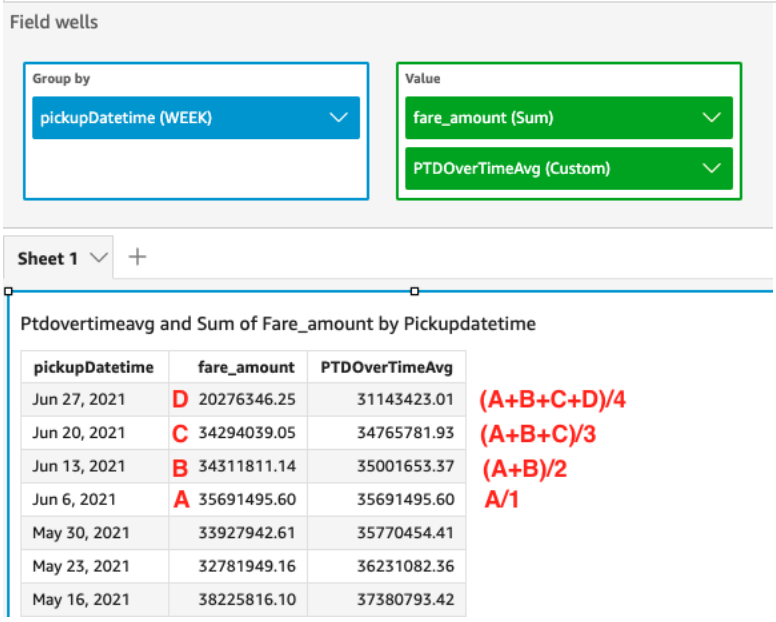
(Optional) The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

The default value is the visual's date dimension granularity.

Example

The following function calculates the average fare amount month over month.

```
periodToDateAvgOverTime(sum({fare_amount}), pickupDatetime, MONTH)
```



periodToDateCountOverTime

The periodToDateCountOverTime function calculates the count of a dimension or measure for a given time granularity (for instance, a quarter) up to a point in time.

Syntax

```
periodToDateCountOverTime(
    measure,
    dateTime,
    period)
```

Arguments

measure

An aggregated measure that you want to do the calculation

dateTime

The date dimension over which you're computer PeriodOverTime calculations.

period

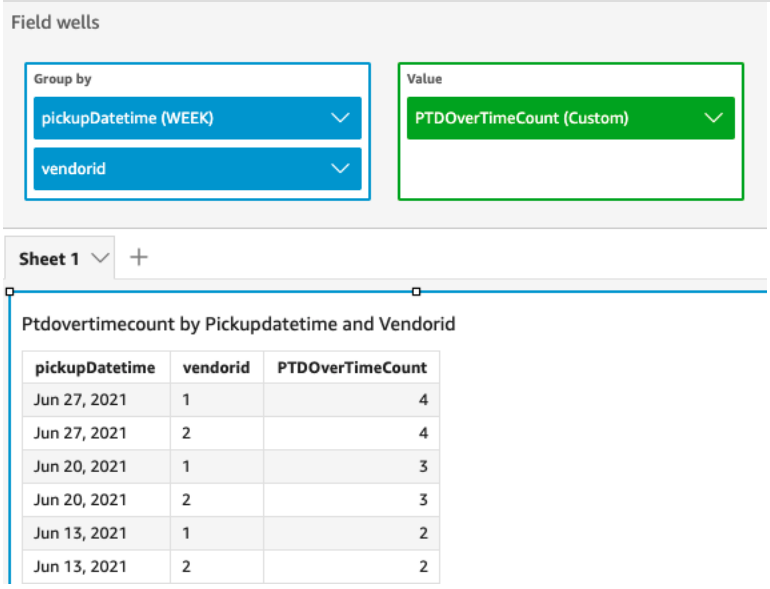
(Optional) The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

The default value is the visual's date dimension granularity.

Example

The following example calculates the count of vendors month over month.

```
periodToDateCountOverTime(count(vendorid), pickupDatetime, MONTH)
```



pickupDatetime	vendorid	PTDOverTimeCount
Jun 27, 2021	1	4
Jun 27, 2021	2	4
Jun 20, 2021	1	3
Jun 20, 2021	2	3
Jun 13, 2021	1	2
Jun 13, 2021	2	2

periodToDateMaxOverTime

The periodToDateMaxOverTime function calculates the maximum of a measure for a given time granularity (for instance, a quarter) up to a point in time.

Syntax

```
periodToDateMaxOverTime(
    measure,
    dateTime,
    period)
```

Arguments

measure

An aggregated measure that you want to do the calculation

dateTime

The date dimension over which you're computer PeriodOverTime calculations.

period

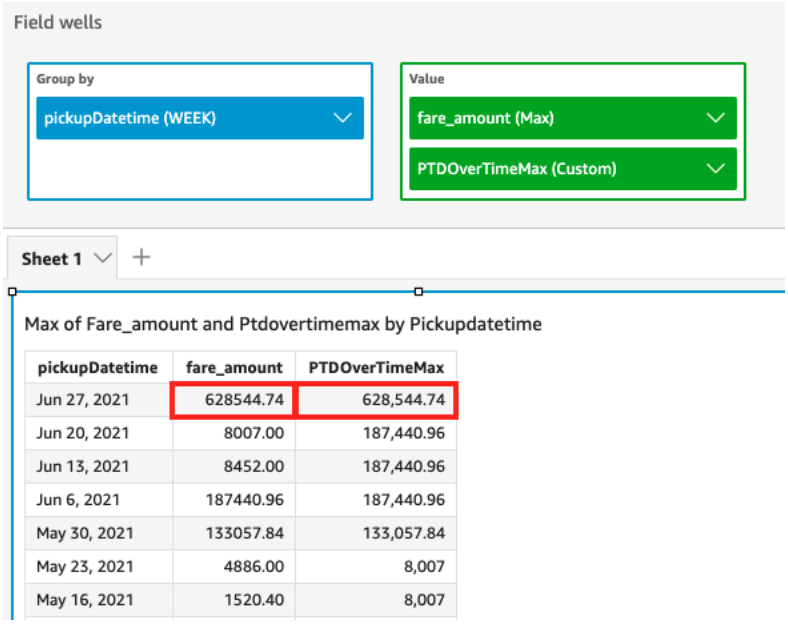
(Optional) The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

The default value is the visual's date dimension granularity.

Example

The following example calculates the maximum fare amount month over month.

```
periodToDatemaxOverTime(max({fare_amount}), pickupDatetime, MONTH)
```



pickupDatetime	fare_amount	PTDOverTimeMax
Jun 27, 2021	628544.74	628,544.74
Jun 20, 2021	8007.00	187,440.96
Jun 13, 2021	8452.00	187,440.96
Jun 6, 2021	187440.96	187,440.96
May 30, 2021	133057.84	133,057.84
May 23, 2021	4886.00	8,007
May 16, 2021	1520.40	8,007

periodToDateMinOverTime

The periodToDateMinOverTime function calculates the minimum of a measure for a given time granularity (for instance, a quarter) up to a point in time.

Syntax

```
periodToDateMinOverTime(
    measure,
    dateTime,
    period)
```

Arguments

measure

An aggregated measure that you want to do the calculation

dateTime

The date dimension over which you're computer PeriodOverTime calculations.

period

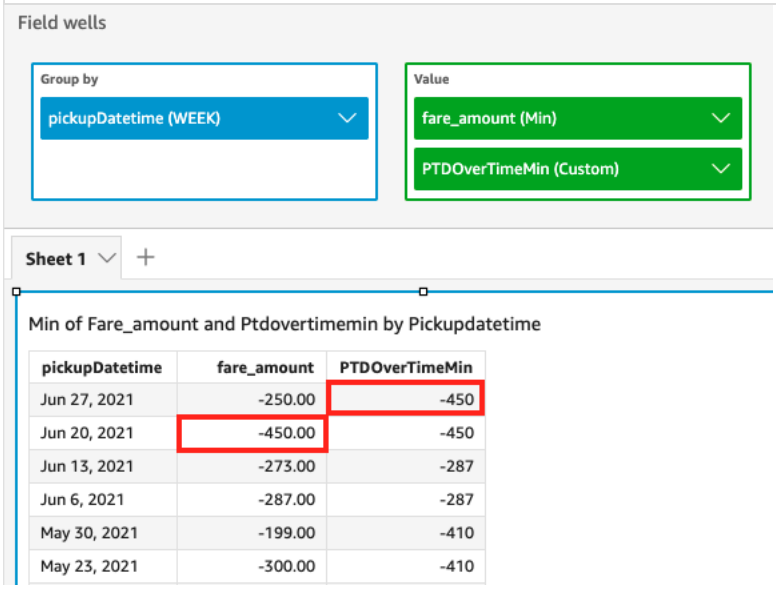
(Optional) The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

The default value is the visual's date dimension granularity.

Example

The following example calculates the minimum fare amount month over month.

```
periodToDateMinOverTime(min({fare_amount}), pickupDatetime, MONTH)
```



pickupDatetime	fare_amount	PTDOverTimeMin
Jun 27, 2021	-250.00	-450
Jun 20, 2021	-450.00	-450
Jun 13, 2021	-273.00	-287
Jun 6, 2021	-287.00	-287
May 30, 2021	-199.00	-410
May 23, 2021	-300.00	-410

periodToDateSumOverTime

The periodToDateSumOverTime function calculates the sum of a measure for a given time granularity (for instance, a quarter) up to a point in time.

Syntax

```
periodToDateSumOverTime(
    measure,
    dateTime,
    period)
```

Arguments

measure

An aggregated measure that you want to do the calculation

dateTime

The date dimension over which you're computer PeriodOverTime calculations.

period

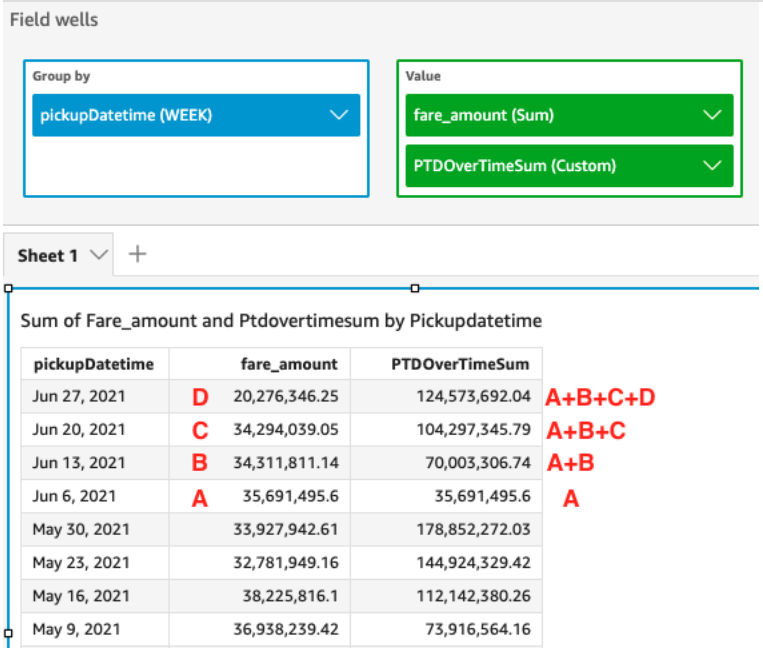
(Optional) The time period across which you're computing the computation. Granularity of YEAR means YearToDate computation, Quarter means QuarterToDate, and so on. Valid granularities include YEAR, QUARTER, MONTH, WEEK, DAY, HOUR, MINUTE, and SECONDS.

The default value is the visual's date dimension granularity.

Example

The following function returns the total fare amount month over month.

```
periodToDateSumOverTime(sum({fare_amount}), pickupDatetime, MONTH)
```



stdevOver

The stdevOver function calculates the standard deviation of the specified measure, partitioned by the chosen attribute or attributes, based on a sample.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
stdevOver
(
      measure
     ,[ partition_field, ... ]
     ,calculation level
)
```

Arguments

measure

The measure that you want to do the calculation for, for example sum({Sales Amt}). Use an aggregation if the calculation level is set to NULL or POST_AGG_FILTER. Don't use an aggregation if the calculation level is set to PRE_FILTER or PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (default) table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

The following example calculates the standard deviation of sum(Sales), partitioned by City and State, based on a sample.

```
stdevOver
(
     sum(Sales),
     [City, State]
)
```

The following example calculates the standard deviation of Billed Amount over Customer Region, based on a sample. The fields in the table calculation are in the field wells of the visual.

```
stdevOver
(
     sum({Billed Amount}),
     [{Customer Region}]
)
```

stdevpOver

The stdevpOver function calculates the standard deviation of the specified measure, partitioned by the chosen attribute or attributes, based on a biased population.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
stdevpOver
(
     measure
     ,[ partition_field, ... ]
     ,calculation level
)
```

Arguments

measure

The measure that you want to do the calculation for, for example sum({Sales Amt}). Use an aggregation if the calculation level is set to NULL or POST_AGG_FILTER. Don't use an aggregation if the calculation level is set to PRE_FILTER or PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (default) table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

The following example calculates the standard deviation of sum(Sales), partitioned by City and State, based on a biased population.

```
stdevpOver
(
     sum(Sales),
     [City, State]
)
```

The following example calculates the standard deviation of Billed Amount over Customer Region, based on a biased population. The fields in the table calculation are in the field wells of the visual.

```
stdevpOver
(
     sum({Billed Amount}),
     [{Customer Region}]
)
```

varOver

The varOver function calculates the variance of the specified measure, partitioned by the chosen attribute or attributes, based on a sample.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
varOver
(
     measure
     ,[ partition_field, ... ]
     ,calculation level
)
```

Arguments

measure

The measure that you want to do the calculation for, for example sum({Sales Amt}). Use an aggregation if the calculation level is set to NULL or POST_AGG_FILTER. Don't use an aggregation if the calculation level is set to PRE_FILTER or PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (Default) Table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

The following example calculates the variance of sum(Sales), partitioned by City and State, based on a sample.

```
varOver
(
     sum(Sales),
     [City, State]
)
```

The following example calculates the variance of Billed Amount over Customer Region, based on a sample. The fields in the table calculation are in the field wells of the visual.

```
varOver
(
     sum({Billed Amount}),
     [{Customer Region}]
)
```

varpOver

The varpOver function calculates the variance of the specified measure, partitioned by the chosen attribute or attributes, based on a biased population.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
varpOver
(
     measure
     ,[ partition_field, ... ]
     ,calculation level
)
```

Arguments

measure

The measure that you want to do the calculation for, for example sum({Sales Amt}). Use an aggregation if the calculation level is set to NULL or POST_AGG_FILTER. Don't use an aggregation if the calculation level is set to PRE_FILTER or PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (Default) Table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

The following example calculates the variance of sum(Sales), partitioned by City and State, based on a biased population.

```
varpOver
(
     sum(Sales),
     [City, State]
)
```

The following example calculates the variance of Billed Amount over Customer Region, based on a biased population. The fields in the table calculation are in the field wells of the visual.

```
varpOver
(
     sum({Billed Amount}),
     [{Customer Region}]
)
```

sumOver

The sumOver function calculates the sum of a measure partitioned by a list of dimensions.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
sumOver
(
     measure
     ,[ partition_field, ... ]
     ,calculation level
)
```

Arguments

measure

The measure that you want to do the calculation for, for example sum({Sales Amt}). Use an aggregation if the calculation level is set to NULL or POST_AGG_FILTER. Don't use an aggregation if the calculation level is set to PRE_FILTER or PRE_AGG.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (default) table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

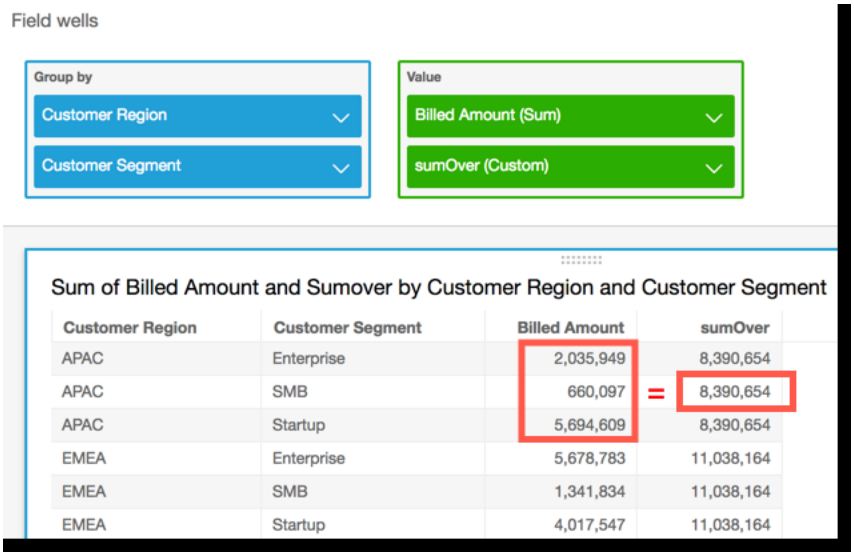
The following example calculates the sum of sum(Sales), partitioned by City and State.

```
sumOver
(
     sum(Sales),
     [City, State]
)
```

The following example sums Billed Amount over Customer Region. The fields in the table calculation are in the field wells of the visual.

```
sumOver
(
     sum({Billed Amount}),
     [{Customer Region}]
)
```

The following screenshot shows the results of the example. With the addition of Customer Segment, the total amount billed for each is summed for the Customer Region, and displays in the calculated field.



denseRank

The denseRank function calculates the rank of a measure or a dimension in comparison to the specified partitions. It counts each item only once, ignoring duplicates, and assigns a rank "without holes" so that duplicate values share the same rank.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
denseRank
(
  [ sort_order_field ASC_or_DESC, ... ]
  ,[ partition_field, ... ]
)
```

Arguments

sort order field

One or more aggregated fields, either measures or dimensions or both, that you want to sort the data by, separated by commas. You can either specify ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (Default) Table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

The following example densely ranks max(Sales), based on a descending sort order, by State and City. Any cities with the same max(Sales) are assigned the same rank, and the next city is ranked consecutively after them. For example, if three cities share the same ranking, the fourth city is ranked as second.

```
denseRank
(
  [max(Sales) DESC],
  [State, City]
)
```

The following example densely ranks max(Sales), based on a descending sort order, by State. Any states with the same max(Sales) are assigned the same rank, and the next is ranked consecutively after them. For example, if three states share the same ranking, the fourth state is ranked as second.

```
denseRank
(
  [max(Sales) DESC],
  [State]
)
```

Rank

The rank function calculates the rank of a measure or a dimension in comparison to the specified partitions. It counts each item, even duplicates, once and assigns a rank "with holes" to make up for duplicate values.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
rank
(
  [ sort_order_field ASC_or_DESC, ... ]
  ,[ partition_field, ... ]
)
```

Arguments

sort order field

One or more aggregated measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (Default) Table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

The following example ranks max(Sales), based on a descending sort order, by State and City, within the State of WA. Any cities with the same max(Sales) are assigned the same rank, but the next rank includes the count of all previously existing ranks. For example, if three cities share the same ranking, the fourth city is ranked as fourth.

```
rank
(
  [max(Sales) DESC],
  [State, City]
)
```

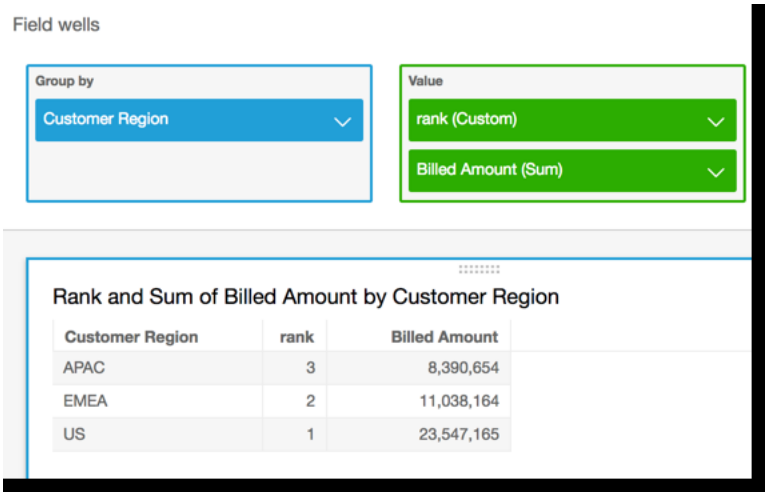
The following example ranks max(Sales), based on an ascending sort order, by State. Any states with the same max(Sales) are assigned the same rank, but the next rank includes the count of all previously existing ranks. For example, if three states share the same ranking, the fourth state is ranked as fourth.

```
rank
(
  [max(Sales) ASC],
  [State]
)
```

The following example ranks Customer Region by total Billed Amount. The fields in the table calculation are in the field wells of the visual.

```
rank(
  [sum({Billed Amount}) DESC]
)
```

The following screenshot shows the results of the example, along with the total Billed Amount so you can see how each region ranks.



percentileRank

The percentileRank function calculates the percentile rank of a measure or a dimension in comparison to the specified partitions. The percentile rank value(x) indicates that the current item is above x% of values in the specified partition. The percentile rank value ranges from 0 (inclusive) to 100 (exclusive).

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
percentileRank
(
      [ sort_order_field ASC_or_DESC, ... ]
     ,[ {partition_field}, ... ]
)
```

Arguments

sort order field

One or more aggregated measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

calculation level

(Optional) Specifies the calculation level to use:

- PRE_FILTER – Prefilter calculations are computed before the dataset filters.
- PRE_AGG – Preaggregate calculations are computed before applying aggregations and top and bottom N filters to the visuals.
- POST_AGG_FILTER – (Default) Table calculations are computed when the visuals display.

This value defaults to POST_AGG_FILTER when blank. For more information, see Using level-aware calculations in Insights.

Example

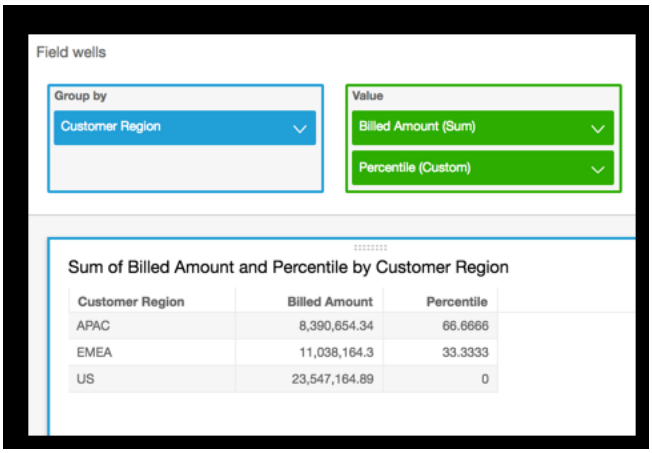
The following example does a percentile ranking of max(Sales) in descending order, by State.

```
percentileRank
(
     [max(Sales) DESC],
     [State]
)
```

The following example does a percentile ranking of Customer Region by total Billed Amount. The fields in the table calculation are in the field wells of the visual.

```
percentileRank(
     [sum({Billed Amount}) DESC],
     [{Customer Region}]
)
```

The following screenshot shows the results of the example, along with the total Billed Amount so you can see how each region compares.



runningAvg

The runningAvg function calculates a running average for a measure based on the specified dimensions and sort orders.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
runningAvg
(
  measure
  ,[ sortorder_field ASC_or_DESC, ... ]
  ,[ partition_field, ... ]
)
```

Arguments

measure

An aggregated measure that you want to see the running average for.

sort order field

One or more measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates a running average of sum(Sales), sorted by Sales, partitioned by City and State.

```
runningAvg
(
  sum(Sales),
  [Sales ASC],
  [City, State]
)
```

The following example calculates a running average of Billed Amount, sorted by month ([truncDate ("MM",Date) ASC]). The fields in the table calculation are in the field wells of the visual.

```
runningAvg
(
  sum({Billed Amount}),
  [truncDate("MM",Date) ASC]
)
```

runningCount

The runningCount function calculates a running count for a measure or dimension, based on the specified dimensions and sort orders.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
runningCount
(
  measure_or_dimension
```

```
  ,[ sortorder_field ASC_or_DESC, ... ]
  ,[ partition_field, ... ]
)
```

Arguments

measure or dimension

An aggregated measure or dimension that you want to see the running count for.

sort order field

One or more measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates a running count of sum(Sales), sorted by Sales, partitioned by City and State.

```
runningCount
(
  sum(Sales),
  [Sales ASC],
  [City, State]
)
```

The following example calculates a running count of Billed Amount, sorted by month ([truncDate ("MM",Date) ASC]). The fields in the table calculation are in the field wells of the visual.

```
runningCount
(
```

```
  sum({Billed Amount}),
  [truncDate("MM",Date) ASC]
)
```

runningMax

The runningMax function calculates a running maximum for a measure based on the specified dimensions and sort orders.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
runningMax
(
  measure
  ,[ sortorder_field ASC_or_DESC, ... ]
  ,[ partition_field, ... ]
)
```

Arguments

measure

An aggregated measure that you want to see the running maximum for.

sort order field

One or more measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates a running maximum of sum(Sales), sorted by Sales, partitioned by City and State.

```
runningMax
(
  sum(Sales),
  [Sales ASC],
  [City, State]
)
```

The following example calculates a running maximum of Billed Amount, sorted by month ([truncDate ("MM",Date) ASC]). The fields in the table calculation are in the field wells of the visual.

```
runningMax
(
  sum({Billed Amount}),
  [truncDate("MM",Date) ASC]
)
```

runningMin

The runningMin function calculates a running minimum for a measure based on the specified dimensions and sort orders.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
runningMin
(
  measure
  ,[ sortorder_field ASC_or_DESC, ... ]
  ,[ partition_field, ... ]
)
```

Arguments

measure

An aggregated measure that you want to see the running minimum for.

sort order field

One or more measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates a running minimum of sum(Sales), sorted by Sales, partitioned by City and State.

```
runningMin
(
  sum(Sales),
  [Sales ASC],
  [City, State]
)
```

The following example calculates a running minimum of Billed Amount, sorted by month ([truncDate ("MM",Date) ASC]). The fields in the table calculation are in the field wells of the visual.

```
runningMin
(
  sum({Billed Amount}),
  [truncDate("MM",Date) ASC]
)
```

runningSum

The runningSum function calculates a running sum for a measure based on the specified dimensions and sort orders.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
runningSum
(
  measure
  ,[ sortorder_field ASC_or_DESC, ... ]
  ,[ partition_field, ... ]
)
```

Arguments

measure

An aggregated measure that you want to see the running sum for.

sort order field

One or more measures and dimensions that you want to sort the data by, separated by commas. You can specify either ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

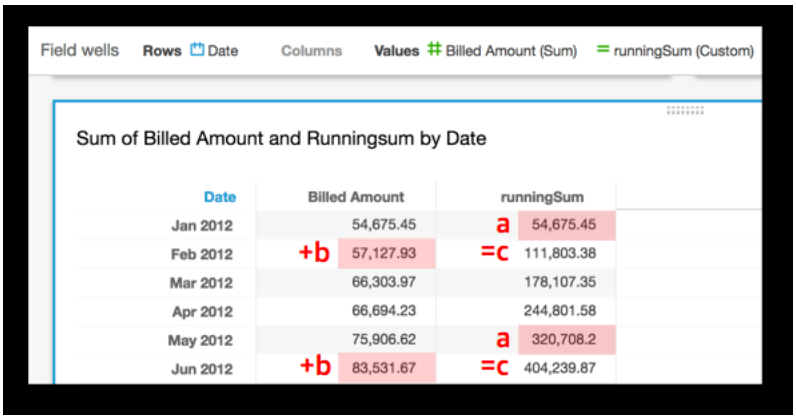
The following example calculates a running sum of sum(Sales), sorted by Sales, partitioned by City and State.

```
runningSum
(
  sum(Sales),
  [Sales ASC],
  [City, State]
)
```

The following example calculates a running sum of Billed Amount, sorted by month ([truncDate ("MM",Date) ASC]). The fields in the table calculation are in the field wells of the visual.

```
runningSum
(
  sum({Billed Amount}),
  [truncDate("MM",Date) ASC]
)
```

The following screenshot shows the results of the example. The red labels show how each amount is added (a + b = c) to the next amount, resulting in a new total.



firstValue

The firstValue function calculates the first value of the aggregated measure or dimension partitioned and sorted by specified attributes.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
firstValue
    (
         aggregated measure or dimension,
         [ sort_attribute ASC_or_DESC, ... ],
         [ partition_by_attribute, ... ]
    )
```

Arguments

aggregated measure or dimension

An aggregated measure or dimension that you want to see the first value for.

sort attribute

One or more aggregated fields, either measures or dimensions or both, that you want to sort the data by, separated by commas. You can either specify ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

partition by attribute

(Optional) One or more measure or dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the first Destination Airport, sorted by Flight Date, partitioned by Flight Date ascending and Origin Airport.

```
firstValue(
    [{Destination Airport}],
    [{Flight Date} ASC],
    [
        {Origin Airport},
        {Flight Date}
    ]
)
```

lastValue

The lastValue function calculates the last value of the aggregated measure or dimension partitioned and sorted by specified attributes.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
lastValue
    (
         aggregated measure or dimension,
         [ sort_attribute ASC_or_DESC, ... ],
         [ partition_by_attribute, ... ]
    )
```

Arguments

aggregated measure or dimension

An aggregated measure or dimension that you want to see the last value for.

sort attribute

One or more aggregated fields, either measures or dimensions or both, that you want to sort the data by, separated by commas. You can either specify ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

partition by attribute

(Optional) One or more measures or dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the last value for Destination Airport. This calculation is sorted by the Flight Date value and partitioned by the Flight Date value sorted in ascending order and the Origin Airport value.

```
lastValue(
    [{Destination Airport}],
    [{Flight Date} ASC],
    [
        {Origin Airport},
        truncDate('DAY', {Flight Date})
    ]
)
```

windowAvg

The windowAvg function calculates the average of the aggregated measure in a custom window that is partitioned and sorted by specified attributes. Usually, you use custom window functions on a time series, where your visual shows a metric and a date field. For example, you can use windowAvg to calculate a moving average, which is often used to smooth out the noise in a line chart.

Window functions aren't supported for MySQL versions earlier than 8 and MariaDB versions earlier than 10.2.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
windowAvg
    (
         measure
            , [sort_order_field ASC/DESC, ...]
            , start_index
            , end_index
         ,[ partition_field, ... ]
    )
```

Arguments

measure

The aggregated metric that you want to get the average for, for example sum({Revenue}).

sort attribute

One or more aggregated fields, either measures or dimensions or both, that you want to sort the data by, separated by commas. You can either specify ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in { } (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

start index

The start index is a positive integer, indicating n rows above the current row. The start index counts the available data points above the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

end index

The end index is a positive integer, indicating n rows below the current row. The end index counts the available data points below the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

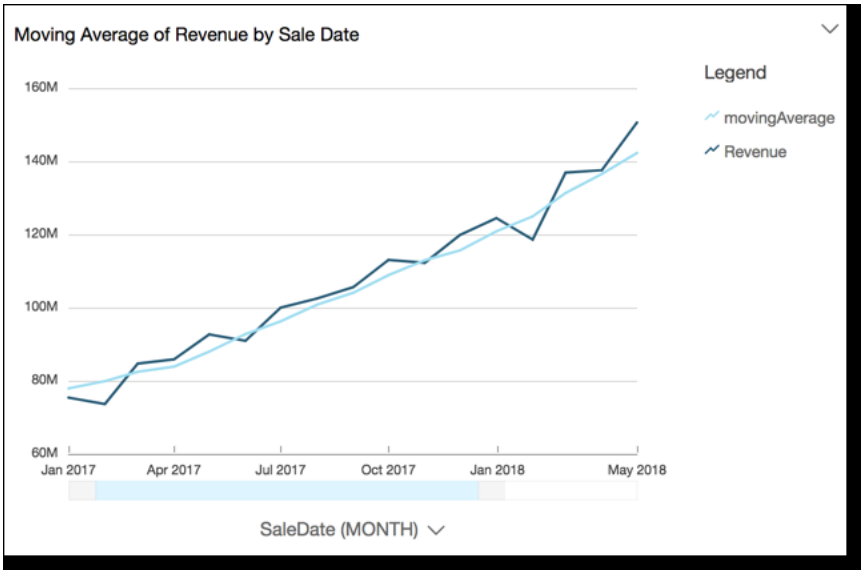
Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the moving average of sum(Revenue), partitioned by SaleDate. The calculation includes three rows above and two row below of the current row.

```
windowAvg
    (
         sum(Revenue),
         [SaleDate ASC],
         3,
            2
    )
```

The following screenshot shows the results of this moving average example. The sum(Revenue) field is added to the chart to show the difference between the revenue and the moving average of revenue.



windowCount

The windowCount function calculates the count of the aggregated measure or dimension in a custom window that is partitioned and sorted by specified attributes. Usually, you use custom window functions on a time series, where your visual shows a metric and a date field.

Window functions aren't supported for MySQL versions earlier than 8 and MariaDB versions earlier than 10.2.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
windowCount
    (
         measure_or_dimension
            , [sort_order_field ASC/DESC, ...]
            , start_index
            , end_index
         ,[ partition_field, ... ]
    )
```

Arguments

measure or dimension

The aggregated metric that you want to get the average for, for example sum({Revenue}).

sort attribute

One or more aggregated fields, either measures or dimensions or both, that you want to sort the data by, separated by commas. You can either specify ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

start index

The start index is a positive integer, indicating n rows above the current row. The start index counts the available data points above the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

end index

The end index is a positive integer, indicating n rows below the current row. The end index counts the available data points below the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the moving count of sum(Revenue), partitioned by SaleDate. The calculation includes three rows above and two row below of the current row.

```
windowCount
    (
         sum(Revenue),
         [SaleDate ASC],
         3,
               2
    )
```

windowMax

The windowMax function calculates the maximum of the aggregated measure in a custom window that is partitioned and sorted by specified attributes. Usually, you use custom window functions on a time series, where your visual shows a metric and a date field. You can use windowMax to help you identify the maximum of the metric over a period time.

Window functions aren't supported for MySQL versions earlier than 8 and MariaDB versions earlier than 10.2.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
windowMax
    (
         measure
            , [sort_order_field ASC/DESC, ...]
            , start_index
            , end_index
         ,[ partition_field, ... ]
    )
```

Arguments

measure

The aggregated metric that you want to get the average for, for example sum({Revenue}).

sort attribute

One or more aggregated fields, either measures or dimensions or both, that you want to sort the data by, separated by commas. You can either specify ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

start index

The start index is a positive integer, indicating n rows above the current row. The start index counts the available data points above the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

end index

The end index is a positive integer, indicating n rows below the current row. The end index counts the available data points below the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

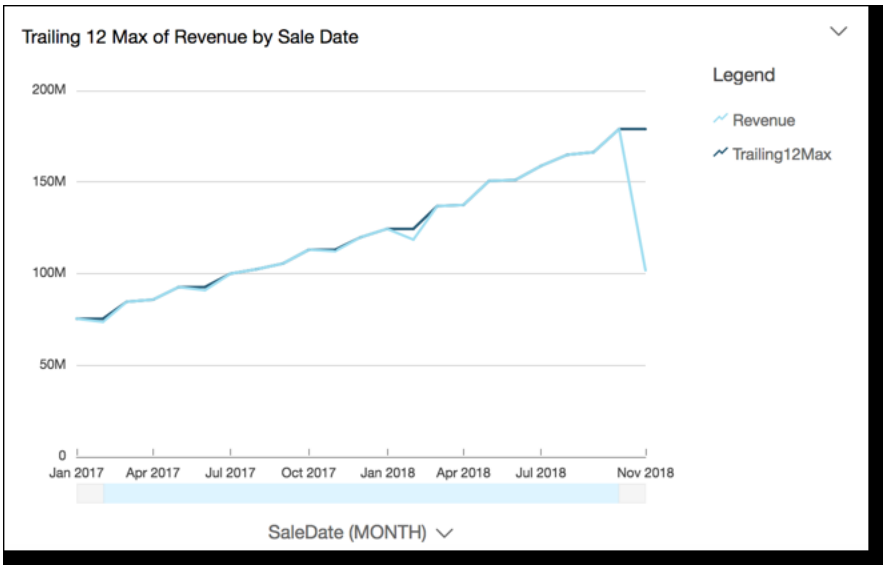
Each field in the list is enclosed in {} (curly braces), if it is more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the trailing 12-month maximum of sum(Revenue), partitioned by SaleDate. The calculation includes 12 rows above and 0 row below of the current row.

```
windowMax
    (
         sum(Revenue),
         [SaleDate ASC],
         12,
               0
    )
```

The following screenshot shows the results of this trailing 12-month example. The sum(Revenue) field is added to the chart to show the difference between the revenue and the trailing 12-month maximum revenue.



windowMin

The windowMin function calculates the minimum of the aggregated measure in a custom window that is partitioned and sorted by specified attributes. Usually, you use custom window functions on a time series, where your visual shows a metric and a date field. You can use windowMin to help you identify the minimum of the metric over a period time.

Window functions aren't supported for MySQL versions earlier than 8 and MariaDB versions earlier than 10.2.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
windowMin
    (
         measure
            , [sort_order_field ASC/DESC, ...]
            , start_index
            , end_index
         ,[ partition_field, ... ]
    )
```

Arguments

measure

The aggregated metric that you want to get the average for, for example sum({Revenue}).

sort attribute

One or more aggregated fields, either measures or dimensions or both, that you want to sort the data by, separated by commas. You can either specify ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

start index

The start index is a positive integer, indicating n rows above the current row. The start index counts the available data points above the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

end index

The end index is a positive integer, indicating n rows below the current row. The end index counts the available data points below the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

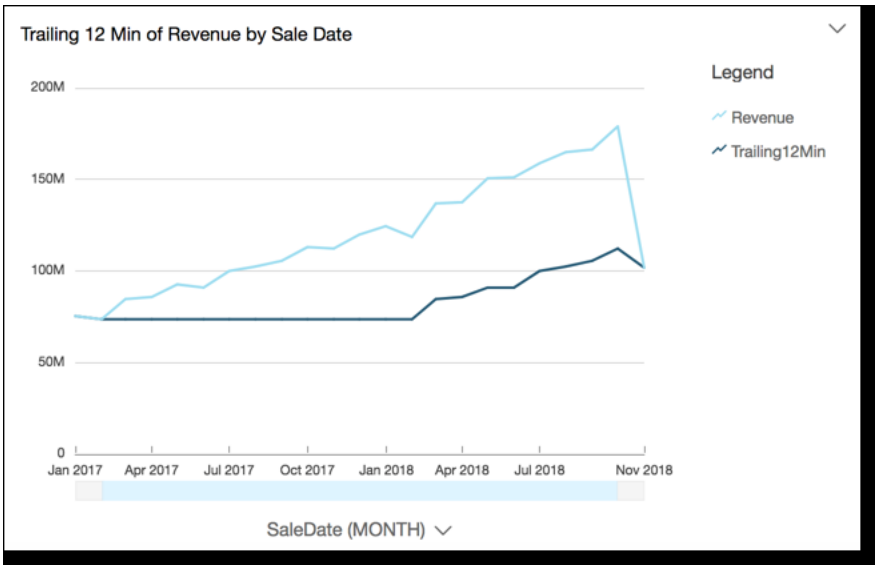
Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

Example

The following example calculates the trailing 12-month minimum of sum(Revenue), partitioned by SaleDate. The calculation includes 12 rows above and 0 row below of the current row.

```
windowMin
    (
         sum(Revenue),
         [SaleDate ASC],
         12,
               0
    )
```

The following screenshot shows the results of this trailing 12-month example. The sum(Revenue) field is added to the chart to show the difference between the revenue and the trailing 12-month minimum revenue.



windowSum

The windowSum function calculates the sum of the aggregated measure in a custom window that is partitioned and sorted by specified attributes. Usually, you use custom window functions on a time series, where your visual shows a metric and a date field.

Window functions aren't supported for MySQL versions earlier than 8 and MariaDB versions earlier than 10.2.

Syntax

The brackets are required. To see which arguments are optional, see the following descriptions.

```
windowSum
    (
         measure
            , [sort_order_field ASC/DESC, ...]
            , start_index
            , end_index
         ,[ partition_field, ... ]
    )
```

Arguments

measure

The aggregated metric that you want to get the sum for, for example sum({Revenue}).

For the engines MySQL, MariaDB, and Amazon Aurora with MySQL compatibility, the lookup index is limited to just 1. Window functions aren't supported for MySQL versions below 8 and MariaDB versions earlier than 10.2.

sort attribute

One or more aggregated fields, either measures or dimensions or both, that you want to sort the data by, separated by commas. You can either specify ascending (ASC) or descending (DESC) sort order.

Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

start index

The start index is a positive integer, indicating n rows above the current row. The start index counts the available data points above the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

end index

The end index is a positive integer, indicating n rows below the current row. The end index counts the available data points below the current row, rather than counting actual time periods. If your data is sparse (missing months or years, for example), adjust the indexes accordingly.

partition field

(Optional) One or more dimensions that you want to partition by, separated by commas.

Each field in the list is enclosed in {} (curly braces), if it's more than one word. The entire list is enclosed in [ ] (square brackets).

Example

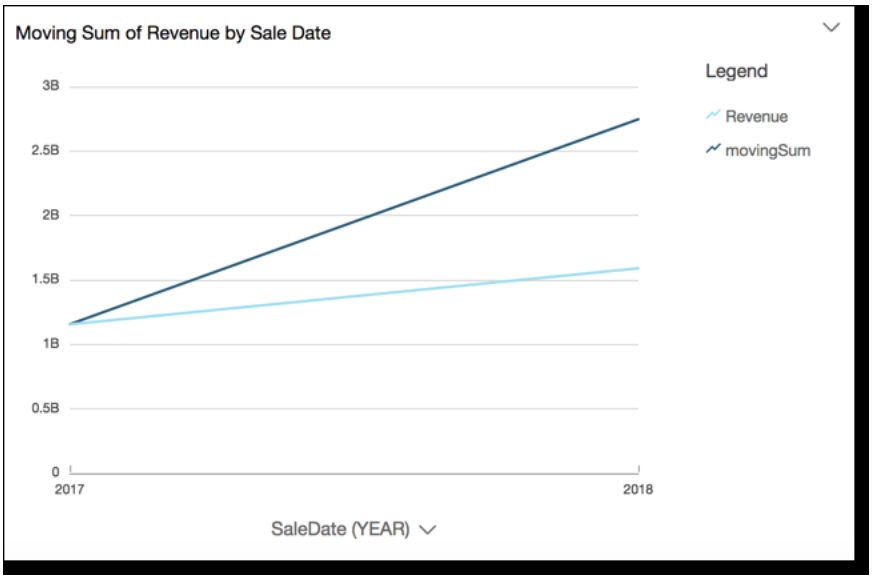
The following example calculates the moving sum of sum(Revenue), sorted by SaleDate. The calculation includes two rows above and one row ahead of the current row.

```
windowSum
    (
         sum(Revenue),
         [SaleDate ASC],
         2,
            1
    )
```

The following example show a trailing 12-month sum.

```
windowSum(sum(Revenue),[SaleDate ASC],12,0)
```

The following screenshot shows the results of this trailing 12-month sum example. The sum(Revenue) field is added to the chart to show the difference between the revenue and the trailing 12-month sum of revenue.



Filter data in Insights

You can use filters to refine the data in an analysis.

EXAMPLE You filter on the range of dates that you want to include in any visuals in your analysis.

When you create a filter in an analysis, that filter applies only to that analysis and any dashboards you publish from it. If someone duplicates your analysis, the filter persists in the new analysis. In analyses, you can scope filters to a single visual, some visuals, all visuals that use this dataset, or all applicable visuals.

Also, when you create filters in an analysis, you can add a filter control to your dashboard. For more information about filter controls, see Add filter controls to analysis sheets.

Each filter you create applies only to a single field. You can apply filters to both regular and calculated fields.

There are several types of filters you can add to analyses. For more information about the types of filters you can add, and some of their options, see Filter types in Insights.

If you create multiple filters, all top-level filters apply together using AND. If you group filters by adding them inside a top-level filter, the filters in the group apply using OR.

Insights applies all of the enabled filters to the field.

EXAMPLE There is one filter of state = WA and another filter of sales >= 500. The dataset or analysis contains only records that meet both of those criteria. If you disable one of these, only one filter applies.

NOTE Take care that multiple filters applied to the same field aren't mutually exclusive.

Use the following sections to learn how to view, add, edit, and delete filters.

Topics

- View existing filters in analyses
- Add filters to an analysis
- Filter types in Insights
- Add filter controls to analysis sheets
- Edit filters
- Enable or disable filters
- Delete filters

View existing filters in analyses

When you open an analysis, you can view any existing filters that were created. Use the following procedure to learn how.

Prerequisites

- You have the Insights Reader license.

Page location

Insights > Analyses > Click an analysis

Procedures

View a filter in an analysis

- In the analysis, click **Filter** (the funnel icon in the upper-left corner of the page). The **Filters** panel opens showing any filters applied to the analysis.

View how a filter is scoped in an analysis

1. In the analysis, click **Filter** (the funnel icon in the upper-left corner of the page). The **Filters** panel opens showing any filters applied to the analysis.
2. Click a filter. The **Edit filter** panel opens. The **Applied to** section at the top of the panel states which visuals use the filter. For more information about scoping filters, see Add filters to an analysis.

Related topics

- Add filters to an analysis
- Filter types in Insights
- Add filter controls to analysis sheets
- Edit filters
- Enable or disable filters
- Delete filters

Add filters to an analysis

You can add filters to an analysis in Insights. Use the following procedure to learn how.

Prerequisites

- You have the Insights Reader license.

Page location

Insights > Analyses > Click an analysis

Procedures

Add a filter to an analysis

1. Click **Filter** (the funnel icon, upper-left corner of the page). The **Filters** pane opens.
2. Click **+ Add**.
3. Select the field that you want to filter. The field appears in the **Filters** list.
4. Click the new filter in the pane to configure it. Or you can click the three dots to the right of the new filter and select **Edit**. The **Edit filter** pane opens.
5. Select one of the following options from the **Applied to** drop-down list.
    - Only this visual – The filter applies to the selected item only.
    - Some visuals – The filter applies to visuals with valid column mappings.
    - All visuals of this dataset – The filter applies to all the items based on this dataset.
    - All applicable visuals – The filter applies to any visuals that have valid column mappings.
6. Configure the rest of the filter options as needed. The options vary based on the data type for the field. For more information about the types of filters you can create and their configurations, see Filter types in Insights.
7. Click **Apply**.

Related topics

- View existing filters in analyses
- Filter types in Insights
- Add filter controls to analysis sheets
- Edit filters
- Enable or disable filters
- Delete filters

Filter types in Insights

You can create several different types of filters in Insights. The type of filter you create mostly depends on the data type of the field that you want to filter.

In analyses, you can create the following types of filters:

- Text filters
- Numeric filters
- Date filters
- Group filters with and/or operators
- Cascading filters

Use the following sections to learn more about each type of filter you can create and some of their options.

Topics

- Add a text filter to an analysis
- Add a numeric filter to an analysis
- Add a date filter to an analysis
- Add filter conditions (group filters) with AND and OR operators
- Create cascading filters

Add a text filter to an analysis

You can use a text field to create a variety of different text filters.

Prerequisites

- You have the Insights Reader license.
- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Procedures

Filter a text field by including and excluding values

You can filter a text field by selecting values to include or exclude from a list of all values in the field.

1. Create a new filter using a text field. For more information about creating filters, see Add filters to an analysis.
2. In the **Filters** pane, click the new filter. The **Edit filter** pane opens.
3. Select **Filter list** from the **Filter type** drop-down list.
4. Select **Include** or **Exclude** from the **Filter condition** drop-down list.
5. Select the check box in front of each value that you want to filter on.

   If there are too many values to choose from, enter a search term into the **Search values** field above the checklist. Search terms are case-insensitive, and wildcards aren't supported. Any field value that contains your search term is returned. For example, searching for **L** returns **al**, **AL**, **la**, and **LA**.

   The values display alphabetically. If there are more than 1,000 values, the field displays a search box instead. Each time that you search for the value that you want to use, it starts a new query. If the results contain more than 1,000 values, you can scroll through the values with pagination.
6. Click **Apply**.

Filter text field values by a custom list

You can specify one or more field values to filter on and whether you want to include or exclude records that contain those values. The values that you enter must match the actual field values exactly for the filter to apply to a given record.

1. Create a new filter using a text field. For more information about creating filters, see Add filters to an analysis.
2. In the **Filters** pane, click the new filter. The **Edit filter** pane opens.
3. Select **Custom filter list** from the **Filter type** drop-down list.
4. Select **Include** or **Exclude** from the **Filter condition** drop-down list.
5. Enter a value that you want to filter on in the **List** field. The value that you enter must match an existing field value exactly.
6. (Optional) To add additional values, enter them in the **List** field, one per line.
7. Select **Exclude nulls**, **Include nulls**, or **Nulls only** from the **Null options** drop-down list.
8. Click **Apply**.

Filter a text field by a single value

With the **Custom filter** filter type, you enter a single value that the field value must match in some way. You can specify that the field value must equal, not equal, start with, end with, contain, or not contain the value you specify. If you choose an equal comparison, the value you enter must match exactly with an actual field value in order for the filter to apply to a given record.

1. Create a new filter using a text field. For more information about creating filters, see Add filters to an analysis.
2. In the **Filters** pane, click the new filter. The **Edit filter** pane opens.
3. Select **Custom filter** from the **Filter type** drop-down list.
4. Select one of the following from the **Filter condition** drop-down list:
    - **Equals** – The values included or excluded in the field must match the value that you enter exactly.
    - **Does not equal** – The values included or excluded in the field must match the value that you enter exactly.
    - **Starts with** – The values included or excluded in the field must start with the value that you enter.
    - **Ends with** – The values included or excluded in the field must start with the value that you enter.
    - **Contains** – The values included or excluded in the field must contain the whole value that you enter.
    - **Does not contain** – The values included or excluded in the field must not contain any part of the value that you enter.

    NOTE Comparison types are case-sensitive.
5. Do one of the following:
    - Enter a literal value in the **Value** field.
    - Select **Use parameters** to use an existing parameter, and then choose a parameter from the list.

For parameters to appear in this list, create your parameters first. Usually, you create a parameter, add a control for it, and then add a filter for it. For more information, see Parameters in Insights.

The values display alphabetically in the control. If there are more than 1,000 values, the control displays a search box instead. Each time that you search for the value that you want to use, it starts a new query. If the results contain more than 1,000 values, you can scroll through the values with pagination.

6. Select **Exclude nulls**, **Include nulls**, or **Nulls only** from the **Null option**s drop-down list.
7. Click **Apply**.

Create a top and bottom text filter

You can use a **Top and bottom** filter to show the top or bottom *n* value of one field ranked by the values in another field.

EXAMPLE You show the top five salespeople based on revenue.

You can also use a parameter to allow dashboard users to dynamically choose how many top or bottom ranking values to show.

1. Create a new filter using a text field. For more information about creating filters, see Add filters to an analysis.
2. In the **Filters** pane, click the new filter. The **Edit filter** pane opens.
3. Select **Top and bottom filter** from the **Filter type** drop-down list.
4. Select **Top** or **Bottom**.
5. For **Show top** (or **Show bottom**), do one of the following:
   - Enter the number of top or bottom items to show in the **Integer** field.
   - To use a parameter for the number of top or bottom items to show, select **Use parameters**. Then choose an existing integer parameter from the **Select a parameter** drop-down list.

     EXAMPLE
     You want to show the top three salespersons by default. However, you want the dashboard viewer to be able to choose whether to show 1–10 top salespersons. In this case, take the following actions:

- Create an integer parameter with a default value.
- To link the number of displayed items to a parameter control, create a control for the integer parameter. Then you make the control a slider with a step size of 1, a minimum value of 1, and a maximum value of 10.
- To make the control work, link it to a filter by creating a top and bottom filter on `Salesperson` by `Weighted Revenue`, select **Use parameters**, and choose your integer parameter.

6. For **By**, select a field to base the ranking on.

   EXAMPLE To show the top five salespeople per revenue, choose the revenue field.

   You can also select the **Aggregation** that you want to perform on the field.

7. (Optional) Click **+ Tie breaker** and then select another field to add one or more aggregations as tie breakers.

   EXAMPLE Tie breakers are useful, in the case of this example, when there are more than five results returned for the top five salespeople per revenue. This situation can happen if multiple salespeople have the same revenue amount.

   To remove a tie breaker, click the trash can icon.

8. Click **Apply**.

Related topics

- Add filters to an analysis
- Parameters in Insights
- Add a numeric filter to an analysis
- Add a date filter to an analysis
- Add filter conditions (group filters) with AND and OR operators
- Create cascading filters

Add a numeric filter to an analysis

Prerequisites

- You have the Insights Reader license.
- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Fields with decimal or int data types are considered numeric fields. You create filters on numeric fields by specifying a comparison type, for example **Greater than** or **Between**, and a comparison value or values as appropriate to the comparison type. Comparison values must be positive integers and can't contain commas.

You can use the following comparison types in numeric filters:

- Equals
- Does not equal
- Greater than
- Greater than or equal to
- Less than
- Less than or equal to
- Between

NOTE To use a top and bottom filter for numeric data, first change the field from a measure to a dimension. Doing this converts the data to text. Then you can use a text filter. For more information, see Add a text filter to an analysis.

For datasets based on database queries, you can also optionally apply an aggregate function to the comparison value or values, for example **Sum** or **Average**.

You can use the following aggregate functions in numeric filters:

- Average
- Count
- Count distinct

- Max
- Median
- Min
- Percentile
- Standard deviation
- Standard deviation - population
- Sum
- Variance
- Variance - population

Procedure

Create a numeric field filter

1. Create a new filter using a numeric field. For more information about creating filters, see Add filters to an analysis.
2. In the **Filters** pane, click the new filter. The **Edit filter** pane opens.
3. (Optional) Select an aggregation from the **Aggregation** drop-down list. No aggregation is applied by default.
4. Select a comparison type from the **Filter condition** drop-down list.
5. Do one of the following:

    - If you selected a comparison type other than **Between**, enter a comparison value in the **Enter a value** field.

      If you selected **Between**, enter the beginning of the value range in the **Minimum value** field and the end of the value range in the **Maximum value** field.

    - To use an existing parameter, select **Use parameters**, then select your parameter from the list.

      For parameters to appear in this list, create your parameters first. Usually, you create a parameter, add a control for it, and then add a filter for it. For more information, see Parameters in Insights. The values display alphabetically in the control. If there are more

than 1,000 values, the control displays a search box instead. Each time you search for the value that you want to use, it starts a new query. If the results contain more than 1,000 values, you can scroll through the values with pagination.

6. Select **Exclude nulls**, **Include nulls**, or **Nulls only** from the **Null options** drop-down list.
7. Click **Apply**.

Related topics

- Add filters to an analysis
- Add a text filter to an analysis
- Add a date filter to an analysis
- Add filter conditions (group filters) with AND and OR operators
- Create cascading filters
- Parameters in Insights

Add a date filter to an analysis

Prerequisites

- You have the Insights Reader license.
- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

You create filters on date fields by selecting the filter conditions and date values that you want to use. Comparisons are applied inclusive to the date specified.

> **EXAMPLE** If you apply the filter `Before 2/8/24`, the records returned include all rows with date values through 2/8/24 23:59:59. If you don't want to include the date specified, clear the **Include this date** option. To omit a time range, use the **Exclude the last N periods** option to specify the number and type of time periods (minutes, days, and so on) to filter out.

You can also include or exclude nulls, or exclusively show rows that contain nulls in this field. If you pass in a null date parameter (one without a default value), it doesn't filter the data until you provide a value.

> **NOTE** If a column or attribute has no time zone information, then Insights sets the default interpretation of that date-time data. For example, suppose that a column contains a timestamp, rather than a timestamptz, and you are in a different time zone than the data's origin. In this case, Insights can render the timestamp differently than you expect. Insights and SPICE both use Universal Coordinated Time (UTC) times.

Procedures

Create a range filter for a date field

A range filter is a series of dates based on a time range and comparison type. You can filter records based on whether the date field value is before or after a specified date, or within a date range. You enter date values in the format MM/DD/YYYY. You can use the following comparison types:

- **Between** – Between a start date and an end date
- **After** – After a specified date
- **Before** – Before a specified date
- **Equals** – On a specified date

For each comparison type, you can alternatively choose a rolling date relative to a period or dataset value.

1. Create a new filter using a date field. For more information about creating filters, see Add filters to an analysis.
2. In the **Filters** pane, click the new filter. The **Edit filter** pane opens.
3. Select **Date & time range** from the **Filter type** drop-down list.
4. Select a comparison type from the **Condition** drop-down list: **Between**, **After**, **Before**, or **Equals**.

   To use **Between** as a comparison, select the **Start date** and **End date** from the date picker controls that appear.

   To include either or both the start and end dates in the range, select **Include start date** or **Include end date**.

To use an **After**, **Before**, or **Equals** condition, enter a date or click the **Date** field to open the date picker control and select a date instead. You can **Include this date** (the one you chose), **Exclude** the **last** N time periods, and select how to handle nulls.

To set a rolling date for your condition, click **Set a rolling date**. The **Set a rolling date** pane opens. Select **Relative date** and then select to set the date to **Today**, **Yesterday**, or you can specify the **Filter condition** (**Start of** or **End of**), **Range** (**This**, **Previous**, **Next**, **Next N**, or **Last N**), and **Period** (**Year**, **Quarter**, **Month**, **Week**, or **Day**). Click **Save** to return to the **Edit filte**r pane.

5. (Optional) If you are filtering by using an existing parameter, instead of specific dates, select **Use parameters**, then select your parameter or parameters from the list. To use **After**, **Before**, or **Equals** conditions, select one date parameter. You can include this date in the range.

   To use **Between**, enter both the start date and end date parameters separately. You can include the start date, the end date, or both in the range.

   To use parameters in a filter, create them first. Usually, you create a parameter, add a control for it, and then add a filter for it. For more information, see Parameters in Insights.

6. If the **Time granularity** drop-down list is visible, select **Day**, **Hour**, **Minute**, or **Second**.
7. Click **Apply**.

Create a relative filter for a date field

A relative filter is a series of date and time elements based on the current date. You can filter records based on the current date and your selected unit of measure (UOM). Date filter units include years, quarters, months, weeks, days, hours, and minutes. You can exclude the current period and add support for Next N filters, similar to Last N with an added capability to allow for an Anchor date. You can use the following comparison types:

- **Previous** – The previous UOM—for example, the previous year.
- **This** – This UOM, which includes all dates and times that fall within the select UOM, even if they occur in the future.
- **To date *or* up to now** – UOM to date, or UOM up to now. The phrase depends on the UOM that you choose. However, in all cases this option filters out data that is not between the beginning of the current UOM and the current moment.
- **Last *n*** – The last specified number of the given UOM, which includes all of this UOM and all of the last $n - 1$ UOM.

> **EXAMPLE** Today is February 8, 2024. You use *years* as your UOM and set Last *n* years to 3. The filtered data includes data for all of 2024, plus all of 2023, and all of 2022. If you have any data for the future dates of the current year (2024 in this example), these records are included in your dataset.

1. Create a new filter using a date field. For more information about creating filters, see Add filters to an analysis.
2. In the **Filters** pane, click the new filter. The **Edit filter** pane opens.
3. Select **Relative dates** from the **Filter type** drop-down list.
4. Select a granularity of time that you want to filter by from the **Time granularity** drop-down list (**Days**, **Hours**, or **Minutes**).
5. Select a unit of time from the **Period** drop-down list (**Years**, **Quarters**, **Months**, **Weeks**, or **Days**).
6. Select how you want the filter to relate to the time frame from the **Range** drop-down list.

   > **EXAMPLE** You selected **Months** from the **Period** drop-down list. Your options in the **Range** drop-down list are **Previous month**, **This month**, **Month to date**, **Last N months**, and **Next N months**.

   If you choose **Last N** or **Next N**, enter a number in the **Number of** field.

   > **EXAMPLE** Last 3 years, next 5 quarters, last 5 days.

7. (Optional) If you are filtering by using an existing parameter, instead of specific dates, select **Use parameters**, then select your parameter or parameters from the list.

   To use parameters in a filter, create them first. Usually, you create a parameter, add a control for it, and then add a filter for it. For more information, see Parameters in Insights.

8. If the **Null options** drop-down list is visible, select **Exclude nulls**, **Include nulls**, or **Nulls only**.
9. In the **Set Dates Relative To** section, select one of the following options:
   - **Current date time** – If you select this option, you can select **Exclude last** and then specify the number and type of time periods.
   - **Date and time from a parameter** – If you select this option, select an existing datetime parameter.
10. Click **Apply**.

Create a top and bottom filter for a date field

A top and bottom filter is a number of date entries ranked by another field. You can show the top or bottom *n* for the type of date or time UOM you choose, based on values in another field.

EXAMPLE You can choose to show the top 5 sales days based on revenue.

1. Create a new filter using a date field. For more information about creating filters, see Add filters to an analysis.
2. In the **Filters** pane, click the new filter. The **Edit filter** pane opens.
3. Select **Top and bottom filter** from the **Filter type** drop-down list.
4. Select **Top** or **Bottom**.
5. (Optional) If you are filtering by using an existing parameter, instead of specific dates, select **Use parameters**, then select your parameter or parameters from the list.

   To use a parameter for **Top and bottom**, select an integer parameter for the number of top or bottom items to show.

   To use parameters in a filter, create them first. Usually, you create a parameter, add a control for it, and then add a filter for it. For more information, see Parameters in Insights.
6. Enter the number of top or bottom items you want to show in the **Integer** field and select a unit of time (**Years**, **Quarters**, **Months**, **Weeks**, **Days**, **Hours**, or **Minutes**).
7. In the **By** section, select a field to base the ranking on from the **Select field** drop-down list.
8. Select an aggregation from the **Aggregation** drop-down list.
9. (Optional) If the field for **By** has duplicates, add another field as a tie breaker. Click **+ Tie breaker**, select another field, and select an **Aggregation** and **Sort direction**. To remove a tie breaker, click the trash can icon.
10. Click **Apply**.

Related topics

- Add filters to an analysis
- Add a text filter to an analysis
- Add a numeric filter to an analysis
- Add filter conditions (group filters) with AND and OR operators

- Create cascading filters
- Parameters in Insights

Add filter conditions (group filters) with AND and OR operators

In analyses, when you add multiple filters to a visual, Insights uses the AND operator to combine them. You can also add filter conditions to a single filter with the OR operator. This is called a compound filter, or filter group.

To add multiple filters using the OR operator, create a filter group. Filter grouping is available for all types of filters in analyses.

When you filter on multiple measures (green fields marked with #), you can apply the filter conditions to an aggregate of that field. Filters in a group can contain either aggregated or nonaggregated fields, but not both.

Prerequisites

- You have the Insights Reader license.
- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Procedure

Create a filter group

1. Create a new filter in the analysis. For more information about creating filters, see Add filters to an analysis.
2. In the **Filters** pane, click the new filter. The **Edit filter** pane opens.
3. Click **Add filter condition** at bottom, and then select a field to filter on.
4. Select the conditions to filter on. The data type of the field that you selected determines the options available here.

> **EXAMPLE** If you chose a numeric field, you can specify the aggregation, filter condition, and values. If you chose a text field, you can chose the filter type, filter condition, and values. And if you chose a date field, you can specify the filter type, condition, and time granularity. For more information about these options, see Filter types in Insights.

5. (Optional) To add additional filter conditions to the filter group, click **Add filter condition** again.
6. (Optional) To remove a filter from the filter group, click **Remove this filter** (the trash can icon) near the field name.
7. Click **Apply**. The filters appear as a **Group** in the **Filters** pane.

Related topics

- Add filters to an analysis
- Filter types in Insights
- Add a text filter to an analysis
- Add a numeric filter to an analysis
- Add a date filter to an analysis
- Create cascading filters

Create cascading filters

The purpose of a cascading action, such as a filter, is that the configurations in the higher levels of a hierarchy affect the lower levels of a hierarchy. To set up cascading filters, you must have a trigger point where the filter is activated and target points where the filter is applied. In Insights, the trigger and target points are included in the visuals.

Prerequisites

- You have the Insights > Create/edit report permission.

Page location

Insights > Analyses

Procedures

To create a cascading filter, you set up an action instead of a filter because you must define how the cascading filter is activated, which fields are involved, and which visuals are filtered when someone activates it. For more information, including step-by-step instructions, see Using custom actions for filtering and navigating.

A filter that is activated from a widget on a dashboard is called a sheet control. A sheet control is a custom menu that you can add to the top of your analysis or dashboard. The most common sheet control is a drop-down menu, which displays a list of options to choose from when you open it. To add one of these to your analysis, create a parameter, add a control to the parameter, and then add a filter that uses the parameter. For more information, see Set up parameters in Insights, Using a control with a parameter in Insights, and Adding filter controls to analysis sheets.

A filter that always applies to multiple visuals is a regular filter, except that you set its scope to apply to multiple or all visuals. This type of filter does not cascade, because there is no trigger point. It always filters all the visuals that it is configured to filter. To add this type of filter to your analysis, create or edit a filter and then choose a scope for all visuals, some visuals, or only this visual. For more information, see Add a text filter to an analysis.

Add filter controls to analysis sheets

When you design an analysis, you can add a filter to the analysis sheet near the visuals that you want to filter. The filter appears in the sheet as a control that you can use when you publish the analysis as a dashboard. The control uses the analysis theme settings so it looks like it is part of the sheet. Filter controls share some settings with their filters. They apply to one, some, or all of the objects on the same sheet.

Prerequisites

- You have the Insights > Create/edit report permission.

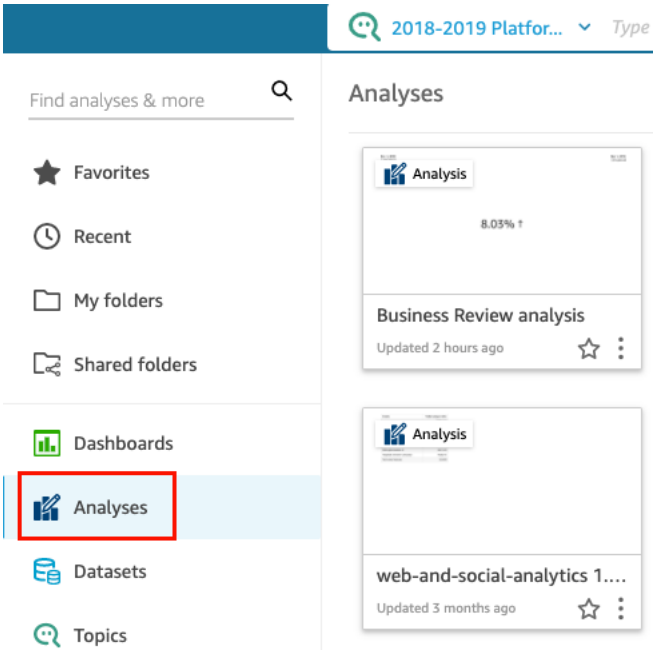
Page location

Insights > Analyses

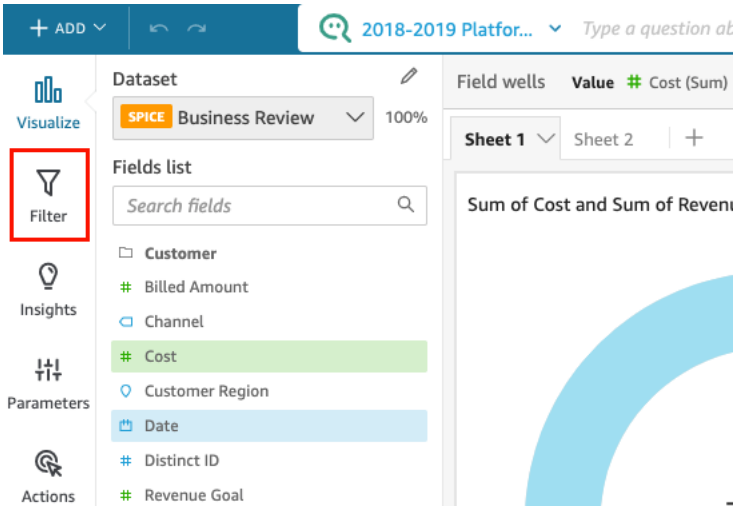
Procedures

Add a filter control

1. From the **Insights** start page, click **Analyses**, and then select the analysis that you want to work with.

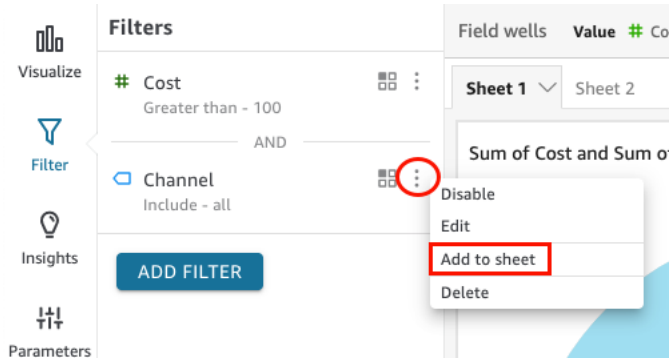


2. In the analysis, click **Filter**.



3. If you do not have any filters, create a new filter. For more information about creating filters, see Add filters to an analysis.

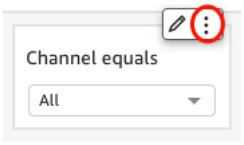
4. In the **Filters** pane, click the three dots to the right of the filter that you want to add a control for, and click **Add to sheet**.



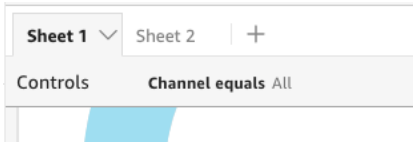
> **NOTE** You can resize or drag a filter control to different positions on the sheet. You can also customize how it appears and how you can interact with it.

Pin filter controls to the top of a sheet

1. For the filter control that you want to move, click the three dots next to the pencil icon and click **Pin to top**.

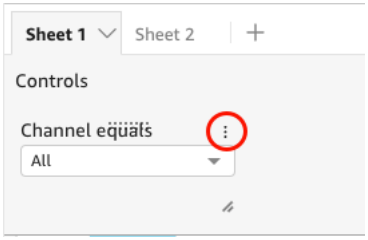


The filter is collapsed by default. Click the filter to expand it.



2. (Optional) To unpin the filter, expand it and hover over it at the top of the sheet until three dots

appear. Click the three dots and then click **Move to sheet**.

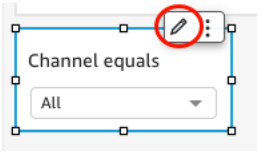


Customizing filter controls

Depending on the data type of the field and the type of filter, there are different settings for filter controls. For example, you can customize how filters controls appear in the sheet and how you can interact with them.

To customize a filter control

1. Click the filter control in the sheet.
2. On the filter control, click the pencil icon.



If the filter control is pinned to the top of the sheet, expand it and hover your cursor over it until the three dots appear. Then, click the three dots and click **Edit**.

3. In the **Format** control pane that opens, complete the following steps:
    a. For **Display name**, enter a name for the filter control.
    b. (Optional) To hide the display name for the filter control, clear the **Show title** check box.
    c. For **Title font size**, click the title font size that you want to use. The options range from extra small to extra large. The default setting is medium.

Date filters

To customize options for a date filter

1. In the **Format** control pane, for **Style**, select one of the following options:

    - **Date picker** – **range** – Displays a set of two fields to define a time range. You can enter a date or time, or you can choose a date from the calendar control. You can also customize how you want the dates to appear in the control by entering a date token for **Date format**. For more information, see Customizing date formats in Insights.

    - **Date picker** – **relative** – Displays settings like the time period, its relation to the current date and time, and the option to exclude time periods. You can also customize how you want the dates to appear in the control by entering a date token for **Date format**. For more information, see Customizing date formats in Insights.

    - **Text field** – Displays a box where you can enter the top or bottom **N date**.

      Helper text is included in the text field control by default, but you can remove it by clearing the **Show helper text in control** check box.

2. When finished, click **Apply**.

Text filters

If your filter control is from a text filter, for example dimensions, categories, or labels, use the following procedure to customize the remaining options.

To customize options for a text filter

1. In the **Format** control pane, for **Style**, choose one of the following options:

    - **Dropdown** – Displays a drop-down menu with buttons that you can use to select a single value.

      When you select this option, you can choose the following options for **Values**:

        - **Filter** – Displays all the values that are available in the filter.

        - **Specific values** – Allows you to enter the values to display. You can add one entry per line

- **Hide Select all** - Removes the option to select or clear the selection of all values in the filter control.

- **Dropdown - multiselect** – Displays a drop-down menu with boxes that you can use to select multiple values.

  When you select this option, you can choose the following options for **Values**:

  - **Filter** – Displays all the values that are available in the filter.
  - **Specific values** – Allows you to enter the values to display. You can add one entry per line.
  - **Hide Select all** - Removes the option to select or clear the selection of all values in the filter control.

- **List** – Displays a list with buttons that you can use to select a single value.

  When you select this option, you can choose the following options for **Values**:

  - **Filter** – Displays all the values that are available in the filter.
  - **Specific values** – Allows you to enter the values to display. You can add one entry per line.

  You can also select the following:

  - **Hide search bar when control is on sheet** – Hides the search bar in the filter control, so users cannot search for specific values.
  - **Hide Select all** - Removes the option to select or clear the selection of all values in the filter control.

- **List - multiselect** – Displays a list with boxes that you can use to select multiple values.

  When you select this option, you can choose the following options for **Values**:

  - **Filter** – Displays all the values that are available in the filter.
  - **Specific values** – Allows you to enter the values to display. You can add one entry per line.

You can also select the following:

- **Hide search bar when control is on sheet** – Hides the search bar in the filter control, so users cannot search for specific values.
- **Hide Select all** – Removes the option to select or clear the selection of all values in the filter control.

- **Text field** – Displays a text box where you can enter a single entry.

  When you select this option, you can select the **Show helper text in control** check box to remove the helper text in text fields.

- **Text field - multiline** – Displays a text box where you can enter multiple entries.

  When you select this option, you can select the following options:

  - For **Separate values by**, choose how you want to separate values you enter into the filter control. You can separate values by a line break, comma, pipe, or semicolon.
  - **Show helper text in control** – Removes the helper text from text fields.

2. Click **Apply**.

Numeric filters

To customize options for a numeric filter

1. In the **Format** control pane, for **Style**, choose one of the following options:

   - **Dropdown** – Displays a list where you can select a single value.

     When you select this option, you can choose the following options for **Values**:

     - **Filter** – Displays all the values that are available in the filter.
     - **Specific values** – Allows you to enter the values to display. You can add one entry per line.
     - **Hide Select all** – Removes the option to select or clear the selection of all values in the filter control.

- **List** – Displays a list with buttons that allow you to select a single value.

  When you select this option, you can choose the following options for **Values**:

  - **Filter** – Displays all the values that are available in the filter.
  - **Specific values** – Allows you to enter the values to display. You can add one entry per line.

  You can also choose the following:

  - **Hide search bar when control is on sheet** – Hides the search bar in the filter control, so users cannot search for specific values.
  - **Hide Select all** – Removes the option to select or clear the selection of all values in the filter control.

- **Slider** – Displays a horizontal bar with a toggle that you can slide to change the value. If you have a ranged filter for values between a minimum and a maximum, the slider provides a toggle for each number. For sliders, you can specify the following options:

  - **Minimum value** – Displays the smaller value at the left of the slider.
  - **Maximum value** – Displays the larger value at the right of the slider.
  - **Step size** – Allows you to set the number of increments that the bar is divided into.

- **Text box** – Displays a box where you can enter the value. When you select this option, you can choose the following options:

  - **Show helper text in control** – Removes the helper text from text fields.

2. (Optional) You can limit the values displayed in the control, so they only show values that are valid for what is selected in other controls. This is called a cascading control.

   When you create cascading controls, the following limitations apply:

   - Cascading controls must be tied to dataset columns from the same dataset.
   - The child control must be a drop-down menu or list control.
   - For parameter controls, the child control must be linked to a dataset column.

- For filter controls, the child control must be linked to a filter instead of showing only specific values.
- The parent control must be one of the following:
  - A string, integer, or numeric parameter control.
  - A string filter control (excluding top-bottom filters).
  - A non-aggregated numeric filter control.
  - A date filter control (excluding top-bottom filters).

3. To create a cascading control, complete the following steps:
   a. Click **Show relevant values only**. This option might not be available for all filter control types.
   b. In the **Show relevant values only** pane that opens, select one or more controls from the available list.
   c. Select a field to match the value to.
   d. Click **Update**.
4. Click **Apply**.

Edit filters

You can edit filters in a dataset or analysis.

> **NOTE** You cannot change the field a filter applies to. To apply a filter to a different field, you must create a new filter.

Prerequisites

- You have the Insights > Create/edit report permission.

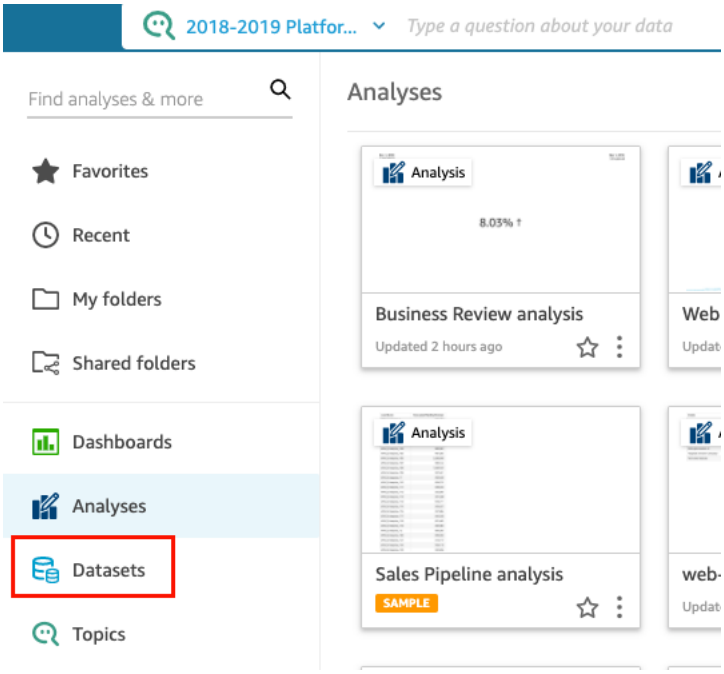
Page location

Insights > Analyses

Procedures

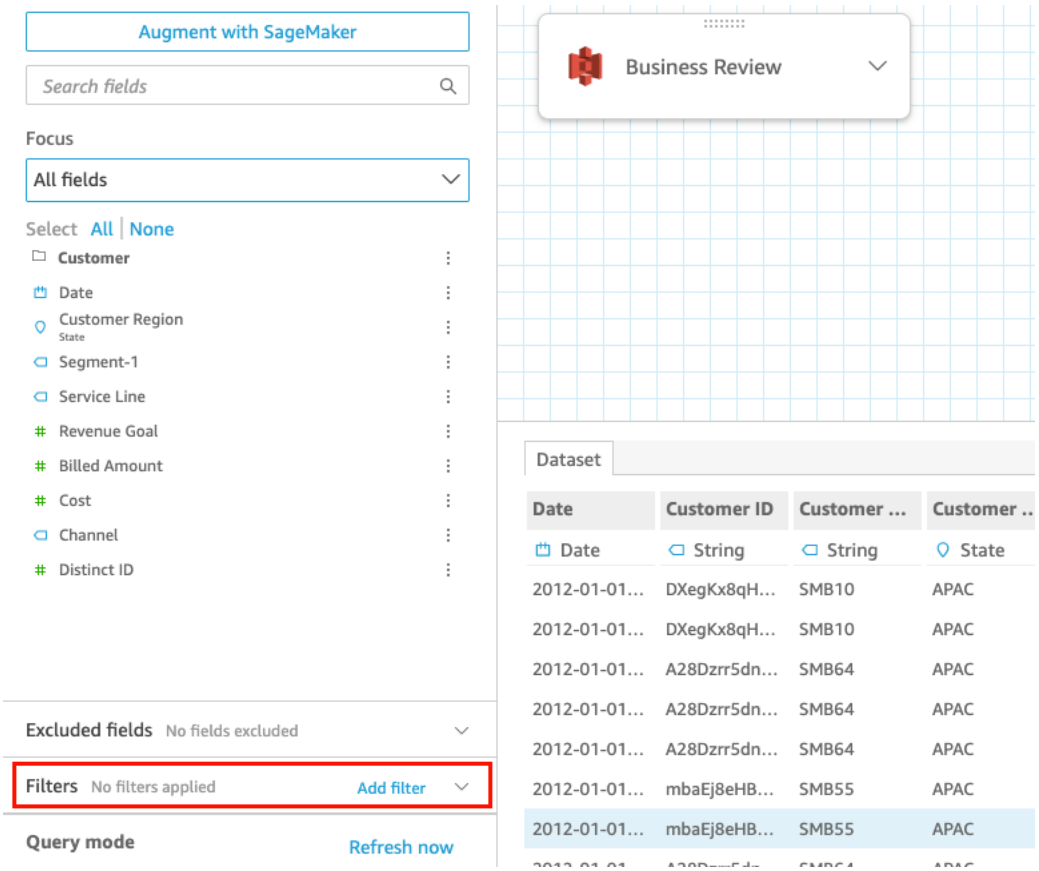
Edit a filter in a dataset

1. Click **Datasets**.



2. Select a dataset and then click **Edit dataset**.

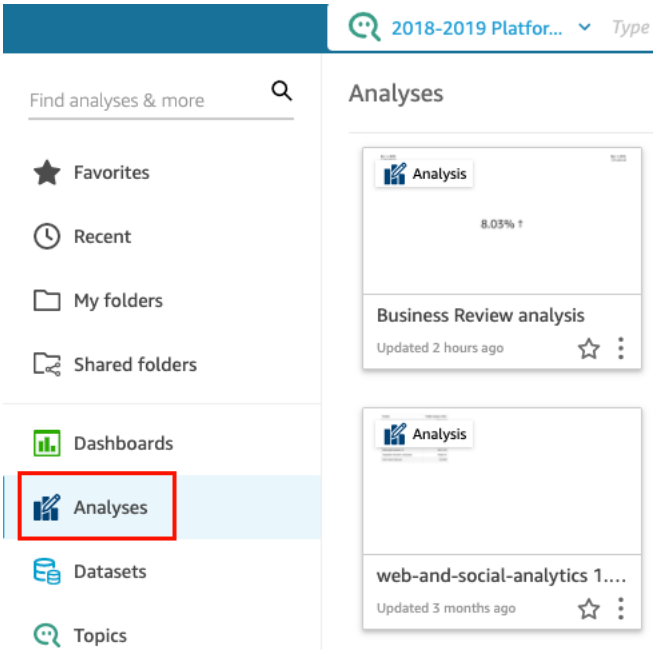
3. Click **Filters**.



4. Select a filter that you want to edit.
5. Edit the filter and click **Apply**.

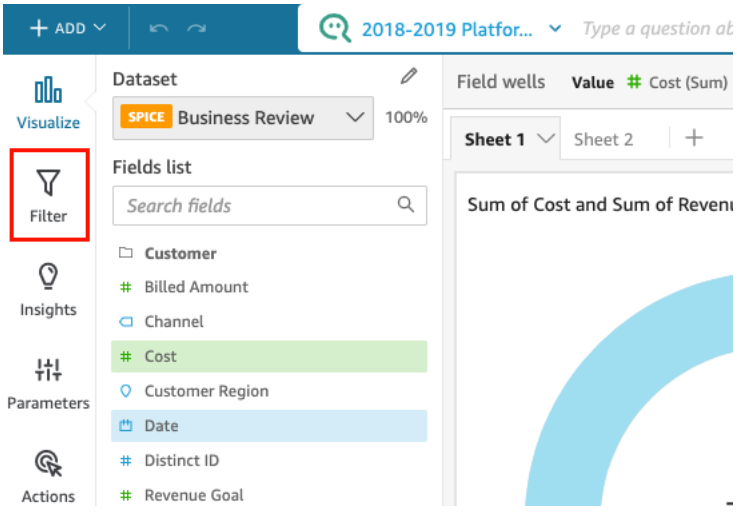
Edit a filter in an analysis

1. Click **Analyses**.



2. Select an analysis.

3. Click **Filter**.



4. Select the filter that you want to edit.

5. Click **Apply**.

Enable or disable filters

You can use the filter menu to enable or disable a filter in a dataset or an analysis. When you create a filter, it's enabled by default. Disabling a filter removes the filter from the field, but it doesn't delete the filter from the dataset or analysis. Disabled filters are grayed out in the filters pane. If you want to re-apply the filter to the field, you can simply enable it.

Use the following procedures to learn how to enable or disable filters.

Prerequisites

- You have the Insights > Create/edit report permission.

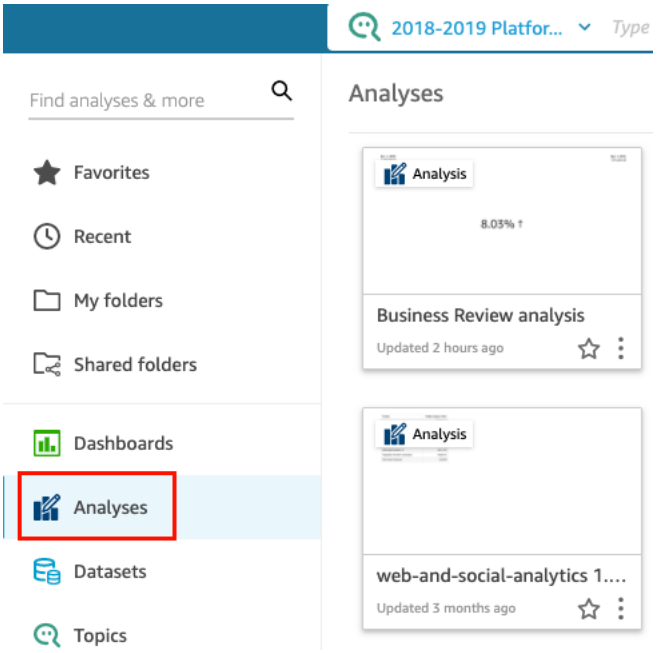
Page location

Insights > Analyses

Procedures

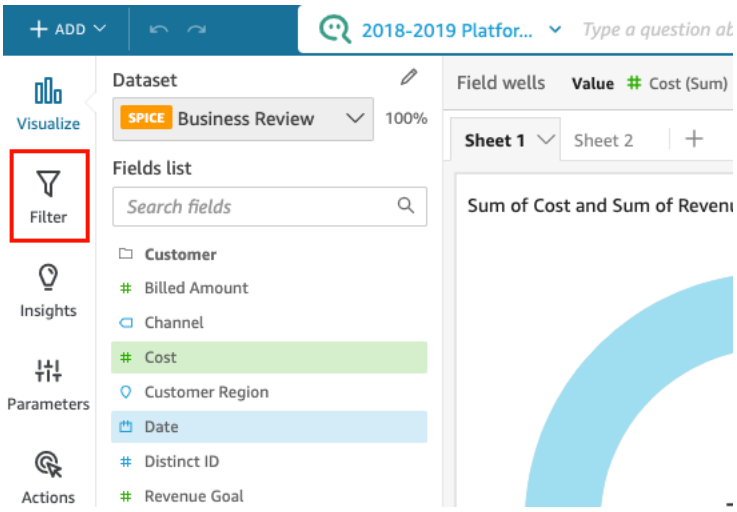
Disable a filter in an analysis

1. Click **Analyses**.



2. Select the analysis that you want to work with.

3. Click **Filter**.



4. In the **Filters** window, click the three dots to the right of the filter that you want to disable and then click **Disable**. To enable a disabled filter, click **Enable**.

Delete filters

You can delete filters in a dataset or analysis.

Prerequisites

- You have the Insights > Create/edit report permission.

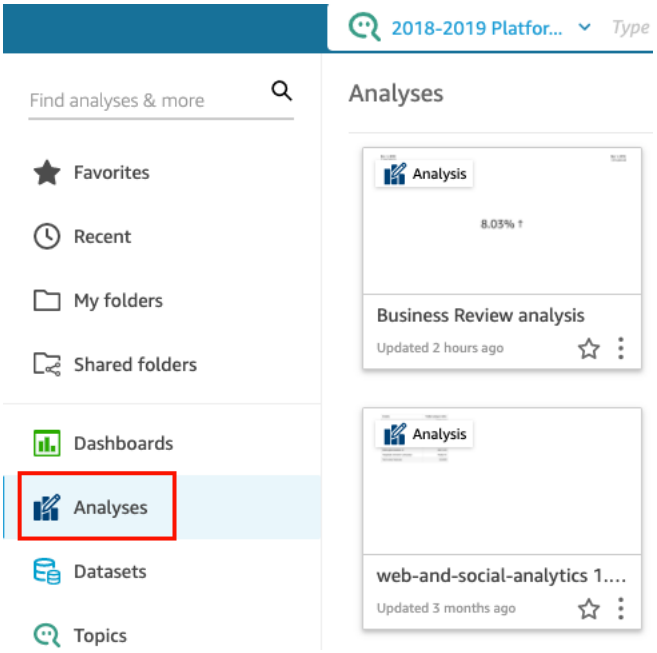
Page location

Insights > Analyses

Procedures

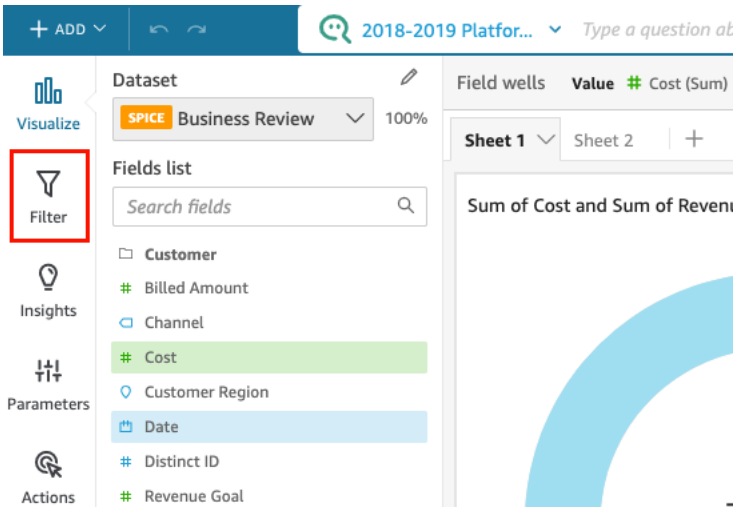
Delete a filter in an analysis

1. Click **Analyses**.



2. Select the analysis that you want to work with.

3. Click **Filter**.



4. Select the filter that you want to delete and click **Delete filter**.

Visualize data in Insights

Following, you can find descriptions of how to create and customize Insights charts, arrange charts in a dashboard, and more.

Related Topics

- Work with an analysis in Insights
- Adding sheets
- Working with interactive sheets in Insights
- Work with items on sheets in Insights analyses
- Using themes in Insights
- Accessing Insights using keyboard shortcuts

Work with an analysis in Insights

In Insights, an analysis is the same thing as a dashboard, except that it can only be accessed by the authors you choose. You can keep it private, and make it as robust and detailed as you like. When and if you decide to publish it, the shared version of it is called a dashboard.

Use the following sections to learn how to interact with an Insights analysis.

Related Topics

- Create an analysis in Insights
- Add a title and description to an analysis
- Rename an Insights analysis
- Duplicating analyses
- Viewing analysis details
- Customize date and time values of an analysis
- The analysis menu
- Saving changes to an analysis
- Exporting data from Insights analysis
- Deleting an analysis

Create an analysis in Insights

In Insights, you analyze and visualize your data in analyses. When you're finished, you can publish your analysis as a dashboard to share with others in your organization.

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.
- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View QM Data
  - View WFM Data

Page location

Insights > Analyses

Procedures

Create a new analysis

1. Click **New analysis** from the upper-right corner of the page.
2. Select the dataset you want to include, and then click **USE IN ANALYSIS** from the upper-right corner. The new analysis page opens. See Insights dataset dictionary to select the appropriate dataset.
3. You can now explore all the available options—add data fields to your sheet, create visuals, apply filters and parameters, check insights, adjust visual properties, and even add content like images and text. Play around with these features to tailor the analysis to your needs. For more information about creating visuals, see Add visuals to Insights analyses.
4. Once you've finished creating your analysis, refer to Publish an Insights dashboard to publish it.

Related topics

- Add or remove a field in a visual
- Add visuals to Insights analyses
- Customizing a field format
- Parameters in Insights
- Use dynamic parameters in Insights
- Visualize data in Insights

Add a title and description to an analysis

In addition to the analysis name, you can add a title and description to an analysis. A useful title and description provides context about the information in the analysis.

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.

Page location

Insights > Analyses > Click an analysis

Procedure

Titles and descriptions can contain up to 1,024 characters.

Add title and description to an analysis

1. Select **Add Title** from the Sheets drop-down list in the upper-left corner of the page. For **Sheet Title**, enter a title and press Enter.
2. To delete a title, click **Sheets** in the application bar and then click **Delete Title**. Or, to delete the title, you can click the title and then click the x-shaped delete icon.

   To create a dynamic sheet title, you can add existing parameters to the sheet title. For more information, see Using parameters in titles and descriptions in Insights.
3. Click **Sheets** in the application bar, and then Click **Add Description**. For description, enter a description in the **Description Box** and press Enter.
4. To delete a description, click **Sheets** in the application bar and then click **Delete Description**. Or, to delete the description, you can click on the description and then click the x-shaped delete icon.

Related topics

- Rename an Insights analysis
- Duplicate an Insights analysis
- View an Insights analysis details

Rename an Insights analysis

Prerequisites

- You have the Insights Author license.
- You have the View Content permission.
- You have at least one of these permissions:

- View Analytics Data
- View Classic WFM Data
- View QM Data
- View WFM Data

- You have the Create Content permission.

Page location

Insights > Analyses > Click an analysis

Procedure

Rename an analysis

- Enter a new name in the name field in the upper-left corner of the page.

Related topics

- Duplicate Insights visuals
- View visual data in Insights
- Export data from visuals
- Refresh visuals in Insights
- Delete Insights visuals
- Adding a title and description to an analysis

Duplicating analyses

You can duplicate analyses in Insights.

Duplicate an analysis

1. On the **Insights** start page, click **Analyses**, and then open the analysis that you want to duplicate.
2. In the analysis, click **Save**.

3. On the **Save a copy** page that opens, enter a name for the analysis, and then click **Save**. The new analysis opens. You can find the original analysis by returning to the **Insights** start page and clicking **Analyses**.

Viewing analysis details

View an analysis

1. On the **All analyses** tab on the **Insights** start page, find the analysis.
2. Click the analysis.



Customize date and time values of an analysis

In Insights, authors can set custom time zones and week start days of an analysis. When you set a custom week start or time zone, all visuals in the analysis that use datetime data are formatted to reflect the time zone or week start that the analysis uses. You can use custom time zones to help manage data across multiple geographic regions. When you set a custom time zone, all visible dimensions, measures, calculated fields, and filters are converted to the chosen time zone at query run time. Daylight Savings Time (DST) adjustments are applied automatically to eliminate the need for time-consuming workarounds that do not accurately handle historical dates.

Custom time zones refer to the use of IANA time zone abbreviations that represent specific geographic regions around the world. Each time zone is defined as an offset from Coordinated Universal Time (UTC). Time zones are different from simple offsets because they incorporate DST. The default time zone for all analyses is UTC.

The following rules apply to time zones.

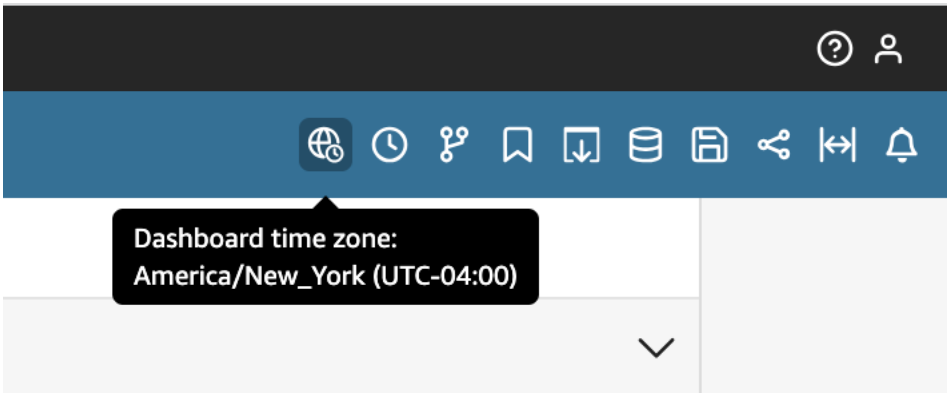
- Datetime displays with a granularity that is lower than hour are converted to the selected time zone. For example, if you set the timezone of an analysis to America/New_York (UTC-04:00), the datetime value Dec.1, 2020 12:00am in UTC+00:00 is converted and displayed as Nov.30, 2020 7:00pm. Daylight Savings Time (DST) is incorporated into the datetime conversion.

- Datetime literals, that are added to calculations or selected in filters, honor the selected time zone of the analysis. For example, if you manually enter a literal into a calculated field such as 01-01-2022 7:00pm, or select a fixed filter time, Insights applies the chosen timezone to the literal value.
- Measures that are aggregated above the hour/minute granularity are aggregated based on the timezone that the analysis is set to. When Insights processes a dataset, all timestamps are initially converted at the lowest granularity level. Values are then aggregated based on the boundary of the selected time zone for the analysis. For example, a sum of hourly revenues at the day level with a UTC+00:00 time zone aggregates all hourly revenues from 12am-11pm for the UTC time zone. When you convert UTC+00:00 to New_York (UTC-04:00), all revenue datapoints are aggregated from 8:00pm-7:00pm (+1day) in UTC to correspond with the start and end of the day in New_York (UTC-04:00).
- The now() function, rolling date filter, and parameters are converted to the chosen time zone. Relative date filters, rolling date filters, and relative date parameters that use the now() function also honor the chosen time zone when they are applied to the visual. For example, when you select a relative filter such as last week or a rolling date filter such as start of the month, the chosen timezone is automatically applied to the filter to display the values for last week for the New_York time zone and start of the month for the New_York time zone, respectively.

Set the custom time zone of an analysis

1. From the analysis that you want to change, navigate to the top menu and click **Edit**.
2. Click **Analysis settings**, and then click **Date and time**.
3. Toggle the **Convert time zone** slider on and select the time zone that you want.
4. Click **Apply**.

When an analysis is assigned a time zone, an icon appears at the top of the analysis that indicates which time zone the analysis uses. This icon also appears on any dashboard that is published from the analysis.



The following considerations apply to custom time zones.

- To use custom time zones, all datetime columns in a dataset must be normalized to UTC. If your datetime columns are not normalized in your data source, you need to convert the columns in your data source before you can use this feature.
- For analyses that are not assigned a custom time zone, author and reader experiences are unaffected.
- Once a time zone is added to an analysis, the time zone is applied to all visuals and sheets in the analysis.
- Insights authors can choose only one time zone for an analysis. All dashboards that are published from the analysis use the time zone that the analysis uses. To create a dashboard that uses a different time zone than the one that the analysis uses, change the time zone of the analysis and republish the dashboard.
- Insights readers cannot change the time zone of a dashboard.
- If you set the time zone of an analysis that uses a dataset that is stored in Direct Query and experience slow load times, consider storing the dataset in SPICE. SPICE is engineered to handle time zone conversions in a performant way.
- Custom time zones do not support the following database engines:
  - Timestream
  - OpenSearch Service
  - Teradata
  - SqlServer

You can also define the week start day of an analysis to align your data with the schedule that your company or industry follows. When you set a custom week start day, all dimensions, calculated fields, and filters that are aggregated at the week level are calculated to align with the new week start day. The default week start day is Sunday.

Set the custom week start day of an analysis

1. From the analysis that you want to change, navigate to the top menu and click **Edit**.
2. Click **Analysis settings**, and then click **Date and time**.

3. For **Custom start day**, select the start day that you want.
4. Click **Apply**.

The following considerations apply to custom week start days.

- Datetime fields are converted at run time. When you work with calculated fields that use datetime values, define the fields at the analysis level instead of the dataset level.
- Once you select a new week start day, the change is applied to all visuals and sheets in the analysis.
- Insights authors can choose only one week start day for an analysis. All dashboards that are published from the analysis use the week start day that the analysis uses. To create a dashboard that uses a different week start day than the one that the analysis uses, change the week start day of the analysis and republish the dashboard.
- Insights readers cannot change the week start day of a dashboard.

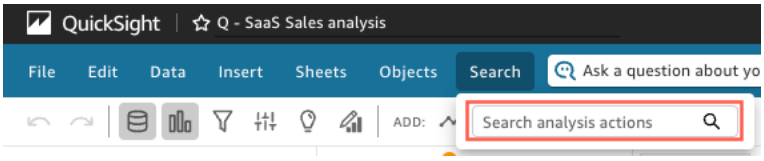
The analysis menu

While working on an analysis, Insights provides menu options that you can use to efficiently perform tasks without having to manually navigate through your analysis to find the assets that you want to change.

You can use these options to perform the following tasks.

- File – Perform analysis management tasks, including creating, sharing, and publishing. Authors can use this option to make changes across all sheets or visuals in an analysis.
- Edit – Navigate between changes that you make to the analysis. You can undo or redo changes that you make.
- Data – Manage datasets, data fields, and parameters. These changes are applied to all sheets in the analysis.
- Insert – Use an ingress point where you can add visuals, text boxes, insights, reporting objects, filters, and parameters to an analysis. The content that you insert can be data or objects.
- Sheets – Manage the sheet settings of the analysis, including layout settings, actions to add or remove assets from a sheet, and sheet properties.
- Objects – Manage objects and their features, including style, canvas placement, sizing, card background, and borders. You can also manage these objects by using the **Format** visual pane when working on a visual object.

- Search – Access the Quick search bar. Quick search is a search bar that will begin to show results for the asset you are searching for as you type. The suggested results continue to modify as you type, until you see the result that you are looking for.



  To use quick search, open the **Search** menu, and in the **Search analysis actions** box, enter the name or phrase associated with the asset you want to find.

Saving changes to an analysis

When working on an analysis, you can set **Autosave** either on (the default) or off. When **Autosave** is on, your changes are automatically saved every minute or so. When **Autosave** is off, your changes are not automatically saved, which means that you can make changes and pursue different lines of enquiry without permanently altering the analysis. If you decide that you want to save your results, re-enable **Autosave**. Your changes up to that point are then saved.

In either **Autosave** mode, you can undo or redo up to 200 changes that you make by choosing **Undo** or **Redo** on the application bar.

Change the Autosave mode for an analysis

1. Click **Autosave**.
2. Click **Autosave ON** or **Autosave OFF**.

One of the following scenarios might occur:

- **Autosave** is on and another user makes a conflicting change to the analysis.
- **Autosave** is on and there is a service failure, so you cannot save your most recent changes.
- **Autosave** is off, you turn it on, and one of the backlogged changes being saved to the server conflicts with another user's changes.

In this case, Insights gives you the option to do one of two things. You can either let Insights turn **Autosave** off and continue working in unsaved mode, or reload the analysis from the server and then redo your most recent changes.

If your client authentication expires while you are editing an analysis, you are directed to sign in again. On successful sign-in, you are directed back to the analysis where you can continue working normally.

If your permissions on the analysis are revoked while you are editing it, you cannot make any further changes.

Exporting data from Insights analysis

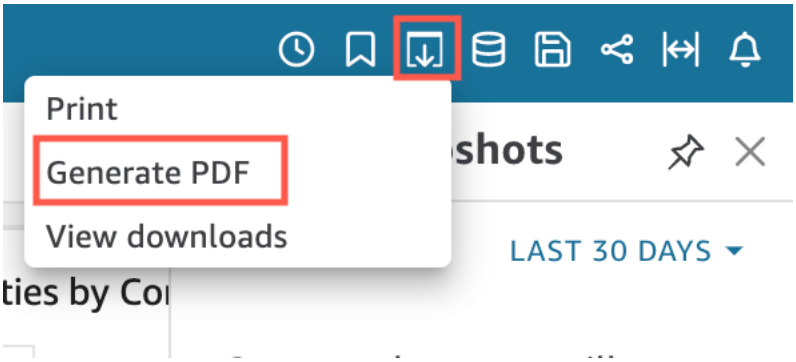
You can export data from an analysis to a CSV or PDF file.

> **NOTE** Export files can directly return information from the dataset import. This makes the files vulnerable to CSV injection if the imported data contains formulas or commands. For this reason, export files can prompt security warnings. To avoid malicious activity, turn off links and macros when reading exported files.

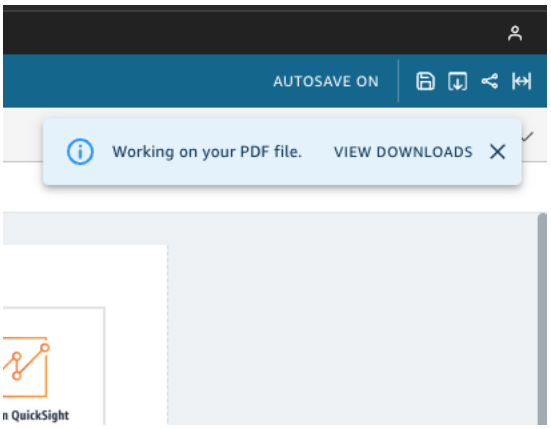
Export data from an analysis to a PDF file

You can export content from a dashboard into a Portable Document Format file (PDF). Similar to a print-out, this format provides a snapshot of the current sheet as it appears on-screen at the time of download.

1. From the analysis that you want to export, click the **Export** icon.
2. Click **Generate PDF**.

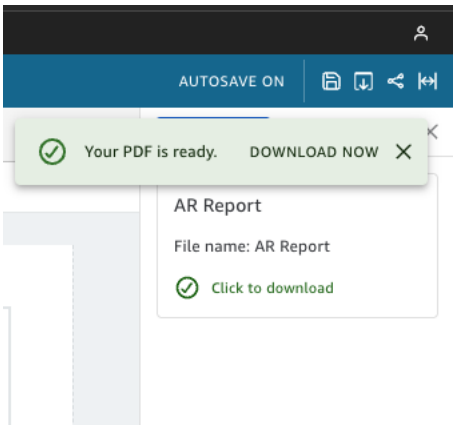


3. After you click **Generate PDF**, Insights starts to prepare the analysis for download. In the pop-up window, click **View downloads** to open the **Downloads** pane.



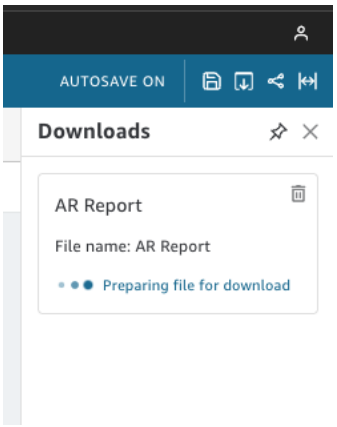
4. There are two ways to download your analysis:

   - Click **Download Now**.



   - Click the **Export** icon and then click **View downloads** to view and download every

analysis or report that is ready to download.



The process for exporting to a PDF works the same way in both dashboards and analyses.

You can also attach a PDF to dashboard email reports. For more information, see Schedule and send reports by email.

Deleting an analysis

Delete an analysis

1. On the Insights start page, click the **All analyses** tab. If you delete an analysis, it does not affect any dashboards that are based on that analysis.

Remove an analysis

1. Click the **Details** icon (three dots) on the analysis and then click **Delete**.
2. To confirm your choice, click **Delete** again.

   NOTE You cannot undo this action.

Adding sheets

A sheet is a set of visuals that are viewed together on a single page. When you create an analysis, you place visuals in the workspace on a sheet. You can imagine this as a sheet from a newspaper, except that it is filled with data visualizations. You can add more sheets and make them work separately or together in your analysis.

The top sheet, also called the default sheet, is the one on the far left. This sheet displays on top in an analysis or dashboard. Each analysis can contain up to 20 sheets.

You can share analyses and publish dashboards with multiple sheets. You can also schedule email reports for any combination of sheets in an analysis.

An interactive sheet is a collection of data expressed in visuals that users can interact with when the sheet is published to a dashboard. You can add different controls and filters to the interactive sheets. You can use these to gain detailed information from the published data on the dashboard. For more information on interactive sheets, see Arranging visuals in an interactive dashboard.

Use the following list of actions to work with sheets:

- To add a new sheet, click the plus sign to the right of the sheet tabs, click the type of sheet that you want, and then click **Add**.
- To rename a sheet, select the name of the sheet and start to type. There is also a rename option in the sheet menu (parentheses icon).
- To duplicate a sheet, select the name of the sheet and click **Duplicate** in the sheet menu (parentheses icon). You can only duplicate a sheet if **Autosave** is turned on.
- To delete a sheet, select the name of the sheet and click **Delete** from the sheet menu in the sheet menu (parentheses icon). You cannot delete the sheet if it is the only sheet in the analysis.
- To change the order of the sheets, click the name of the sheet and drag it to a new position.
- To copy a visual to a new sheet, click **Duplicate visual to** in the on-visual menu and select the target sheet. The filters exist only on the sheet that you create them on. To duplicate filters, recreate them on the target sheet.

You can use the parameter controls on the top sheet to control multiple sheets. To do this, open each sheet that you wantz work with the parameter. Then add a filter that uses the same parameter used in the control on the top sheet. Or, if you want a new sheet to operate independently, you can add parameters and parameter controls to it that are separate from those on the top sheet.

Working with interactive sheets in Insights

An interactive sheet is a collection of data expressed in visuals that you interact with when the sheet is published to a dashboard. You can add different controls and filters to the interactive sheets that dashboard viewers use to gain detailed information from the published data. By default, every sheet in an analysis is an interactive sheet.

For more information about creating an interactive sheet, see Create an analysis in Insights.

Related topics

- Arranging visuals in an interactive dashboard

Arranging visuals in an interactive dashboard

You can customize the type of layout you want for visuals in your interactive dashboards. You can also create parameters and custom actions to add interactivity to dashboards.

Related topics

- Customizing dashboard layouts in Insights
- Adding interactivity to dashboards in Insights

Customizing dashboard layouts in Insights

You can customize a dashboard's layout to organize your data to fit your business requirements. You can choose from three dashboard layouts. You can also change the size, background color, border color, and interactions of a visual to create a fully customized dashboard.

Related topics

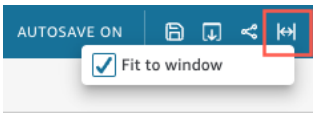
- Types of layout
- Choosing a layout
- Customizing visuals in a free-form layout
- Conditional rules

Types of layout

There are tiled, free-form, and classic dashboard layout designs.

Tiled layout

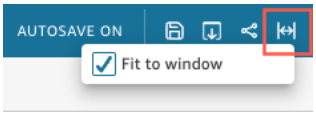
The visuals in a tiled layout snap to a grid with standard spacing and alignment. You can create visuals of any size and place them wherever you want on a dashboard. However, visuals cannot overlap. The dashboards are displayed as designed, with options to fit to screen or view at actual size. You can also fit an entire dashboard to your window by clicking **View** and selecting **Fit to window**.



NOTE On mobile devices, tiled layout dashboards appear as a single column in portrait mode or exactly as designed in landscape mode.

Free-form layout

In a free-form layout, you can use precise coordinates to place the visuals anywhere in your dashboard. You can drag a visual to the exact place you want it to appear or you can enter the coordinates of the visual's location. The dashboards are displayed as designed, with options to fit to screen or to view at its actual size. You can optimize free-form layouts for viewing at specific resolutions. The default resolution is 1,600 pixels. You can also fit an entire dashboard to your window by clicking **View** and selecting **Fit to window**.



NOTE

The dashboards with optimized resolutions might appear bigger or smaller on your computer if your computer's resolution does not equal the set resolution of the dashboard. If you switch from the free-form layout to another layout, it might cause some visual elements to shift. On mobile devices, the free-form dashboards appear as published without any changes to the layout.

Classic layout

The visuals in a classic layout snap to a grid with standard spacing and alignment. The dashboards hide data or change formatting to fit smaller screen sizes. For example, if you change a visual to make it considerably smaller, the on-visual menu and editors are hidden so that the chart elements have more room to display. The bar chart visuals can also display fewer data points.

If you reduce the size of the browser window, Insights resizes, and if necessary reorders, visuals for optimal display. For example, smaller visuals that were side by side might be displayed sequentially. The original layout is restored when the size of the browser window is increased again.

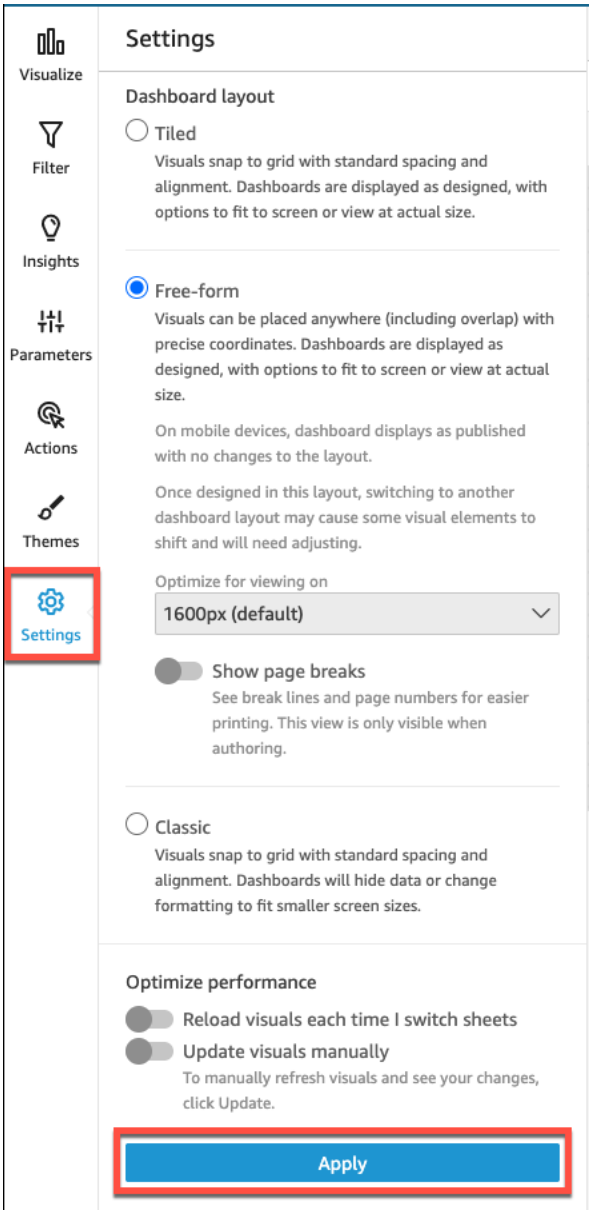
NOTE On mobile devices, classic layout dashboards appear as a single column or exactly as designed in landscape mode.

Choosing a layout

Change a dashboard's layout

1. Click **Analyses** and then select the analysis that you want to change.

2. On the analysis page, click **Settings**.



3. In the **Settings** pane, under **Dashboard layouts**, select the layout that you want.

4. Click **Apply**.

Customizing visuals in a free-form layout

You can use the free-form layout to fully customize the color, size, location, and visibility of each visual in a dashboard.

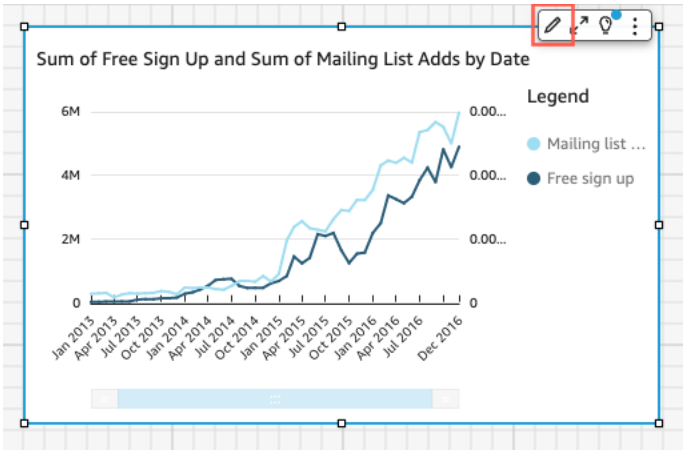
Organizing visuals

As well as dragging a visual to its preferred location within a dashboard, there are many different ways to move a visual to an exact location.

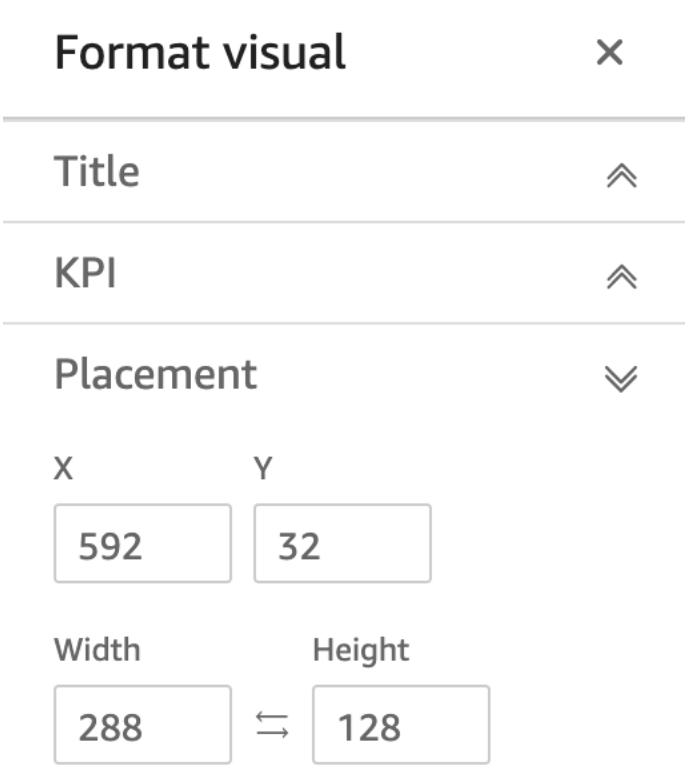
Enter the coordinates of the visual's location

1. Select the visual that you want.

2. In the upper-right corner, click the **Format** icon.



3. In the **Format** pane, click **Placement**.

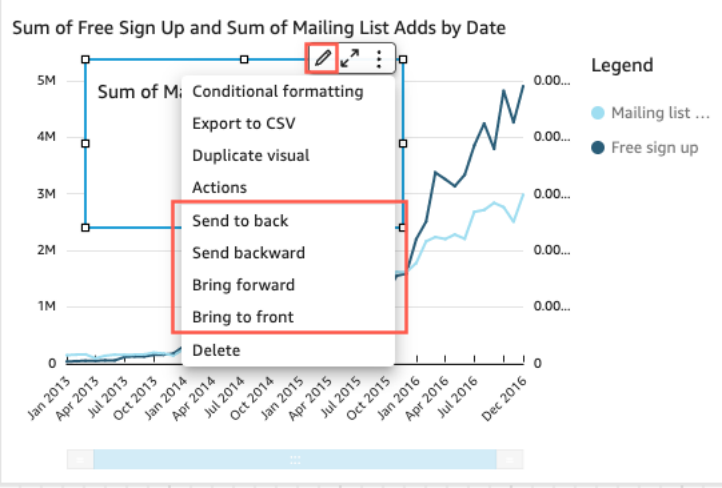


4. Enter the X and Y coordinates of the required location. You can also adjust the size of the visual by entering width and height values. You can also move the selected visuals pixel-by-pixel using your keyboard's arrow keys. Additionally, you can overlay visuals on top of one another to create multi-layered visuals that show data or you can organize visuals into multiple layers that you can manually move to the front and back.

Move overlaid visuals to the front and back

1. Select the visual that you want.
2. In the upper-right corner, click the **Menu options** icon and then select one of the following:
   - **Send to back**: Sends the visual to the back.
   - **Send backward**: Sends the visual one layer back.
   - **Bring forward**: Brings the visual one layer forward.

- **Bring to front**: Brings the visual to the front.



Changing a visual's background color

You can customize the colors of a visual's background and border in the **Style** pane of the **Format** menu.

Change the color of a visual's background

1. Select the visual that you want to change.
2. In the upper-right corner, click the **Format** icon.
3. In the **Format** pane, click **Style**.
4. Under the **Background color** switch, click the color box and click **Custom color**.
5. Select the color that you want. You can also enter a color's hexadecimal code or change the color's opacity.
6. Click **Apply**.

NOTE You can also reset a visual's customized background back to its default appearance.

Reset the appearance of a visual

1. Select the visual that you want to change.
2. In the upper-right corner, click the **Format** icon.
3. In the **Format** pane, click **Style** and then click **Reset**.

Changing the color of visual Borders

You can customize the color of a visual's border.

Change the color of a visual's border

1. Select the visual that you want to change.
2. In the upper-right corner, click the **Format** icon.
3. In the **Format** pane, click **Style**.
4. Under the **Border** color switch, click the color box and click **Custom color**.
5. Select the color that you want. You can also enter a color's hexadecimal code or change the color's opacity.
6. Click **Apply**.

Changing a visual's selection color

You can customize the color that appears around a visual when it is selected.

Change the color of a visual's selection border

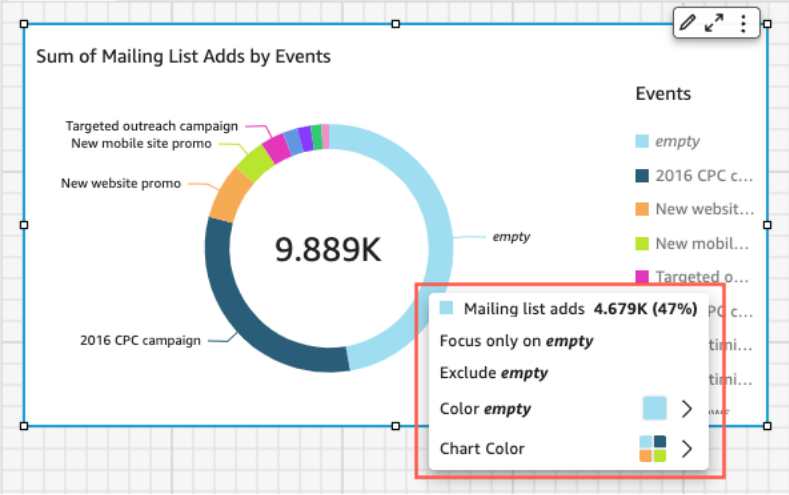
1. Select the visual that you want to change.
2. In the upper-right corner, click the **Format** icon..
3. In the **Format** pane, click **Style**.
4. Under the **Selection** color switch, click the color box and click **Custom color**.
5. Select the color that you want. You can also enter a color's hex code or change the color's opacity.
6. Click **Apply**.

Hiding visual backgrounds, borders, and selection colors

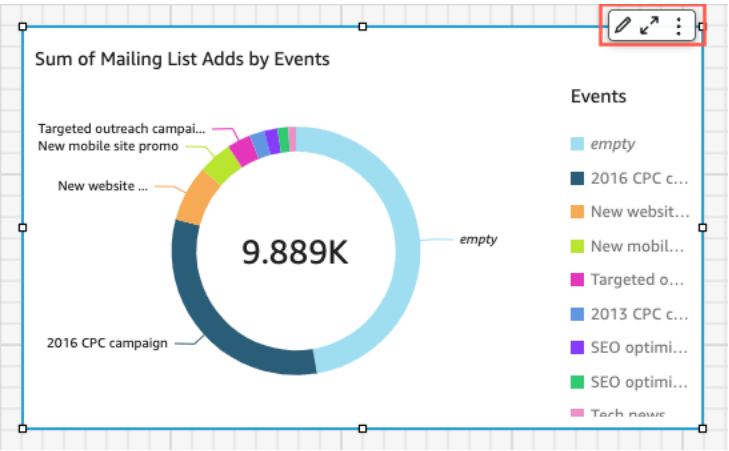
You can choose not to show the background border or selection color of a visual. These options are useful for when you want to overlap multiple visuals. You can hide a visual’s background, border, and selection colors by clearing the **Show border**, **Show background**, and **Selection color** switches. You can also remove a visual’s loading animation by clearing the **Show loading animation** switch.

Disabling visual menus

By using the **Interactions** panel in the **Format** menu, you can turn off the **Context** menu and **On-visual** menu from appearing on selected visuals. You can also disable secondary visual menus to make the visual less crowded or to make a visual act like an overlay. The **Context** menu opens on data-point clicks. The common actions in the **Context** menu include **Focus**, **Exclude**, and **Drill-down**.

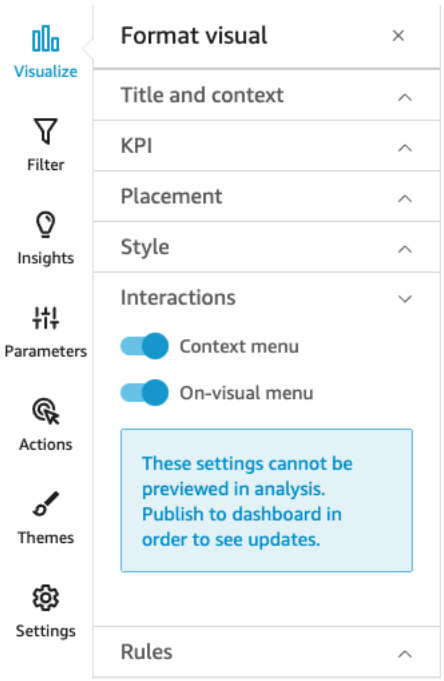


The on-visual menu appears on the upper-right side of a visual. You can use the menu to access the **Format** icon, maximize the visual, and access the **Menu options** panel.



You can turn off the secondary visual menus by clearing the **Context** menu and **On-visual menu** options.

NOTE You cannot preview changes to the **Interactions** panel in **Analyses**. Publish the dashboard to view your changes.

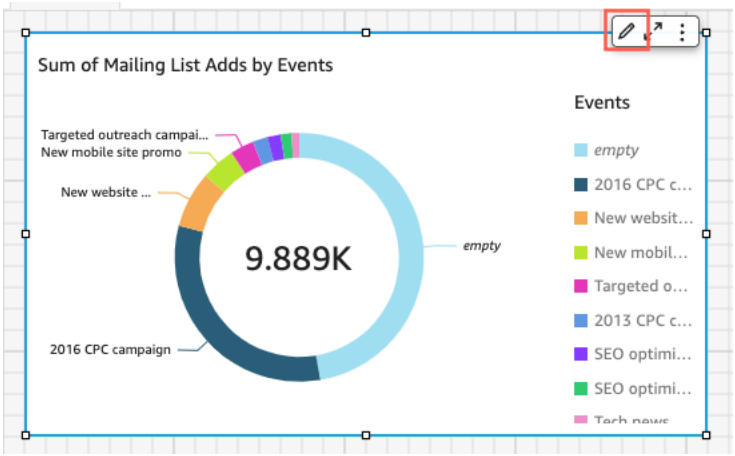


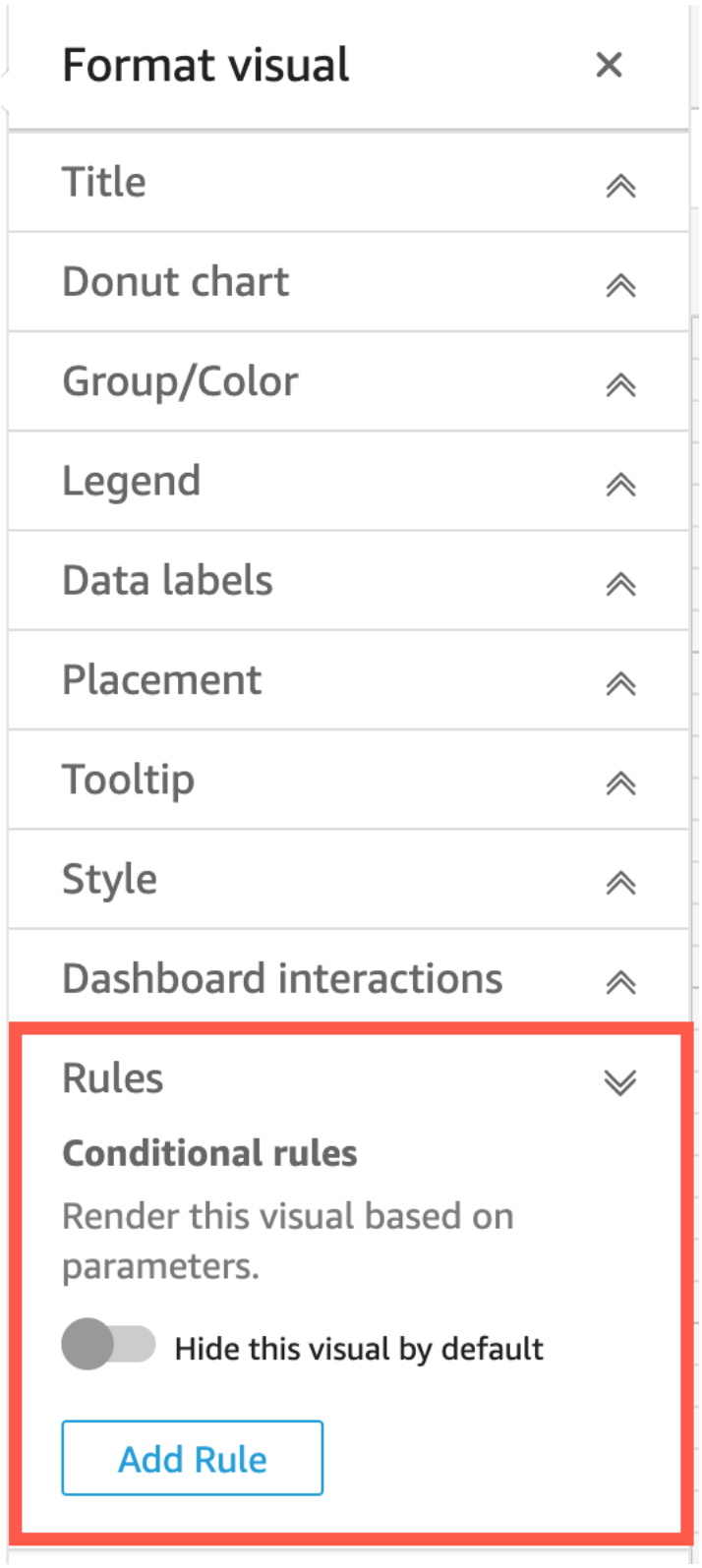
Conditional rules

This feature is currently available with the free-form layout. You can use conditional rules to show or hide visuals when specific conditions are met. This is useful when you have multiple versions of the same visual overlapped with each other and want the dashboard viewer to see a version that best represents the parameter value they select.

Conditional rules use parameters and parameter controls to show or hide visuals. Parameters are named variables that can transfer a value for use by an action or an object. This feature supports string and number parameters. To make the parameters accessible to the dashboard viewer, you add a parameter control. A parameter control allows users to choose a value to use in a predefined filter or URL action. For more information about parameters and parameter controls, see Parameters in Insights.

In the **Rules** section of the **Format** menu, you can choose to hide a visual by default. This is useful if you want the viewer to only see visuals based on specific conditions.


Sum of Mailing List Adds by Events
Events
empty
2016 CPC c...
New websit...
New mobil...
Targeted o...
2013 CPC c...
SEO optimi...
SEO optimi...
Tech news
Targeted outreach campai...
New mobile site promo
New website ...
9.889K
empty
2016 CPC campaign


Format visual
Title
Donut chart
Group/Color
Legend
Data labels
Placement
Tooltip
Style
Dashboard interactions
Rules
Conditional rules
Render this visual based on parameters.
Hide this visual by default
Add Rule

Hide a visual by default

1. On the QuickStart start page, click **Analyses**, and then select the analysis that you want to customize.
2. Select the visual that you want to add a rule to.
3. In the upper-right menu, click the **Format** icon.
4. In the **Format** menu, click **Rules**.
5. In the **Rules** pane, select **Hide this visual by default**.

Hidden visuals appear fully hidden in a viewing dashboard. In the **Analyses** pane, hidden visuals are visible with the message **Hidden based on rule**. With this display, you can see where all of a dashboard's visuals are located.

> **NOTE** You cannot create conditional rules which hide visuals that are already hidden by default or that show visuals that already appear by default. If you change the default appearance of a visual, existing rules that contradict the new default appearance are disabled.

When you set up a conditional rule, you create a conditional statement that shows or hides a visual when a specific condition is met. If you want to create a conditional rule that makes a hidden visual appear, select **Hide this visual by default** in the **Rules** pane of the **Format** menu.

> **NOTE** Before you begin, you must make a parameter and a corresponding parameter control to base your new conditional rule on. The supported parameters are string parameters and number parameters. For more information about parameters and parameter controls, see Parameters in Insights.

Set a conditional rule

1. Click **Analyses** and then select the analysis that you want to customize.
2. Select the visual that you want to add a rule to.
3. In the upper-right menu, click **Format**.
4. In the **Format** pane, click **Rules**.
5. Click **Add**.
6. In the first menu in the **Add rule** pane, select the parameter you want.

7. In the second menu in the **Add rule** pane, select the condition that you want. For string parameters, supported conditions are **Equals**, **Starts with**, **Contains**, and **Does not equal**. For number parameters, supported conditions are **Equals**, **Starts with**, **Contains**, and **Does not equal**.
8. Enter the value that you want the conditional rule to meet.

   NOTE Values are case-sensitive.
9. Click **Add rule** to apply the new conditional rule to the visual. To cancel the rule, click **Cancel**. Conditional rules can also be edited and deleted.

Edit a conditional rule

1. In the upper-right menu, click **Format**.
2. In the **Format** pane, click **Rules**.
3. Click the menu icon on the right-hand side of the rule that you want to edit and click **Edit**.
4. Make the changes that you want and click **Save**.

Delete a conditional rule

1. In the upper-right menu, click **Format**.
2. In the **Format**, click **Rules**.
3. Click the menu icon on the right-hand side of the rule that you want to edit and click **Delete**.

After you set up a conditional rule that is connected to a parameter and a parameter control, you can use the parameter control to enable or disable the conditional rules that you have set.

Enable a conditional rule

1. On the QuickStart start page, click **Analyses** and then select the analysis that you want to customize.
2. On the **Controls** bar at the top of your workspace, select the drop-down icon.
3. Select the parameter control associated with the conditional rule that you created.
4. Select the value associated with the conditional rule that you created from the parameter's menu. You can also enter the value that you want into the **Search value** box. Values are case-sensitive.

When you select the correct value, it causes the visual to appear or disappear depending on the rule you set. You can also bring a parameter control to the sheet your visual is on. This is useful when you want a parameter control to be next to the visual it is associated with or when you want to add a conditional rule to the control so it appears only when specific conditions are met.

Bring a parameter control to a sheet

1. On the QuickStart start page, click **Analyses** and then select the analysis that you want to customize.
2. On the **Controls** bar at the top of your workspace, select the control that you want to move.
3. At the upper right-hand side of the control, open the **Menu options** menu.
4. Click **Move to sheet**.

Move a parameter control back to the Controls bar

1. On your dashboard, select the parameter control that you want to move.
2. On the upper right-hand side of the control, open the **Menu options** menu.
3. Click **Pin to top**.

Adding interactivity to dashboards in Insights

To add interactivity to your dashboards, you can create custom actions and parameters. See the following topics for more information.

Topics

- Parameters in Insights
- Using custom actions for filtering and navigating

Parameters in Insights

Parameters are named variables that can transfer a value for use by an action or an object. By using parameters, you can create an easier way for a dashboard user to interact with dashboard features in a less technical way. Parameters can also connect one dashboard to another, allowing a dashboard user to drill down into data that's in a different analysis.

For example, a dashboard user can use a list to choose a value. That value sets a parameter that in turn sets a filter, calculation, or URL action to the chosen value. Then the visuals in the dashboard react to the user's choices.

To make the parameters accessible to the dashboard viewer, you add a parameter control. You can set up cascading controls, so that a selection in one control filters the options that display in another control. A control can appear as a list of options, a slider, or a text entry area. If you don't create a control, you can still pass a value to your parameter in the dashboard URL.

For a parameter to work, it needs to be connected to something in your analysis, regardless of whether it has a related control. You can reference parameters in the following:

- Calculated fields (except for multivalue parameters)
- Filters
- Dashboard and analysis URLs
- Actions
- Titles and descriptions throughout an analysis

Some ways that you can use parameters are the following:

- Using a calculation, you can transform data that is shown in an analysis.
- If you add a control with a filter to an analysis you are publishing, the dashboard users can filter the data without creating their own filters.
- Using controls and custom actions, you can let dashboard users set values for the URL actions.

Related topics

- Set up parameters in Insights
- Use dynamic parameters in Insights
- Using a control with a parameter in Insights
- Creating parameter defaults in Insights
- Connecting to parameters in Insights
- Creating parameter defaults in Insights

Set up parameters in Insights

Use parameters in Insights to make dashboards more interactive and user-friendly. Parameters are named variables that act like placeholders for user input. When added to a dashboard, they let users control filters, calculations, or even navigate between dashboards, without needing to understand the technical details behind the scenes. For example, a parameter can power a drop-down list that changes what data the dashboard shows, or pass values between dashboards for deeper analysis. You can also add controls like lists, sliders, or text boxes to make these parameters accessible to users.

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.
- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View QM Data
  - View WFM Data

Page location

Insights > Analyses > Click an analysis

Procedures

Create a parameter

1. Click **Parameters**  . The **Parameters** pane opens.
2. Click **+ADD**. The **Create new parameter** window opens.
3. In the **Name** field, enter the Parameter name.
4. For **Data type**, select **String**, **Integer**, **Number** or **Datetime**, and then complete the following steps.

- If you select String, Integer, or Number, do the following:
  - For **Values**, select **Single value** or **Multiple values**.

    Select the single value option for parameters that can contain only one value. Select multiple values for parameters that can contain one or more values.

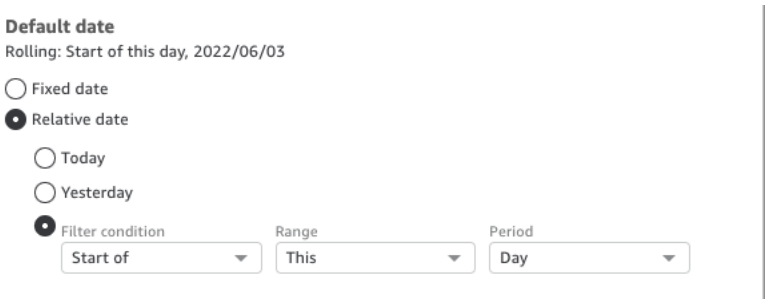
    > **IMPORTANT** Multivalue parameters can't be Datetime data types. They also don't support dynamic default values.

    To switch an existing parameter between single and multiple values, delete and recreate the parameter.
  - For **Static default value** or **Static multiple default values**(when you select **Multiple values**), enter one or more values.

    This type of static value is used during the first page load if a dynamic default value or URL parameter isn't provided.
  - (Optional) Select **Show as blank by default**.

    > **NOTE** Select this option to show the default value for multivalue lists as blank. This option only applies to multivalue parameters.
- If you select **Datetime**, do the following:
  - For **Time granularity**, select from **Day**, **Hour**, **Minute**, or **Second**.
  - For **Default date**, select either **Fixed date** or **Relative date**, and then do the following:
    - If you select **Fixed date**, enter a date by using the date picker.
    - If you select **Relative date**, select a rolling date. You can select **Today**, **Yesterday**, or you can specify the **Filter condition** (**Start of or End of**), **Range** (**This**, **Previous**, **Next**, **Last N**, or **Next N**), and **Period** (**Year**,

Quarter, **Month**, **Week**, or **Day**).



5. (Optional) Click **Dynamic default** to set a default that is user-specific.

   A dynamic default is a per-user default value for the first page load of the dashboard. Use a dynamic default to create a personalized view for each user.

   Calculated fields can't be used as dynamic defaults.

   IMPORTANT This option only appears if you select a single value parameter. Multivalue parameters can't have dynamic defaults.

   NOTE If you select a multivalue parameter, the screen changes to remove the default options. Instead, you see a box with the text **Enter values you want to use for this control**. You can enter multiple values in this box, each on a single line. These values are used as the default selected values in the parameter control. The values here are unioned with what you select to enter for the parameter control. For more information on parameter controls, see Using a control with a parameter in Insights.

6. (Optional) Set a reserved value to determine the value of the Select all value. The **Set reserved value** is only available when you select **String**, **Integer**, or **Number**. The reserved value of a parameter is the value that is assigned to a parameter when you choose **Select all** as its value. When you set up a specific reserved value for your parameter, that value is no longer considered a valid parameter value in your dataset. The reserved value can't be used in any parameter consumers, such as filters, controls, and calculated fields, and custom actions. Also, it does not appear in the parameter control list. You can select from **Recommended value**, **Null**, and **Custom value**. If you select **Recommended value**, the reserved value is set to the following values based on the value type:

   - Strings: "ALL_VALUES"
   - Numbers: "Long.MIN_VALUE"-9,223,372,036,854,775,808

- "Integers: Int.MIN_VALUE"-2147483648

7. Click **Create** to complete creating the parameter.

Edit a parameter

- To edit an existing parameter, click the three dots next to the parameter name, then click **Edit parameter**. In the **Edit parameter** window, make the necessary changes.

Related topics

- Parameters in Insights
- Use dynamic parameters in Insights
- Using parameters in titles and descriptions in Insights
- Using parameters in a URL

Use dynamic parameters in Insights

Dynamic parameters can look up values in Webex WFO and pass them into a parameter, such as the logged-in user's ID, name, or team to filter a dashboard. This allows Insights to display data that’s specific to each user, without requiring them to apply any filters manually. For example, you can use a dynamic parameter to look up the current user ID and filter the dashboard to show only that user’s data. This creates a more personalized, streamlined experience for everyone using the dashboard.

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.
- You have the View Content permission.
- You have at least one of these permissions:
  - View QM Data
  - View WFM Data
- You have added at least one dataset that includes the **system_bi_user** field:

- People dataset in the QM folder
- WFM People (Latest Period) dataset in the WFM folder

> **NOTE** At least one of these datasets must be included in the analysis (they do not need to be bound to a visual). If your analysis includes both QM and WFM datasets, you don't need to create two separate parameters—as long as you're filtering on a value that is consistent across both datasets. For example, **Person Name** from QM and **Full Name** from WFM typically match.

Page location

Insights > Analyses > Click an analysis that includes either the People or WFM People (Latest Period) dataset

Procedures

Add a parameter

1. Click **Parameters**  . The **Parameters** pane opens.
2. Click **+ADD**. The **Create new parameter** window opens.
3. In the **Name** field, enter the Parameter name. Use only letters and numbers. Spaces and special characters are not supported.
4. Set the **Data type** to **String**. See Set up parameters in Insights for more information.
5. Click **Set a dynamic default**. The **Set up dynamic default for single value** window opens.
6. Under **Dataset with default values and user information**, select the same dataset you added earlier (People or WFM People).
7. Under **User name column**, select **system_bi_user** from the System folder.
8. Leave **Group name** column blank.
9. Under **Column for default value**, select the field you want to filter by, such as:

- Person Name
- Full Name
- Team
- Group
- Site
- Business Unit

10. Click **Apply**.
11. Click **Create**. You'll see the **Parameter added** window prompt. Click **Close**.

Update an existing parameter

1. Click **Parameters**  . The **Parameters** pane opens.
2. Click the three dots next to the parameter name.
3. Click **Edit parameter**.
4. Under **Dynamic default**, click **Edit**.
5. Edit the parameter as needed.
6. Click **Apply**.
7. Click **Update**.

Apply the parameter in a filter

1. Click **Filter** from the upper-left corner of the **Analysis** page.
2. Click **+ ADD** and select the field you want to filter on, such as **Person Name**, **Team**, or **Group**, from the People folder in your dataset. Choose the field that matches the type of user-specific filtering you want to apply in your dashboard. For this example, we will use **Person Name**.
3. Click the filter you just added in the **Filters** panel. The **Edit filter** pane opens.
4. In the **Edit filter** settings, set the **Filter type** to **Custom filter**.
5. Set the **Filter condition** to **Equals**.

6. Select the **Use parameters** check-box. When the **Apply filter to all visuals and sheets?** window prompt appears, click **Yes**.
7. From the **Select a parameter** drop-down, select the parameter you created earlier.
8. Click **Apply** to activate the filter.

Delete a parameter

1. Click **Parameters**  . The **Parameters** pane opens.
2. Click the three dots next to the parameter name.
3. Click **Delete parameter**.
4. Click **Delete**.

Related topics

- Parameters in Insights
- Creating parameter defaults in Insights
- Set up parameters in Insights
- Using parameters in a URL
- Using parameters in titles and descriptions in Insights

Using a control with a parameter in Insights

In dashboards, parameter controls appear at the top of the data sheet, which contains a set of visuals. Providing a control allows users to choose a value to use in a predefined filter or URL action. Dashboard users can use controls to apply filtering across all visuals datasets on a dashboard, without having to create the filters themselves.

The following rules apply:

- To create or edit a control for a parameter, make sure that the parameter exists.
- Multiselect list controls are compatible with analysis URLs, dashboard URLs, custom actions, and custom filters. The filter must be either equal or not equal to the values provided. No other comparisons are supported.

- Lists show up to 1,000 values. If there are more than 1,000 distinct values, a search box appears so you can filter the list. When the filtered list contains less than 1,001 values, the contents of the list appear as line items.
- The Style option displays only the style types that are appropriate for the parameter's data type and single or multivalue setting. If the style that you want to use isn't in the list, recreate your parameter with the appropriate settings and try again.
- If your parameter links to a dataset field, it must be an actual field. Calculated fields aren't supported.
- The values display alphabetically in the control, unless there are more than 1,000 distinct values. Then the control displays a search box instead. Each time you search for the value you want to use, it initiates a new query. If the results contain more than 1,000 values, you can scroll through the values with pagination. Wildcard search is supported. To learn more about wildcard search, see Using wildcard search.

Use the following procedure to create or edit a control for an existing parameter.

To create or edit a control for an existing parameter

1. Choose an existing parameter's context menu, the v icon near the parameter name, and choose Add control.
2. Enter a name to give the new control a label. This label appears at the top of the workspace, and later at the top of the sheet that a dashboard displays on.
3. Choose a style for the control from the following:
    - Text field

      A text field lets you type in their own value. A text field works with numbers and text (strings).
    - Text field - multiline

      A multiline text field lets you type in their own values. With this option, you can choose to separate values you enter into the parameter control by a line break, comma, pipe (|), or semicolon. A text field works with numbers and text (strings).
    - Dropdown

      A dropdown list control that you can use to select a single value. A list control works with numbers and text (strings).

- Dropdown multiselect

  A list control that you can use to select multiple values. A list control works with numbers and text (strings).

- List

  A list control that you can use to select a single value. A list control works with numbers and text (strings).

- List - multiselect

  A list control that you can use to select multiple values. A list control works with numbers and text (strings).

- Slider

  A slider lets you select a numeric value by sliding the control from one end of the bar to another. A slider works with numbers.

- Date-picker

  Using a date-picker, you can choose a date from a calendar control. When you choose to add a date-picker control, you can customize how to format dates in the control. To do so, for Date format, enter the date format that you want using the tokens described in Customizing date formats in Insights.

4. (Optional) If you choose a dropdown control, the screen expands so you can choose the values to display. You can either specify a list of values, or use a field in a dataset. Choose one of the following:

   - Specific values

     To create a list of specific values, type in one per line, with no separating spaces or commas, as shown in the following screenshot.

     In the control, the values display alphabetically, not in the order that you typed them.

   - Link to a data set field

     To link to a field, choose the dataset that contains your field, then choose the field from the list.

If you change the default values in the parameter, choose Reset on the control to show the new values.

The values that you choose here are unioned with the static default values in the parameter settings.

5. (Optional) Enable the option Hide [ALL] option from the control if the parameter has a default configured. Doing this shows only the data values and removes the option to select all items in the control. If you don't configure a static default on the parameter, this option doesn't work. You can add a default after adding a control by choosing the parameter, and selecting Edit parameter.

6. (Optional) You can limit the values displayed in the controls, so they only show values that are valid for what is selected in other controls. This is called a cascading control.

   To create one, choose Show relevant values only. Choose one or more controls that can change what displays in this control.

   When creating cascading controls, the following limitations apply.

   - Cascading controls must be tied to dataset columns from the same dataset.
   - The child control must be a dropdown or list control.
   - For parameter controls, the child control must be linked to a dataset column.
   - For filter controls, the child control must be linked to a filter (instead of showing only specific values).
   - The parent control must be one of the following.
     - A string, integer, or numeric parameter control.
     - A string filter control (EXCLUDING Top-Bottom filters).
     - A non-aggregated numeric filter control.
     - A date filter control (EXCLUDING Top-Bottom filters).

7. When you finish choosing options for your control, choose Add.

The finished control appears at the top of the workspace. The context menu, shaped like a v, offers four options:

- Reset restores the user's selection to its default state.
- Refresh list applies only to drop-downs that are linked to a field in a dataset. Choosing Refresh list queries the data to check for changes. Data used in the control is cached.
- Edit reopens the control creation screen so that you can change your settings.
- Once you have the Edit control pane open, you can click on different visuals and controls to view formatting data for the specific visual or control. For more information about formatting a visual, see Format a visual in Insights.
- Delete removes the control. You can recreate it by choosing the parameter context menu.

In the workspace, you can also resize and rearrange your controls. The dashboard users see them as you do, except without being able to edit or delete them.

Creating parameter defaults in Insights

Use this section to learn more about the types of parameter defaults that are available, and how to set up each of them.

Each field can have a parameter and a control associated with it. When someone views a dashboard or email report, any sheet control that has a static default value configured uses the static default. The default value can change how data is filtered, how custom actions behave, and what text displays in a dynamic sheet title. Email reports also support dynamic defaults.

The simplest default is a static (unchanging) default, which shows the same value to everyone. As the designer of the dashboard, you choose the default value. It can't be changed by the person using the dashboard. However, that person can choose any value from the controls. Setting a default doesn't change this. To restrict the values that a person can select, consider using row-level security. For more information, see Using row-level security (RLS) with user-based rules to restrict access to a dataset.

To create or edit a static default value that applies to everyone's dashboard view

1. Choose the context menu (v) by the parameter that you want to edit, or create a new parameter by following the steps in Set up parameters in Insights.
2. Enter a value for Static default value to set a static default.

To display a different default depending on who is viewing the dashboard, you create a dynamic default parameter (DDP). Using dynamic defaults involves some preparation to map people to their assigned defaults. First, you need to create a database query or a data file that contains information about the people,

the fields, and the default values to display. You add this to a dataset, then add the dataset to your analysis. Following, you can find procedures that you can use to gather information, create the dataset, and add the dynamic default to the parameter.

Use the following guidelines when creating a dataset for dynamic default values:

- We recommend that you use a single dataset to contain all dynamic default definitions for a logical grouping of users or groups. If you can, maintain them in a single table or file.
- We also recommend that the fields in your dataset have names that closely match the field names in the analysis. Not all dataset fields need to be part of the analysis, for example if you're using the same dataset for the defaults in multiple dashboards. The fields can be in any order.
- We don't recommend that you combine both user and group names in the same column or even in the same dataset. This kind of configuration is more work to maintain and troubleshoot.
- If you use a comma-delimited file to create your dataset, make sure to remove any space between values in the file. The following example shows the correct comma-separated value (CSV) format. Enclose text (strings) that include nonalphanumeric characters—like spaces, apostrophes, and so on—in single or double quotation marks. You can enclose fields that are dates or times in quotation marks, but it isn't required. You can enclose numeric fields in quotation marks, for example if the numbers contain special characters, as shown following.

  ```
  "Value includes spaces","Field contains ' other
  characters",12345.6789,"20200808"
  ValueWithoutSpaces,"1000,67","Value 3",2020-AUG-08
  ```

- After you create the dataset, make sure to double-check the data types that Insights selects for the fields.

Before you begin, you need a list of the user or group names for the people who are going to have dynamic defaults.

To identify people for a dynamic default parameter (DDP)

- List either individual user names or group names:
  - To list individual user names, include a column that identifies the people for your DDP. This column should contain each person's system user name that they use to connect from your identity provider to Insights. This user name is often the same as a person's email alias before the @ sign, but not always.

- To list group names, include a column that identifies the groups containing the user names for your DDP. This column should contain the system group names that are used to connect from your identity provider to Insights.

  Or you can ask your network administrator to query your identity provider to get this information.

Use the following procedure to add a dynamic default parameter to your analysis. Before you begin, make sure that you have a dataset that contains the dynamic defaults for each user name or group name. Also make sure that your analysis is using this dataset. For help with these requirements, see the procedures preceding.

To add a DDP to your analysis

1. In the Insights console, open the Parameters menu at left and choose an existing parameter. Choose Edit parameter from the parameter's menu. To add a new parameter, choose the plus (+) sign near Parameters.
2. Choose Set a dynamic default.
3. Configure the following options with your settings:
   - Dataset with default values and user information – Choose the dataset that you created and added to your analysis.
   - User name column – To create defaults that are based on user names, choose the column in the dataset that contains the user names.
   - Group name column – To create defaults that are based on group names, choose the column in the dataset that contains the group names.
   - Column for default value – Choose the column that contains default values for this parameter.
4. Choose Apply to save your setting changes, and then choose Update to save the parameter changes. To exit without saving changes, choose Cancel instead.
5. Add a filter for each field that contains dynamic defaults to make the defaults work. To learn more about using filters with parameters, see Using filters with parameters in Insights.

   Insights uses the static default value for anyone whose user name doesn't exist in the dataset, doesn't have a default assigned, or doesn't have a unique default. Each person can have only one set of defaults. If you don't want to use dynamic defaults, you can set a static default instead.

Related topics

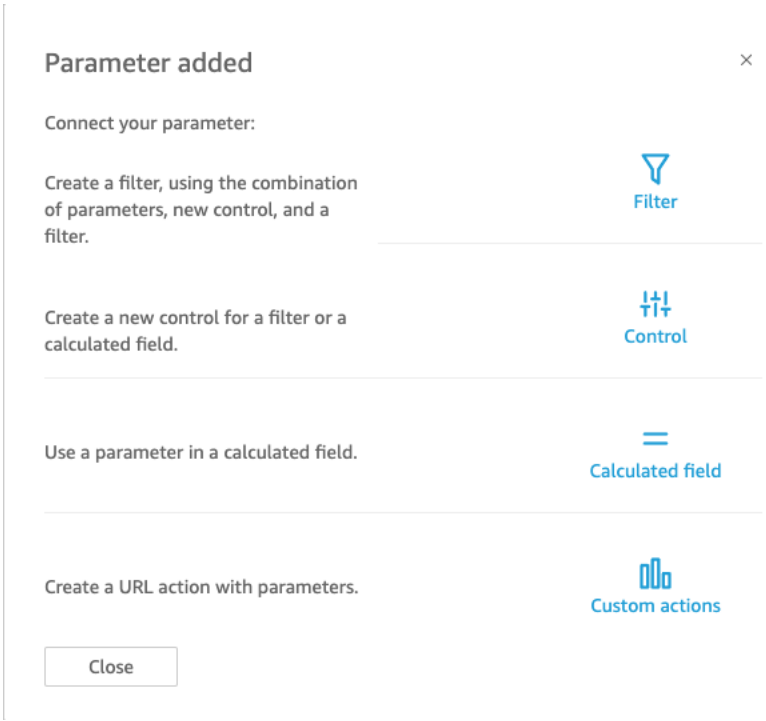
- Use dynamic parameters in Insights
- Parameters in Insights
- Set up parameters in Insights
- Using parameters in a URL
- Using parameters in titles and descriptions in Insights

Connecting to parameters in Insights

Use this section after you have a parameter set up, to connect it and make it work.

After you create a parameter, you can create consumers of the parameters. Parameter consumers are components that consume the value of a parameter, such as filters, controls, calculated fields, or custom actions.

You can choose your next step from the shortcuts on this screen.



You can navigate to each of these options in another way, as follows:

- To create a filter, choose Filter to the left of the screen. In short, you create a Custom Filter and enable Use parameters. The list shows only eligible parameters.
- To add a new control for the parameter, choose Parameters on the left. In short, choose your parameter, and then Add control.
- To use a parameter in a calculated field, either edit an existing calculated field, or add a new one by choosing Add at the top left. The parameter list appears below the field list.

  NOTE You can't use multivalue parameters with calculated fields.
- To create a URL action, choose the v-shaped menu on a visual, and then choose URL Actions.

For more information on each of these topics, see the following sections.

Topics

- Using filters with parameters
- Using calculated fields with parameters
- Using custom actions with parameters
- Parameters in URLs
- Parameters in titles and descriptions

Using filters with parameters in Insights

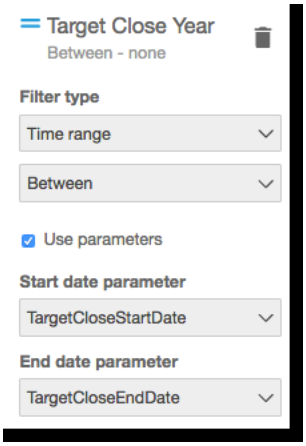
Use this section to filter the data in an analysis or dashboard by a single-value parameter value. To use a multivalued parameter—one with a multiselect drop-down control—create a custom filter that is equal (or not equal) to the values.

Before using a filter with a parameter, you should already know how to work with filters.

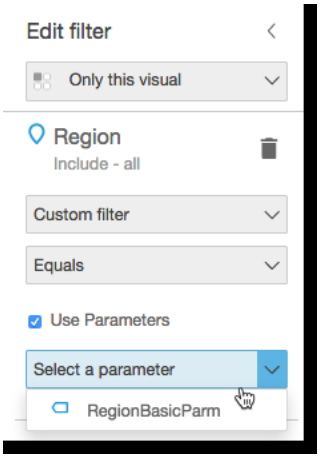
1. Verify that your analysis has a parameter already created. Choose Edit from either the parameter or the control menu to find out what settings are in use.
2. Choose the Filter pane from the left of the screen. If there is already a filter for the field that you want to use, choose it to open its settings. Otherwise, create a filter for the field that you want to filter by parameter.
3. Choose Use Parameters.

4. Choose your parameters from the list or lists below Use parameters. For text (string) fields, first choose Custom Filter, and then enable Use Parameters.

   For date fields, choose the Start date and End date parameters, as shown in the following screenshot.



   For fields with other data types, choose Select a parameter and then choose your parameter from the list.



   NOTE Parameters that can hold multiple values must use equal or not equal as the comparison type.

5. Choose Apply to save your changes.

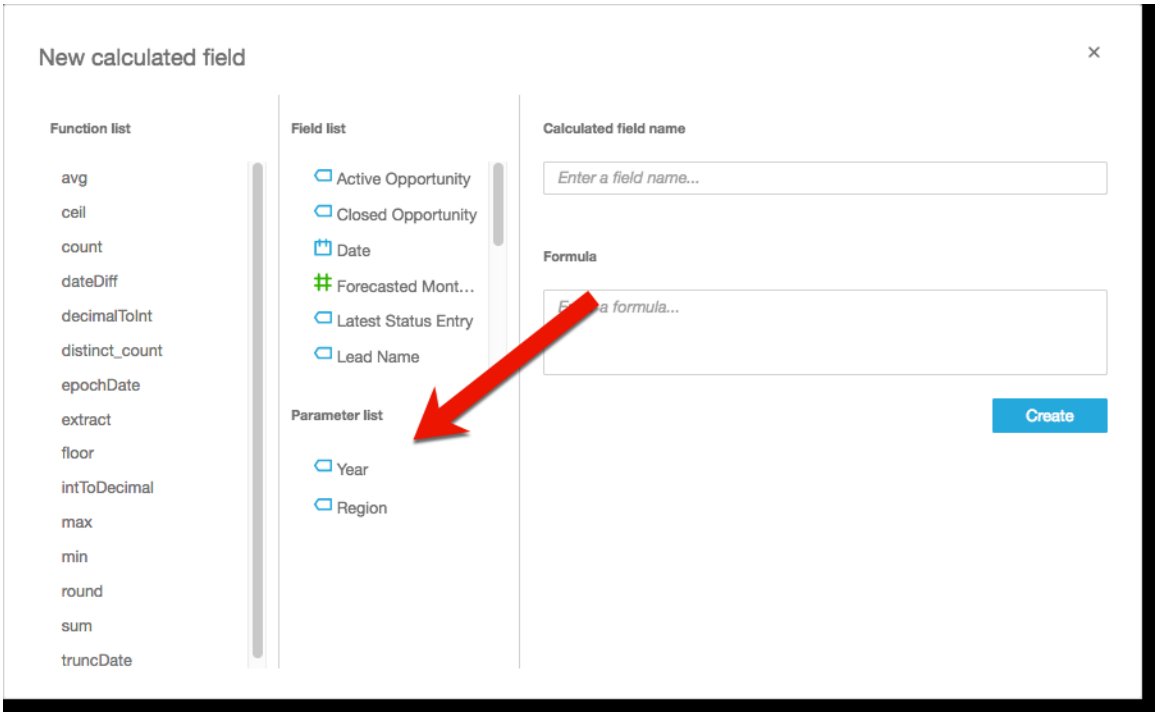
Test your new filter by choosing the control near the top of the analysis. In this example, we use a basic parameter that has no defaults, and a dynamic control that is linked to the Region field in the sample dataset named Sales Pipeline. The control queries the data, returning all values.

If you delete or recreate a parameter that you are using in a filter, you can update the filter with the new parameter. To do this, open the filter, choose the new parameter that you want to use, and then choose Apply.

If you rename a parameter, you don't need to update the filter or any other consumers.

Using calculated fields with parameters in Insights

You can pass the value of a parameter to a calculated field in an analysis. When you create a calculation, you can choose existing parameters from the list of parameters under Parameter list. You can't create a calculated field that contains a multivalued parameter—those with a multiselect drop-down control.



For the formula, you can use any of the available functions. You can pass the viewer's selection from the parameter control, to the ifElse function. In return, you get a metric. The following shows an example.

```
ifelse(
${KPIMetric} = 'Sales',sum({Weighted Revenue}),
${KPIMetric} = 'Forecast',sum({Forecasted Monthly Revenue}),
${KPIMetric} = '# Active', distinct_count(ActiveItem),
NULL
```

```
)
```

The preceding example creates a metric (a decimal) that you can use in a field well. Then, when a user chooses a value from the parameter control, the visual updates to reflect their selection.

Using custom actions with parameters in Insights

A custom action enables you to launch URLs or filter visuals by selecting a data point in a visual or choosing the action name from the context menu. When you use a URL action with a parameter, you can pass or send parameters dynamically to the URL. To make this work, you set up a parameter, and then use it in the URL when you create a custom action with an action type of URL action. The parameters on both the sending and the receiving end must match in name and data type. All parameters are compatible with URL actions.

For details on creating a URL action, see Creating and editing custom actions in Insights. If you just want to use a parameter in a link without creating a URL action, see Using parameters in a URL.

Using parameters in a URL

You can use a parameter name and value in a URL in Insights to set a default value for that parameter in a dashboard or analysis.

The following example shows the URL of a dashboard that sets a parameter for another dashboard.

```
https://us-east-2.quicksight.aws.amazon.com/sn/dashboards/abc123-abc1-abc2-abc3-
   abcdefef1234#p.myParameter=12345
```

In the previous example, the first part is the link to the target dashboard: https://us-east-2.quicksight.aws.amazon.com/sn/dashboards/abc123-abc1-abc2-abc3-abcdefef1234. The hash sign (#) follows the first part to introduce the fragments, which contain the values that you want to set.

The values in the fragments aren't received or logged by Cisco servers. This functionality keeps your data values more secure.

The fragment after # follows these rules:

- Parameters are prefixed with p.. The names are the parameter name, not the control name. You can view the parameter name by opening the analysis, and choosing Parameter on the left sidebar.
- The value is set using equals (=). The following rules apply:
    - Literal values don't use quotation marks.
    - Spaces inside values are automatically encoded by the browser, so you don't need to use escape characters when manually creating a URL.

- To return all values, set the parameter equal to "[ALL]".
- In custom actions, target parameter names begin with $, for example: <<$passThroughParameter>>
- In custom actions, parameter values display with angle brackets << >>, for example <<dashboardParameter1>>). The dashboard user sees the lookup value, not the variable.

- For a custom URL action, multivalue parameters only need one instance of the same parameter in the fragment, for example: p.city=<<$city>>
- For a direct URL, multiple values for a single parameter have two instances of the same parameter in the fragment. For an example, see following.
- Ampersands (&) separate multiple parameters. For an example, see following.

The server converts the date to UTC and sends it to the backend as a string without a time zone. To use Universal Coordinated Time (UTC) dates, exclude the time zone. Following are some examples of date formats that work:

- 2017-05-29T00%3A00%3A00
- 2018-04-04 14:51 -08:00
- Wed Apr 04 2018 22:51 GMT+0000

```
https://us-east-2.quicksight.aws.amazon.com/sn/dashboards/abc123-abc1-abc2-abc3-
   abcdefef1234#p.shipdate=2018-09-30 08:01&p.city=New
   York&p.city=Seattle&p.teamMember=12&p.percentageRank=2.3
```

In the browser, this code becomes the following.

```
https://us-east-2.quicksight.aws.amazon.com/sn/dashboards/abc123-abc1-abc2-abc3-
   abcdefef1234#p.shipdate=2018-09-
   30%2008:01&p.city=New%20York&p.city=Seattle&p.teamMember=12&p.percentageRank=
   2.3
```

The previous example sets four parameters:

- shipDate is a date parameter: Sept 30, 2018.
- city is a multivalued string parameter: New York, and Seattle
- teamMember is an integer parameter: 12.
- percentageRank is a decimal parameter: 2.3.

The following example shows how to set values for a parameter that accepts multiple values.

```
https://us-east-2.quicksight.aws.amazon.com/sn/dashboards/abc123-abc1-abc2-abc3-
   abcdefef1234#p.MultiParam=WA&p.MultiParam=OR&p.MultiParam=CA
```

To pass values from one dashboard (or analysis) to another dashboard based on the user's data point selection, use custom URL actions. If you choose, you can also generate these URLs manually, and use them to share a specific view of the data.

For information on creating custom actions, see Using custom actions for filtering and navigating.

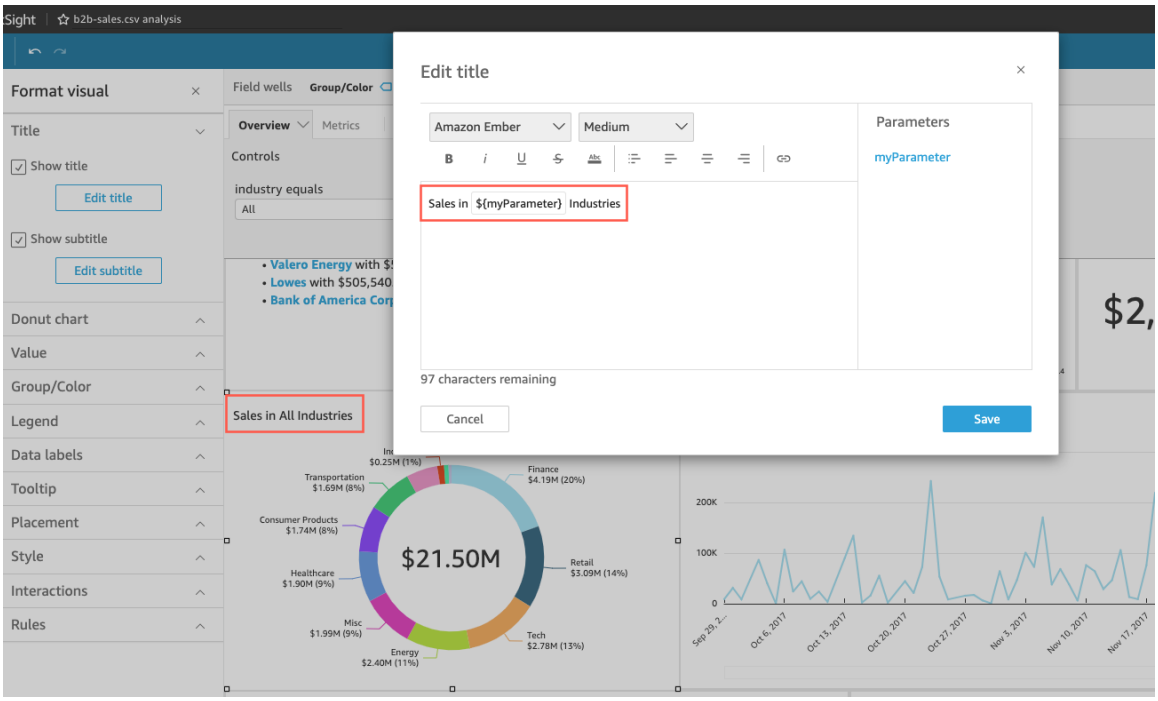
Using parameters in titles and descriptions in Insights

When you create parameters in Insights, you can use them in titles and descriptions throughout your charts and analyses to dynamically display parameter values.

You can use parameters in the following areas of your analysis:

- Chart titles and subtitles
- Axis titles
- Legend titles
- Parameter control titles
- Sheet titles and descriptions

The following image shows a chart title that uses a parameter.



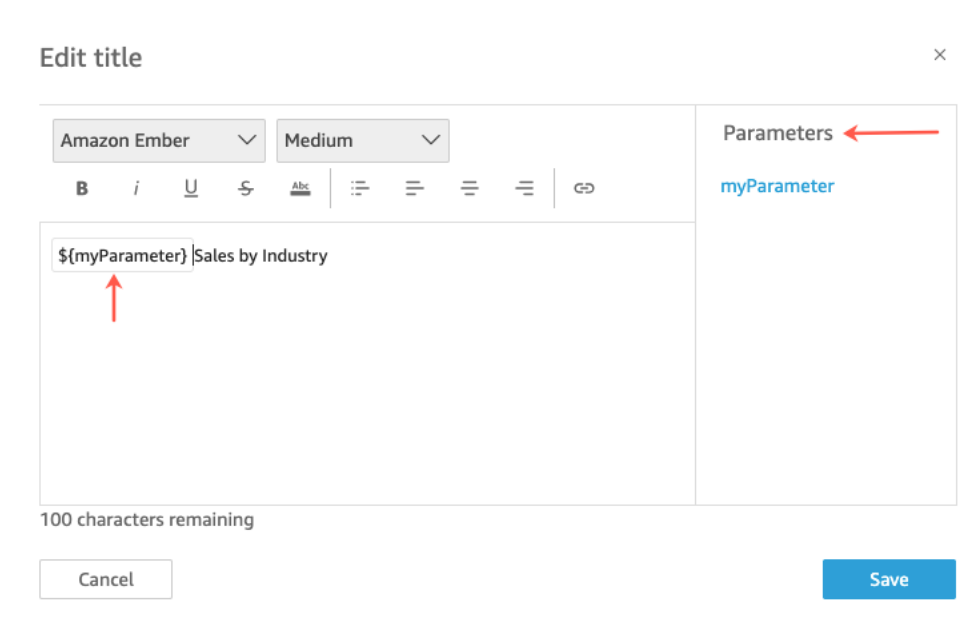
Use the following procedures to learn how to add parameters to areas throughout your analysis. For more information about parameters and how to create them, see Parameters.

Adding parameters to chart titles and subtitles

Use the following procedure to learn how to add parameters to chart titles and subtitles.

To add a parameter to a chart title or subtitle

1. Open the Format visual pane for the visual that you want to format.
2. In the Format visual pane, choose the Title tab.
3. Select Show title or Show subtitle. These options might already be selected.
4. Choose the three dots at the right of Edit title or Edit subtitle, and then choose a parameter from the list.



The parameter is added to the title in the Format visual pane. In the chart, the parameter value is displayed in the title.

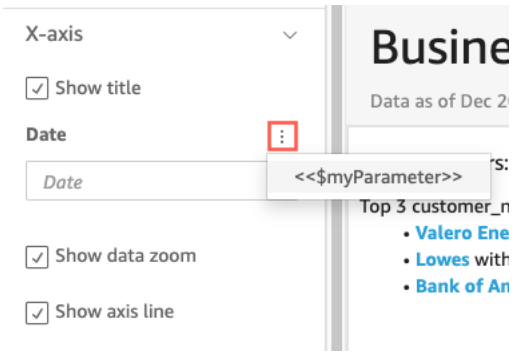
For more information about editing titles and subtitles in visuals, see Format visual titles and subtitles in Insights.

Adding parameters to axis titles

Use the following procedure to learn how to add parameters to axis titles.

To add a parameter to an axis title

1. Open the Format visual pane for the visual that you want to format.
2. In the Format visual pane, choose the axis that you want to format.
3. Select Show title.
4. Choose the three dots at the right of the default axis title, and then choose a parameter from the list.



The parameter is added to the axis title in the Format visual pane. In the chart, the parameter value is displayed in the axis title.

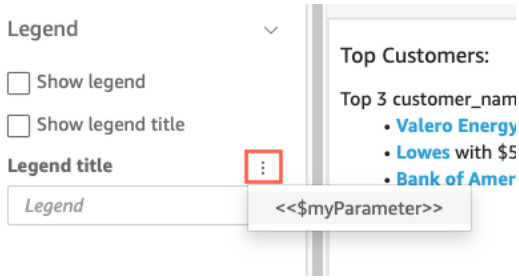
For more information about editing axis titles, see Axes and grid lines.

Adding parameters to legend titles

Use the following procedure to learn how to add parameters to legend titles.

To add a parameter to a legend title

1. Open the Format visual pane for the visual that you want to format.
2. In the Format visual pane, choose Legend.
3. Select Show legend title.
4. Choose the three dots at the right of Legend title, and then choose a parameter from the list.



The parameter is added to the legend title in the Format visual pane. In the chart, the parameter value is displayed in the legend title.

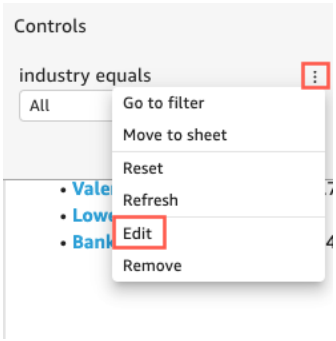
For more information about formatting legends, see Legends on visual types in Insights.

Adding parameters to control titles

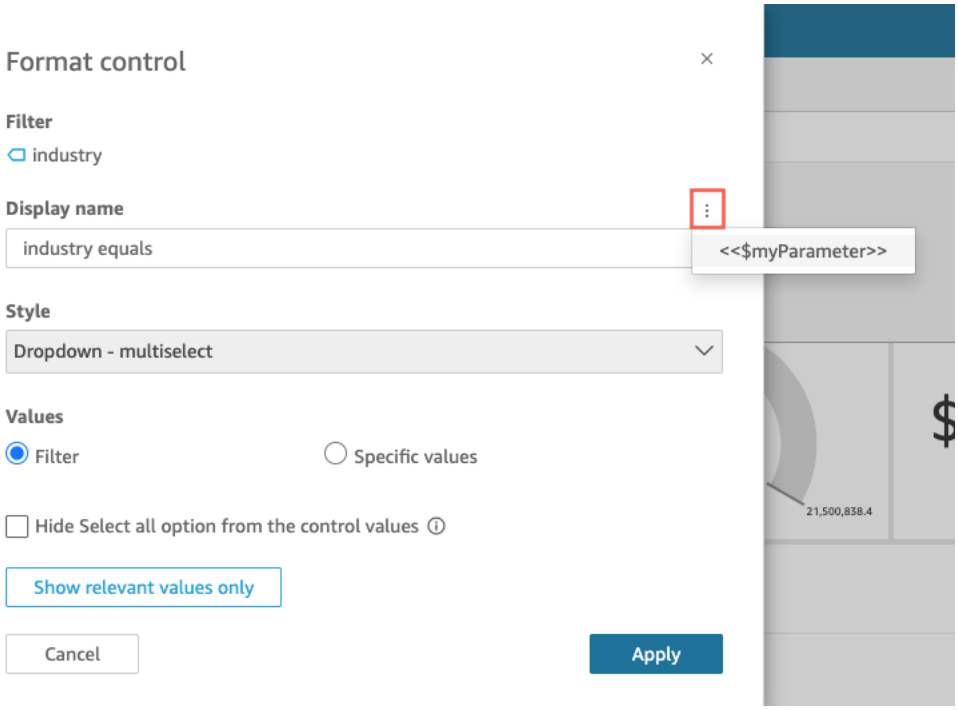
Use the following procedure to learn how to add parameters to parameter control titles.

To add a parameter to a parameter control title

1. Select the parameter control that you want to edit, choose the three dots at the right of the parameter control title, and then choose Edit.



2. In the Edit control page that opens, select Show title.
3. Choose the three dots at the right of Display name, and then choose a parameter from the list.



The parameter is added to the parameter control title.

For more information about using parameter controls, see Parameter controls.

Adding parameters to sheet titles and descriptions

Use the following procedure to learn how to add parameters to sheet titles and descriptions in your analysis.

To add a parameter to a sheet title or description

1. On the analysis page, choose Add in the application bar and then choose Add title or Add description.

   A sheet title or description appears on the sheet.

2. For Sheet title or for Description, choose the three dots at right, and then choose a parameter from the list.

   The parameter is added to the sheet title or description and the parameter value appears in the text when you close the text box.

   For more information about adding sheet titles and descriptions, see Adding a title and description to an analysis.

Using custom actions for filtering and navigating

To add interactive options for dashboard subscribers (Insights readers), you create custom actions on one or more visuals in your analysis. Enhancing dashboards with custom actions helps people explore data by adding more context from within the dataset. It can make it easier to drill into the details and to find new insights in the same dashboard, a different dashboard, or a different application.

Before you begin, it's helpful to do some planning. For example, identify fields that are good candidates for filtering, for opening a different sheet, for opening a URL, or for sending email. For each sheet, identify the widgets that display these fields. Then decide which widgets are going to contain actions. It's also a good idea to create a naming scheme so the names of the actions are consistent throughout the entire analysis. Consistent names make it easier for the person using your analysis to figure out what the action will do, plus they make it easier for you to maintain actions that you might be duplicating throughout the analysis.

Actions only exist on the dashboard widget where you create them and they work in the context of that widget's parent sheet and child fields that it displays. You can create actions only on specific types of widget: visuals and insights. You can't add them to other widgets, for example filter or list controls. Custom actions can only be activated from the widget where you create them.

To activate an action, the person using the analysis can left-click (select) or right-click (use the context menu) on a data point. A data point is an item in the dataset, for example a point on a line chart, a cell in a pivot table, a slice on a pie chart, and so on. If the person clicks a visual element, the select action is activated. This is the action that is currently a member of the On select category of the Actions in an analysis. If the person instead right-clicks a visual element, they can choose from a list of menu actions. Any action listed is currently a member of the Menu option category of the Actions in an analysis. The On select category can contain one and only one member action.

By default, the first action you create becomes the select action—the one activated by left-clicking. To remove an action from the On select category, change the action's Activation setting to Menu option. After you save that change, you can set a different action's Activation setting to Select.

You can choose from three Action types when you configure an action:

- Filter action – Filter data included in visual or in the entire sheet. By default, filters are available for all fields in the parent visual. Cascading filters are enabled by default. Filter actions work across multiple datasets by using automatically generated field mappings.

  If the analysis uses more than one dataset, you can view the automatically generated field mappings for fields that exist in multiple datasets. To do this, choose View field mapping at the end of the action settings, while you're editing an action. If you are viewing a list of actions, choose View field mapping from the menu for each action. The field mappings appear in a new screen that shows the mapping between the initial dataset and all the other datasets in the visual. If no fields are automatically mapped, a message displays with a link to Mapping and Joining Fields.

- Navigation actions – Enable navigation between different sheets in the same analysis.

- URL actions – Open a link to another web page. If you want to open a different dashboard, use a URL action. You can use a URL action to send data points and parameters to other URLs. You can include any available field or parameter.

  If the URL uses the mailto scheme, running the action opens your default email editor.

Topics

- Adding one-click interactive filters
- Creating and editing custom actions in Insights
- Repairing custom actions
- How field mapping for custom actions works in Insights

Adding one-click interactive filters

One-click interactive filtering provides point-and-click filtering that cascades from the clickable visual to all the other visuals and insights on a sheet. Add this to your analysis to start with summaries and drill down into the metrics, all within the same dashboard sheet.

After you set this up, when you click a data point (for example, a point in a line chart), you instantly filter using all mapped fields on all the other visuals on that sheet. If you have multiple datasets, all target fields must be mapped for this to work. Also, you can only have one action that works by clicking a data point; all other actions work from the context menu.

Use the following procedure to create a one-click filter in an analysis.

To create a one-click filter on a visual or insight

1. In your analysis, choose a visual or insight that you want to add interactive filtering to.
2. Choose Actions at left.
3. Choose Filter same-sheet visuals. Doing this immediately adds one-click filtering.
4. Repeat this process for each visual that you wish to make interactive.

Creating and editing custom actions in Insights

You create one action for each task that you want to be able to add to a visual. The actions you create become part of the functionality of each visual or insight.

The following table defines when to use each type of action.

Action to perform	Type of action
Add or customize an interactive filter action, including one-click filters	Filter action
Open another sheet in the same dashboard	Navigation action
Open a sheet in a different dashboard in the same Webex WFO account	URL action
Open a URL (https, http)	URL action
Send an email (mailto)	URL action

You can set the following attributes and options for a custom action:

- Action name – This is a descriptive name that you choose for the action. By default, actions are named Action 1, Action 2, and so on. If your custom action is activated from a context menu, this name displays in the menu when you right-click on a data point.
- To make the action name dynamic, you can parameterize it. Use the near the action name header to display a list of available variables. Variables are enclosed in angle brackets << >. Parameters are prefixed with a $, for example <<$parameterName>. Field names have no prefix, for example <<fieldName>.
- Activation – Available options are Select or Menu option. To use an action, you can select the data point (left-click) or navigate to the menu option in the context menu (right-click). Navigation actions and URL actions listed in the middle of the context menu, just above Color options. Actions that are activated by menu are also available from the legend on a visual.
- Action type – The type of action that you want. Settings that are specific to an action type only display after you choose the action type.
    - Filter action settings include the following:
        - Filter scope – The fields to filter on. To filter on all fields, choose All fields. Otherwise, choose Select fields and then turn off the items you don't want to target.

          The default is All fields.
        - Target visuals – The dashboard widgets to target. To apply the filter to all of them, choose All visuals. Otherwise, choose Select visuals and then turn off the items you don't want to target. When you apply a filter action to other visuals, the effect is called cascading filters.

          The default is All visuals.

          A cascading filter applies all the visuals that are set up in the Target visuals section of a specific filter action. Insights initially evaluates your visuals and preconfigures the settings for you. But you can change the defaults if you wish to do so. You can set up multiple cascading filters on multiple visuals in the same sheet or analysis. When you are using the analysis or dashboard, you can use multiple cascading filters at the same time, although you activate each of these one at a time.

          A filter action requires at least one target visual, because a filter action requires a source and a target. To filter only the current visual, create a regular filter instead by choosing Filter at left.

- Navigation action settings include the following:
  - Target sheet – The sheet to target.
  - Parameters – The parameters to send to the target sheet. Choose to add an existing parameter.
- URL action settings include the following:
  - URL – The URL to open. URL actions can be deep links into another application. Valid URL schemes include https, http, and mailto.
  - (Values) – (Optional) The parameters to send to the target URL. Parameter names start with a $. The parameters on both the sending and the receiving end must match in name and data type.
  - Open in – Where to open the URL. You can choose New browser tab, Same browser tab, or New browser window.

Some types of actions enable you to include values from parameters or fields that are available in the visual or insight. You can type these in manually or choose to select from a list. For the custom action to work, every field and parameter it references must be actively in use in the parent widget.

Use the following procedure to create, view, or edit a custom action in an analysis.

To create, view, or edit a custom action

1. With your analysis open, choose Actions at left.

   The existing actions, if any, display by activation type. To turn an existing action on or off, use the box to the right of the action's name.

2. (Optional) To edit or view an existing action, choose the menu icon ( ) next to the name of the action.

   To edit the action, choose Edit.

   To delete it, choose Delete.

3. To create a new action, choose either one of the following:
   - The add ( ) icon near the Actions heading
   - The Define a custom action button

4. For Action name, define an action name. To make the action name dynamic, use to add parameter or field values.
5. For Activation, choose how the action runs.
6. For Action type, choose the action type you want to use.
7. For a Filter action, do the following:
    a. For Filter scope, choose the scope of the filter.
    b. For Target visuals, choose how far the filter cascades
8. For a Navigation action, do the following:
    a. For Target sheet, choose the target sheet.
    b. For Parameters, choose near the Parameters heading, select a parameter, and then choose a parameter value. You can choose all values, enter custom values, or select specific fields.
9. For a URL action, do the following:
    a. For URL, enter the hyperlink.
    b. Choose near the URL heading. Then, add variables from the list.
    c. For Open in, choose how to open the URL.
10. After you are finished with the action, choose one of the following at the bottom of the Actions panel (you might need to scroll down):
    - Save – Save your selections, and create the custom action.
    - Close – Close this custom action and discard your changes.
    - Delete – Delete this action.

Repairing custom actions

For a custom action to work, every field and parameter it references must be active in the parent widget. If a field is missing from the source widget, or if a parameter is missing from the analysis, the action for that field or parameter becomes unavailable. Menu actions are no longer included in the context menu. Select actions no longer respond to attempts to interact. However, in all other ways, the widget continues to function. No error displays to your users. You can fix broken filter actions and URL actions by adding the missing fields back to the broken visual or insight.

The following procedure explains how to fix an action that broke because someone removed a field or parameter without updating the action. These steps provide basic guidance how to fix this issue. However, use your own judgment on how or if you should make changes to the analysis. If you're not sure, it's better to ask an Insights administrator for assistance before you change anything. For example, there might be a way to restore a previous version of the analysis, which might be safer if you aren't sure what happened to it.

To remove a field from a broken action

1. From the start page, choose Analyses. Then choose the analysis to fix.
2. Choose the visual or insight where the action no longer works. Make sure that it's highlighted on the sheet.
3. Choose Actions.
4. Locate the action you want to fix, and choose , Edit.
5. If the action type is Filter action, and you see an error that says the field used by this action was removed, check the settings for Filter scope. Selected fields can only display fields that are in the visual. To disable selected fields that are removed, choose one of the following:
    - Change the Filter scope setting to All fields. Doing this enables the widget to filter on every field.
    - If you want to use a list of Selected fields, verify the list of fields. If you need to include another field, you need to add it to the visual first.
6. If the action type is Navigation action, follow the guidance on the error message, which reflects the type of change that caused the error.
7. If the action type is URL action, check the URL setting for variables marked with double angle brackets (<<FIELD-OR-$PARAMETER>). Open the list of available variables by choosing . Remove any fields or parameters that aren't in the list. Be sure you also remove the matching URL parameter and it's separator (? for the first URL parameter, or & for subsequent parameters). The following examples show (in bold) which part is removed if you were removing the field named Product from the visual.

    ```
    https://www.example.com/examplefunction?q=<<Product>
    ```

    ```
    https://www.example.com/examplefunction?q=<<Product>&uact=<<$CSN>
    ```

    ```
    https://www.example.com/examplefunction?pass=yes&q=<<Product>+<<City>&oq=<
       <Product>+<<City>&uact=<<$CSN>
    ```

Make sure to test the new URL.

8. (Optional) To delete the action, scroll to the end and choose Delete.
9. When you are finished, confirm your changes to the action. Scroll to the bottom of the Action pane and choose Save.

   If the error also exists in an associated dashboard, share and publish the dashboard again to propagate the fix.

How field mapping for custom actions works in Insights

Automated field mapping is based on identical fields. Fields with the same name and data type map automatically across datasets. Their field names and data types must be an exact match. This works similar to a join, except that it is automatically generated based on names and data types for every matching field. If you are missing fields, you can create them by using calculated fields in the dataset that's missing a field.

It's important to make sure that all target fields are mapped if they are enabled for use with a filter action (in the **Filter scope**). Doing this allows filtering to apply automatically. If some target fields aren't mapped, the automatic filtering doesn't work.

Mapping is generated only when you create or save a custom action. So after every change that affects the mapping, make sure to return to it and save it again. When you create an action, mapping is based on the fields as they exist at that point. When you save an action, any mapped fields that you renamed since you created the custom action stay mapped. However, if you alter the data type of a mapped field, the mapping is removed.

If your mapping is missing some fields, you can do one of the following to fix it:

- Only target the mapped fields, by removing the unmapped fields from the **Filter scope**.
- Remove the visual in question from the target visuals.
- Create calculated fields to supply the missing fields for the mapping, and then save your custom action.

NOTE The information that displays on the mapping screen shows the configuration from the most recent time you saved it. To refresh or update the view, save the action again.

If you remove a parameterized field or any other targeted field from the source visual, the action that uses it breaks. The action for the missing field either doesn't work when you select a data point, or it's hidden from the context menu.

Related topics

- Adding one-click interactive filters
- Creating and editing custom actions in Insights
- Repairing custom actions

Work with items on sheets in Insights analyses

Use this section to learn how to work with visuals and other items as you author sheets in Insights.

Topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Add visuals to Insights analyses

A visual is a graphical representation of your data. You can create a wide variety of visuals in an analysis, using different datasets and visual types.

Insights supports up to fifty datasets in a single analysis, up to thirty visuals in a single sheet, and up to twenty sheets per analysis. Two visuals fit on each row.

Prerequisites

- You have the Insights Reader license.
- You have the Insights Author license.
- You know the specific question you are trying to answer with the visual.

Page location

Insights > Analyses > Click an analysis

Types of data fields

Each type of data in Insights is either a dimension or a measure. In the **Data** pane, dimension fields have blue icons, and measure fields have orange icons. Dimensions are text or date fields, like group names. Or they can be attributes that are related to measures and can be used to partition them, like contact start time. Measures are numeric values that you use for measurement, comparison, and aggregation. You typically use a combination of dimension and measure fields to produce a visual, for example number of contacts (a measure) by date evaluated (a dimension). For more information about the types of fields expected by the different visual types, see the specific visual type topics in the Visual types in Insights section.

Field limitations

You can only use one date field per visual. This limitation applies to all visual types.

You can't use the same field for more than one dimension field well or drop target on a visual. For more information about how expected field type is indicated by field wells and drop targets, see Using visual field controls.

Procedures

(Optional) Add a dataset to the analysis

Follow these steps if you want to create a visual based on a dataset that is not part of the analysis.

1. Select **Add a new dataset** from the **Dataset** drop-down list in the **Data** panel on the left. The **Choose dataset to add** window opens.
2. Select the dataset.

   BEST PRACTICE Use the smallest dataset that can answer your question. Doing this helps you create simpler visuals that are easier to analyze.

3. Click **Select**. The **Choose dataset to add** window changes to the **Datasets in this analysis** window.
4. Click **Close**.

Search for a data field

- Enter a search term in the **Search fields** field. Any field whose name contains the search term appears. Search is case-insensitive, and wildcards aren't supported.
- Click the cancel icon (**X**) to the right of the search box to return to viewing all fields.

Create a new visual

1. Click **Add** in the **Visuals** panel. A new, blank visual is created and receives focus.
2. Drag a dimension or measure from the **Data** panel into the **Add a dimension or measure** field well. Insights creates the visual, using the visual type it determines is most compatible with the data you selected. For more information about AutoGraph, see Use AutoGraph. The **Add Data** pane updates based on the item you added.
3. Continue dragging measures and dimensions into the field wells. Typically, you want to use dimension or measure fields as indicated by the color of the target field well. If you choose to use a dimension field to populate a Value field well, Insights automatically applies the Count aggregate function to it to create a numeric value.

After you have created a visual, you can modify it in a range of ways to customize it to your needs. Possible customizations include changing what fields map to visual elements, changing the visual type, sorting visual data, or applying a filter.

Resize a visual

1. Click the visual so that a dark outline appears around it.
2. Click and drag one of the white squares in the outline to make the visual bigger or smaller.

Rearrange visuals

1. Click the visual so that a dark outline appears around it.
2. Place your mouse over the outline so that it turns into a four-pointed arrow.
3. Click and drag the visual to a different place on the analysis.

Related topics

- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Duplicate Insights visuals

You can duplicate a visual to make a new copy of it on the same sheet or on a different sheet.

Prerequisites

- You have the Insights Reader license.
- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Procedures

Duplicate a visual

1. Hover your mouse over the visual and click **More options** (the three dots).
2. Select **Duplicate visual to ...** from the drop-down list.
3. Select the sheet where you want the visual to appear. The duplicated visual appears.

Apply the filters from a duplicated visual to other visuals on a new sheet

Duplicated visuals keep all the same filters and settings as the source visual. However, if you duplicate a visual onto a different sheet, by default all of its copied filters apply to the duplicate only.

1. Hover your mouse over the visual and click **Applied filters** (the filter icon).
2. Select **View dashboard filters** from the drop-down list. The **Filters** panel opens.
3. Click **Open menu** (the three dots) next to the filter's name.
4. Select **Edit**. The **Edit filter** pane opens.
5. Select the visuals you want to apply the filter to from the **Applied to** drop-down list.
6. Click **Apply**.

Make parameter controls work with a visual that you duplicate to a different sheet

Parameters and controls apply to all sheets.

1. Add filters on the target sheet.
2. In the **Filters** pane, select **Edit**.
3. Select **Custom filter** from the **Filter type** drop-down list.

Related topics

- Rename Insights visuals
- View visual data in Insights
- Export data from visuals
- Refresh visuals in Insights
- Delete Insights visuals

Rename Insights visuals

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Procedure

Rename a visual

1. Double-click the visual name at the top left of the visual. The **Edit title** window opens.
2. Enter a new name in the text field.
3. Click **Save**.

Related topics

- Duplicate Insights visuals
- View visual data in Insights
- Export data from visuals
- Refresh visuals in Insights
- Delete Insights visuals

View visual data in Insights

Insights offers a variety of ways to see the details of the data being displayed in a visual. The axes or rows and columns of the visual (depending on the visual type) have labels. Hovering over any graphical element in a visual displays the data associated with that element. Some visual types use visual cues to emphasize the element that you are hovering over and make it easier to differentiate.

EXAMPLE The visual type might change the color of the element or highlight it.

Use the following sections to learn more about viewing data in visuals.

Topics

- View visual details
- Scroll through visual data
- Focus on visual elements
- Exclude visual elements
- Search for specific values in your data in Insights

View visual details

Prerequisites

- You have the Insights Reader license.

Page location

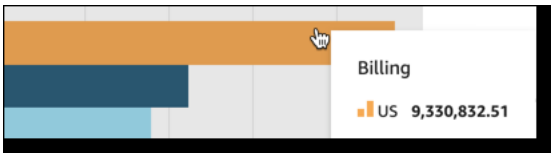
Insights > Dashboards or Analyses > Click a dashboard or analysis

Procedures

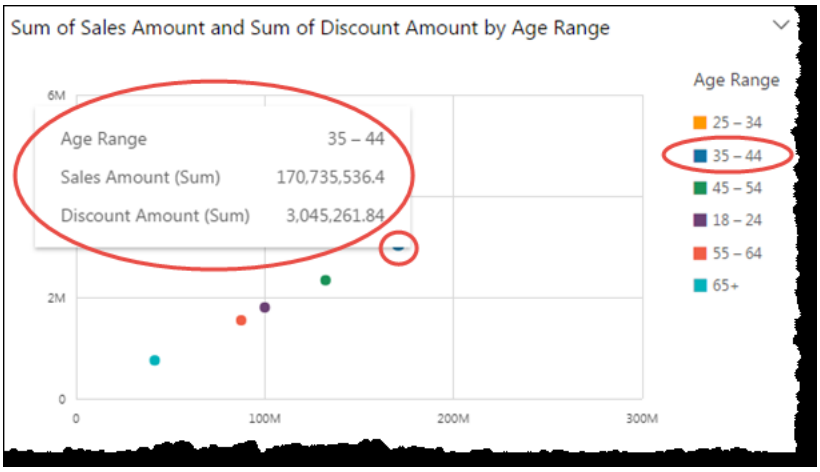
View details about the data in a visual

- Hover your cursor over any graphical element to get details on that element.

  EXAMPLE When you hover over a single bar on a bar chart, information about that specific bar displays in a tooltip.



EXAMPLE Hovering your cursor over a single data point on a scatter plot displays information about that specific data point.



You can customize the information that appears when you hover your cursor over data in a chart. For more information, see Tooltips on visual types in Insights.

Related topics

- Scroll through visual data
- Focus on visual elements
- Exclude visual elements
- Search for specific values in your data in Insights
- Tooltips on visual types in Insights

Scroll through visual data

For bar charts, line charts, and pivot tables, the content of the visual can be larger than the size that you want the visual to be.

In these cases, scrub bars appear so you can either reduce the data that is displayed or scrub through it. This process is similar to the way that you can scrub through a video.

Prerequisites

- You have the Insights Reader license.

Page location

Insights > Dashboards or Analyses > Click a dashboard or analysis

Procedures

Scroll through the data

- Click and hold the scrub bar and slide it toward the end that you want to see.

Change the length of the scrub bar

1. Hover over one end of the scrub bar until the cursor changes shape
2. Drag the widget to make the scrub bar larger or smaller.

Related topics

- View visual details
- Focus on visual elements
- Exclude visual elements
- Search for specific values in your data in Insights

Focus on visual elements

When viewing visuals, you can choose data that you want to focus on or exclude.

Prerequisites

- You have the Insights Author license.

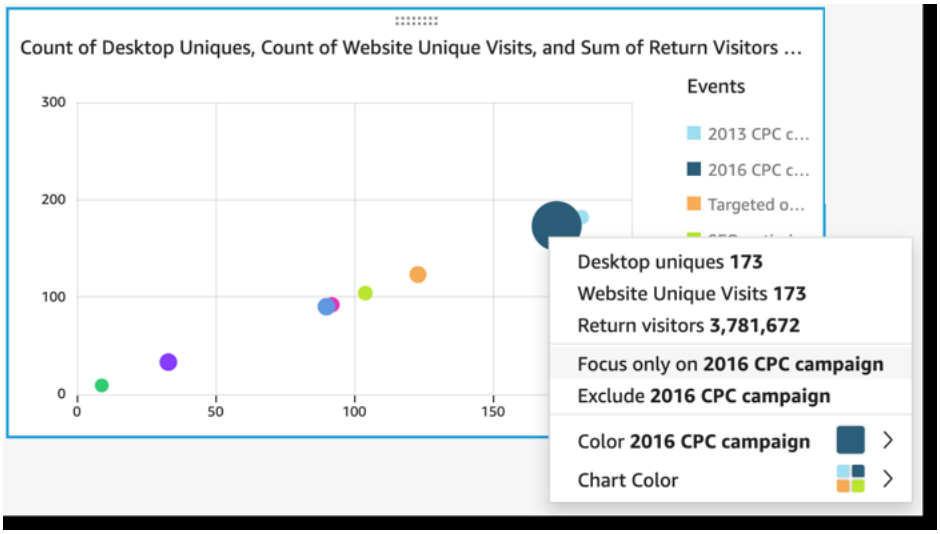
Page location

Insights > Analyses > Click an analysis

Procedures

Focus on one data element

1. Click the element (for example, a bar or column header).
2. Select **Focus only on** from the drop-down list. The visual updates, and Insights creates a filter that includes only the data you selected.



Remove the filter

- In the Filters panel, click the three dots next to the filter name and select **Disable** or **Delete** from the drop-down list.
- If adding the filter was the most recent action you did, you can also click **Undo** to remove the filter.

Change the color of a visual element

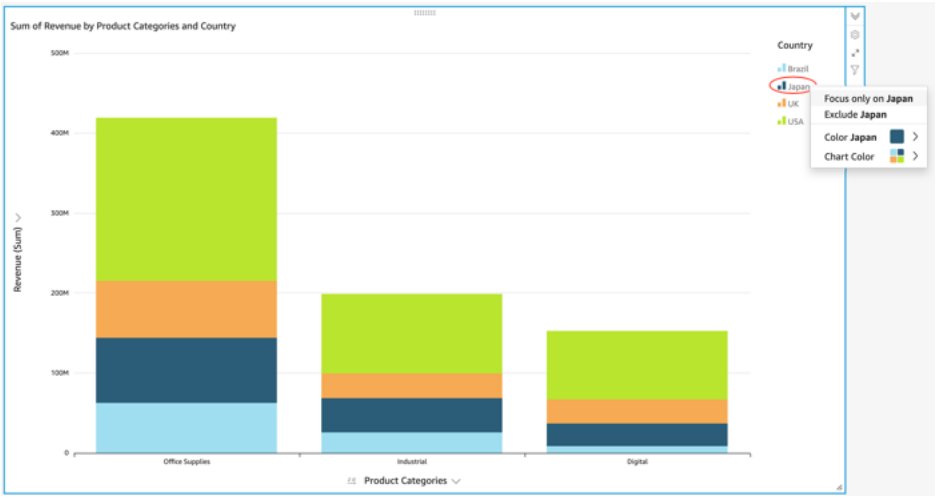
1. Click the element (for example, a bar or slice in a chart).
2. Select **Color** from the drop-down list and select the color.

If a visual has a legend that shows categories (dimensions), you can also click an item in the legend to perform a variety of actions, including the following:

- Focusing on, or excluding, visual elements
- Changing colors of visual elements

- Drilling down into a hierarchy
- Custom actions activated from the menu, including filtering or URL actions

The following screenshot shows how to use the legend for focusing on, or excluding, a dimension.



Related topics

- View visual details
- Scroll through visual data
- Exclude visual elements
- Search for specific values in your data in Insights

Exclude visual elements

When viewing visuals, you can click an element on the visual, and then choose to remove the element. Elements to focus on can include, for example, a bar or bubble, or a row or column header in the case of a pivot table. You can exclude multiple elements from a single chart.

Prerequisites

- You have the Insights Author license.
- The element you want to exclude is not mapped to a date field.

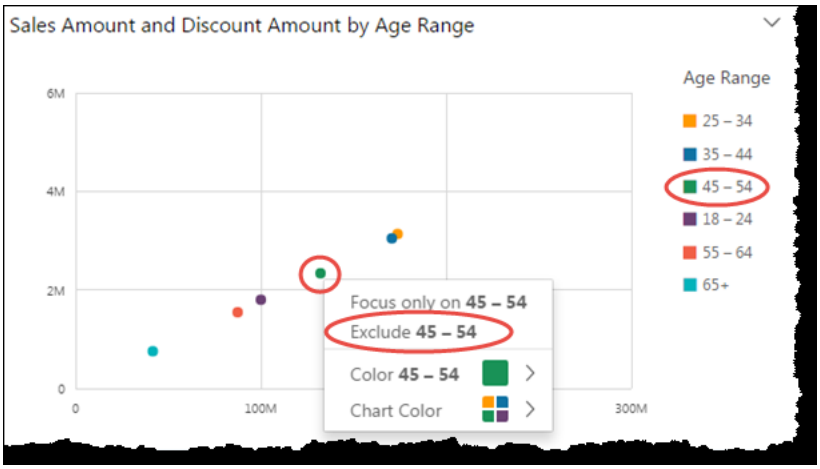
Page location

Insights > Analyses > Click an analysis

Procedures

Exclude a data element from a visual

1. Click the element (for example, a bar or column header).
2. Select **Exclude** from the drop-down list. The visual updates, and Insights creates a filter that removes only the data you selected.



Remove the filter

- In the Filters panel, click the three dots next to the filter name and select **Disable** or **Delete** from the drop-down list.
- If adding the filter was the most recent action you did, you can also click **Undo** to remove the filter.

Related topics

- Filter data in Insights.
- View visual details
- Scroll through visual data
- Focus on visual elements
- Search for specific values in your data in Insights

Search for specific values in your data in Insights

When filtering your visual data or using list or dropdown controls in a dashboard, you can quickly search for values that interest you.

You can search for specific values or all values that contain a specific search query. For example, searching for *al* in a list of U.S. states returns **Al**abama, **Al**aska, and C**al**ifornia.

You can also use wildcards to search for all values that match a specific character pattern. For example, you can search for all U.S. states that end with the letters *ia* and narrow the results down to California, Georgia, Pennsylvania, Virginia, and West Virginia.

Prerequisites

- You have the Insights Reader or the Insights Author permission.

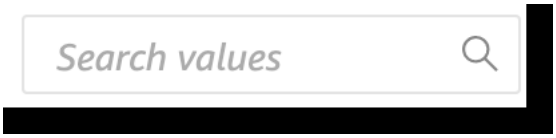
Page location

Insights > Dashboards or Analyses > Click a dashboard or analysis

Procedures

Search for values in a filter or control

- Enter a search query in the search bar.



Use wildcard search

In the query that you enter in the search bar, you can use the following wildcard characters to find values in Insights filters and the controls for lists and dropdowns.

- ***** - Use an asterisk symbol to search for values that match zero to many characters in a specific position.
- **?** - Use a question mark to match a single character in a specific position.
- \ - Use a backslash to escape the *****, **?**, or \ wildcard characters and search for them in your query.

  EXAMPLE You can search for phrases that end with a question mark.

Following are examples of how supported wildcard characters can be used in an Insights search query.

- `al` - This query searches for all values with `al` and returns Alabama, Alaska, and California.
- `al*` - This query searches for all values that begin with `al` and end with zero to multiple characters. It returns Alabama, and Alaska in a list of U.S. states.
- `*ia` - This query searches for all values that begin with zero to multiple characters and end with letters `ia`. It returns California, Georgia, Pennsylvania, Virginia, and West Virginia.
- `*al*` - This query searches for all values with zero to multiple characters before and after the letters `al`. It returns Alabama, Alaska, and California.
- `a?a?a?a` - This query searches for all values with a single character in the exact positions between the `a` letters. It returns Alabama.
- `a?a*a` - This query searches for all values with a single character between the first two `a` letters and multiple characters between the second two `a` letters. It returns Alabama and Alaska.
- `How*\?` - This query searches for values that begin with `How`, followed by zero to multiple characters, and end with a question mark. The backslash (\) in this query tells Insights to search for question marks in each value, rather than use the question mark symbol as a wildcard character. This query returns the questions, How are you? and, How is this possible?
- `\**` - This query searches for values that begin with an asterisk and are followed by zero to multiple characters. The backslash (\) in this query tells Insights to search for an actual asterisk in the values, rather than use the asterisk symbol as a wildcard character. This query returns values such as *all, *above, and *below.
- `\\*` - This query searches for values with a backslash, followed by zero to multiple characters. The first backslash (\) in this query tells Insights to search for the second backslash (\) in each value, rather than use the backslash symbol as a wildcard character. This query returns results such as \Home.
- `???` - This query searches for values that contain three characters. It returns values such as ant, bug, and car.

Related topics

- View visual details
- Scroll through visual data
- Focus on visual elements
- Exclude visual elements

Export data from visuals

You can export data from any type of chart or graph in Insights. The export contains only the data in the fields that are currently visible in the visual. Any data that is filtered out is excluded from the export file. You can export data into the following formats:

- A text file containing comma-separated values (CSV), available for all visual types.
- A Microsoft Excel workbook file (.xslx), available for pivot tables and table charts only.

Prerequisites

- You have the Insights Reader permission or the Insights Author

Page location

Insights > Dashboards or Analyses > Click a dashboard or analysis

Procedure

Export data from a visualization

1. Click **Menu options** (the three dots) at the top right on the visual you want to export.
2. Select one of the following:
    - To export to CSV, select **Export to CSV**.
    - To export to XSLX, select **Export to Excel**. This option is available only for pivot tables and table charts.
3. Depending on your browser settings, one of the following happens:
    - The file automatically goes to your default Download location.
    - A dialog box appears so you can choose a file name and location.
    - A dialog box appears so you can choose to open the file with the default software or to save to.

NOTE Export files can directly return information from the dataset. This makes the files vulnerable to CSV injection if the imported data contains formulas or commands. For this reason, export files can prompt security warnings. To avoid malicious activity, turn off links and macros when reading exported files.

The following rules apply:

- Exported files are downloaded to the default download directory configured in the browser that you're currently using.
- The downloaded file is named for the visualization that you exported it from. To make the file name unique, it has a sequential timestamp (a Unix epoch data type).
- For table charts, Insights supports exporting up to 1 million rows or 500 MB of data, whichever limit is reached first.
- For all other visuals, including pivot tables, the limits that apply to exporting are the same limits that apply to the visual type.
- You can't export data from an insight because insights consume the data but don't contain the data.
- Insights doesn't support exporting data from more than a single visualization at a time. To export data from additional visuals in the same analysis or dashboard, repeat this process for each visual. To export all the data from a dashboard or analysis, you need to connect to the original data source using valid credentials and a tool that you can use to extract data.

Related topics

- Duplicate Insights visuals
- Rename Insights visuals
- View visual data in Insights
- Refresh visuals in Insights
- Delete Insights visuals

Refresh visuals in Insights

When you work in an Insights analysis or dashboard, visuals refresh and reload when you change something that affects them, such as updating a parameter or filter control. If you switch to a new sheet after a parameter or filter changes, only the visuals affected by the change refresh on the new sheet. Otherwise, visuals update every 30 minutes when you switch sheets. This is the default behavior for all analyses and dashboards.

If you want to refresh all visuals when you switch sheets, regardless of a change, you can do so for each analysis that you create.

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Procedure

Refresh all visuals each time that you switch sheets in an analysis

1. In the analysis, click **Sheets** in the top menu and select **Layout Settings**. The **Settings** pane opens.
2. Expand the **Analysis Settings** section.
3. Toggle on **Reload visuals each time I switch sheets**.
4. Click **Apply**.

Related topics

- Duplicate Insights visuals
- Rename Insights visuals
- View visual data in Insights
- Export data from visuals
- Delete Insights visuals

Delete Insights visuals

Prerequisites

- You have the Insights Author license.

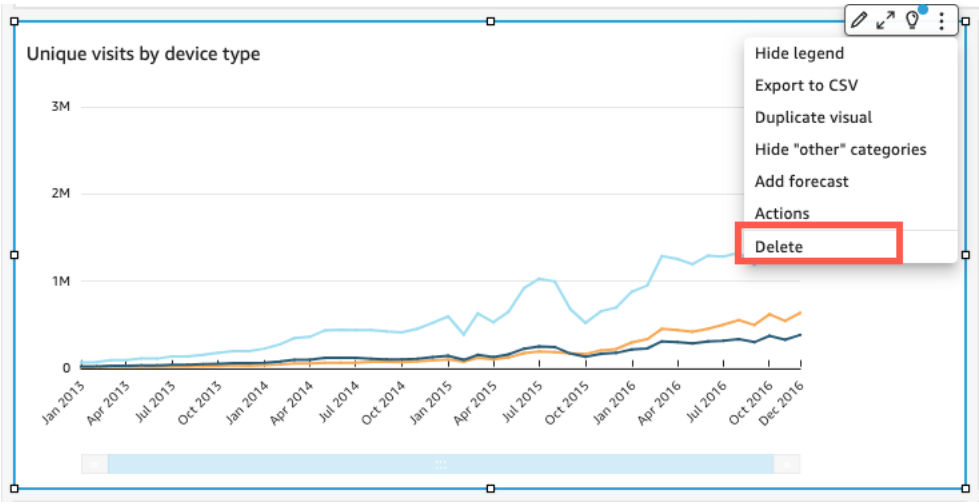
Page location

Insights > Analyses > Click an analysis

Procedure

Delete a visual

1. Click **Menu options** (the three dots) on the visual you want to delete.
2. Select **Delete**.



Related topics

- Duplicate Insights visuals
- Rename Insights visuals
- View visual data in Insights
- Export data from visuals
- Refresh visuals in Insights

Visual types in Insights

Insights offers a range of visual types that you can use to display your data. Use the links in the Related topics section to learn more about the capabilities of each visual type.

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Measures and dimensions

We use the term *measure* to refer to numeric values that you use for measurement, comparison, and aggregation in visuals. A measure can be either a numeric field, like product cost, or a numeric aggregate on a field of any data type, like count of transaction IDs.

We use the term *dimension* or *category* to refer to text or date fields that can be items, like products, or attributes that are related to measures and can be used to partition them. Examples are sales date for sales figures or product manufacturer for customer satisfaction numbers. Insights automatically identifies a field as a measure or a dimension based on its data type.

Numeric fields can act as dimensions, for example ZIP codes and most ID numbers.

You can change whether a field is displayed as a dimension or measure on an analysis-by-analysis basis instead. For more information, see the “Fields as dimensions and measures” section in Add visuals to Insights analyses.

Display limits

All visual types limit the number of data points they display so that the visual elements (like lines, bars, or bubbles) are still easy to view and analyze. The visual selects the first *n* number of rows for display up to the limit for that visual type. The selection is either according to sort order, if one has been applied, or in default order otherwise.

The number of data points supported varies by visual type. To learn more about display limits for a particular visual type, see the topic for that type in the Related topics section.

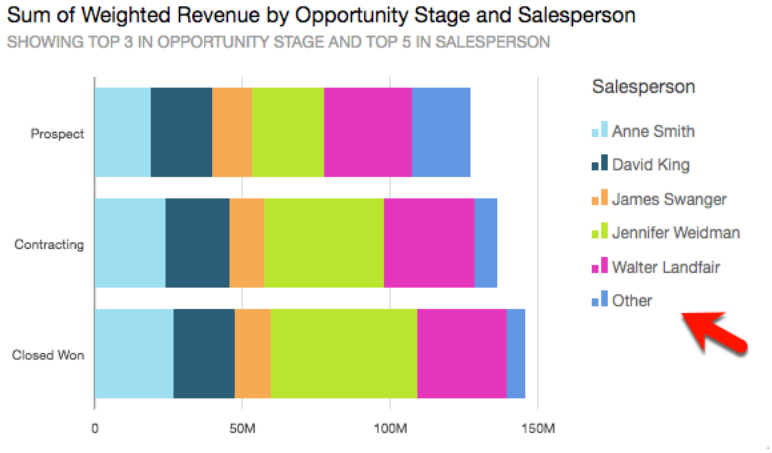
The visual title identifies the number of data points displayed if you have reached the display limit for that visual type. If you have a large dataset and want to avoid running into the visual display limit, use one or more filters to reduce the amount of data displayed. For more information about using filters with visuals, see Filter data in Insights.

For dashboards and analyses, Insights supports the following:

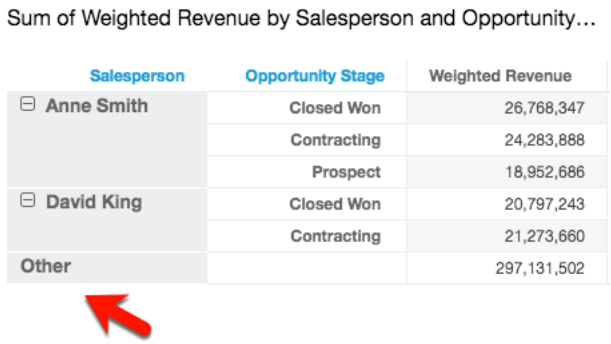
- 50 datasets per dashboard
- 20 sheets per dashboard
- 30 visualization objects per sheet

You can also choose to limit how many data points you want to display in your visual before they are added to the **other** category. This category contains the aggregated data for all the data beyond the cutoff limit for the visual type you are using—either the one you impose or the one based on display limits. You can use the on-visual menu to choose whether to display the **other** category. The **other** category doesn't appear on scatter plots, heat maps, maps, tables (tabular reports), or key performance indicators (KPIs). It also doesn't show on line charts when the x-axis is a date. Drilling down into the **other** category is not supported.

The following image shows the **other** category on a bar chart.



The following image shows the **other** category on a pivot table.


Sum of Weighted Revenue by Salesperson and Opportunity...

Salesperson	Opportunity Stage	Weighted Revenue
⊟ Anne Smith	Closed Won	26,768,347
	Contracting	24,283,888
	Prospect	18,952,686
⊟ David King	Closed Won	20,797,243
	Contracting	21,273,660
Other		297,131,502

Procedures

Hide or display the "other" category

1. Click **Menu options** (the three dots in the upper-right corner of the visual).
2. Select **Hide “other” categories** or **Show “other” categories**.

Customize the number of data points to display

You can choose the number of data points to display on the main axis of some visuals. After this number is displayed in the chart, any additional data points are included in the "other" category. For example, if you choose to include 10 data points out of 200, 10 display in the chart and 190 become part of the "other" category.

1. Click **Format visual** (the graph icon in the upper-right corner of the visual). The **Properties** panel opens.
2. Use the following table to determine which field well contains the data point setting and what number of data points the visual type displays by default.

Visual type	Where to find the data point setting	Default number of data points
Bar chart, horizontal	Y-axis – Number of data points displayed	2,500
Bar chart, vertical	X-axis – Number of data points displayed	2,500
Combo chart	X-axis – Number of data points displayed	2,500
Heat map	Rows – Number of rows displayed Columns – Number of columns displayed	100
Line chart	X-axis – Number of data points displayed	10,000
Pie chart	Group/Color – Number of slices displayed	20
Tree map	Group by – Number of squares displayed	100

Related topics

- Use AutoGraph
- Use bar charts
- Use box plots
- Use combo charts
- Use custom visual content
- Use donut charts

- Use funnel charts
- Use gauge charts
- Use heat maps
- Use histograms
- Use KPIs
- Use line charts
- Create maps in Insights
- Use small multiples
- Use pie charts
- Use pivot tables
- Use radar charts
- Use Sankey diagrams
- Use scatter plots
- Use tables as visuals
- Use text boxes
- Use tree maps
- Use waterfall charts
- Use word clouds
- Add visuals to Insights analyses
- Format a visual in Insights
- Customizing data presentation

Use AutoGraph

AutoGraph isn't a visual type itself but instead lets you tell Insights to choose the visual type for you. When you create a visual by choosing AutoGraph and then selecting fields, Insights uses the most appropriate visual type for the number and data types of the fields you select.

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Procedure

Create a visual using AutoGraph

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **AutoGraph** icon.



4. Drag the data that you want to include in the visual from the **Data** panel into the **Add Data** field wells.

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use bar charts

Prerequisites

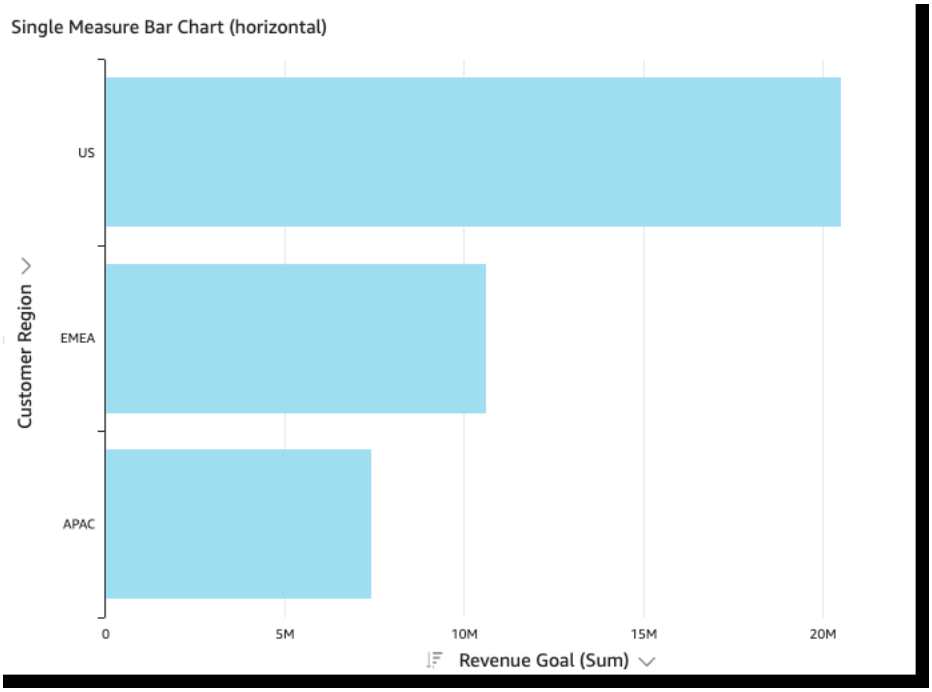
- You have the Insights Author license.

Page location

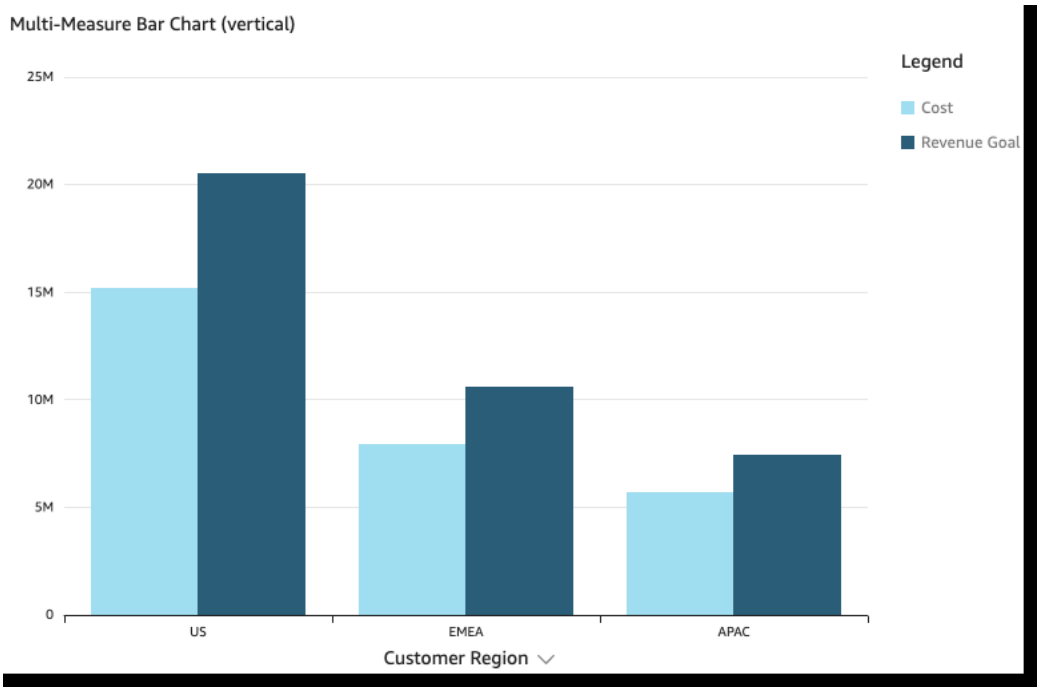
Insights > Analyses > Click an analysis

Insights supports the following types of bar charts, with either horizontal or vertical orientation:

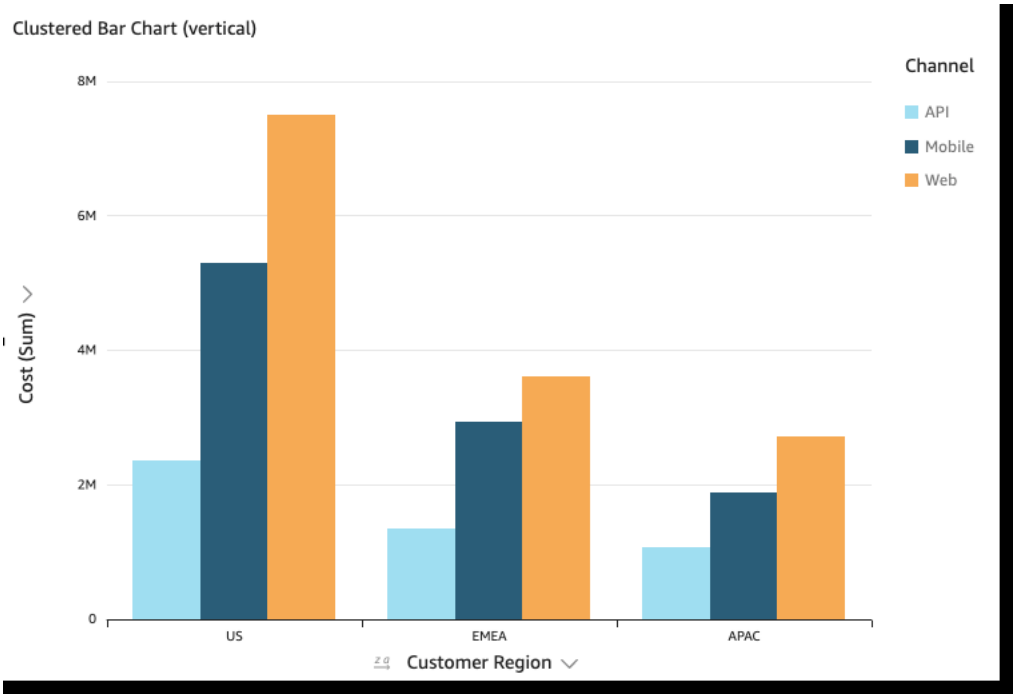
- Single-measure – A single-measure bar chart shows values for a single measure for a dimension. For example, the revenue goal per region, as shown in the following image.



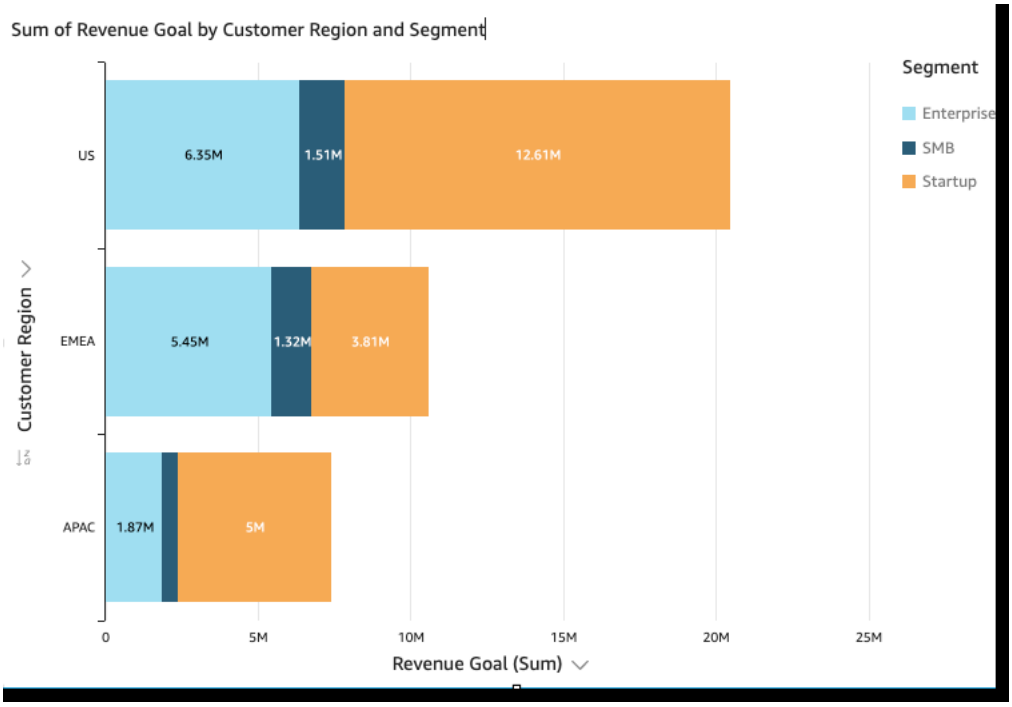
- Multi-measure – A multi-measure bar chart shows values for multiple measure for a dimension. For example, the revenue goal and cost per region, as shown in the following image.



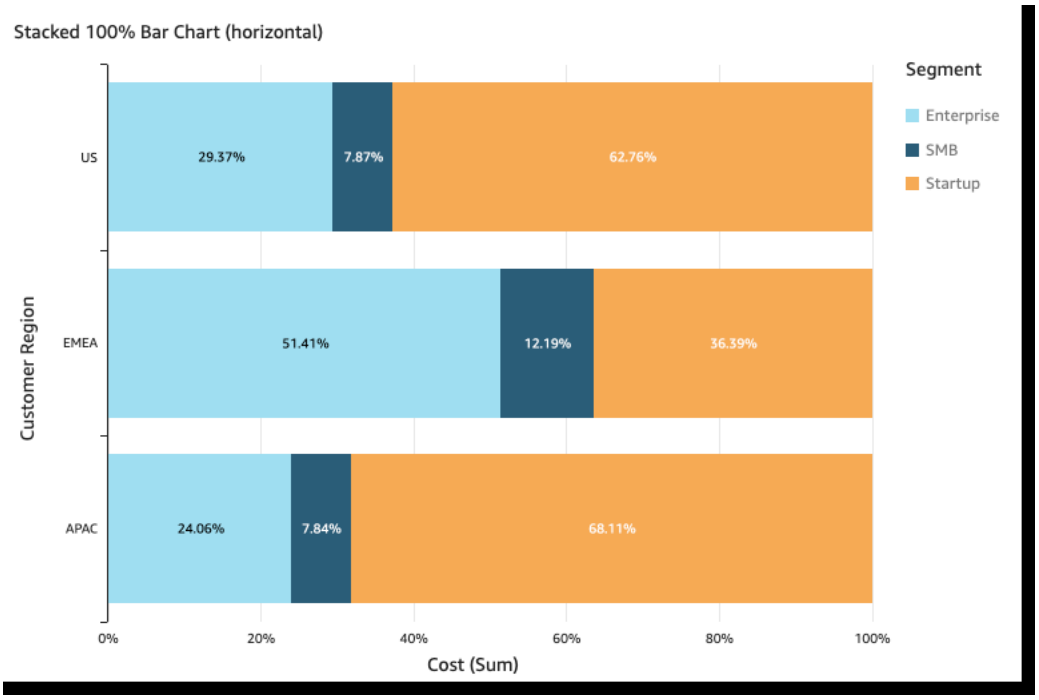
- Clustered – A clustered bar chart shows values for a single measure for a dimension, grouped by another dimension. For example, the cost for each channel in a region, as shown in the following image.



- Stacked – A stacked bar chart is similar to a clustered bar chart in that it displays a measure for two dimensions. However, instead of clustering bars for each child dimension by the parent dimension, it displays one bar per parent dimension. It uses color blocks within the bars to show the relative values of each item in the child dimension. The color blocks reflect the value of each item in the child dimension relative to the total for the measure. A stacked bar chart uses a scale based on the maximum value for the selected measure. For example, the revenue goal for each segment by region, as shown in the following image.



- Stacked 100 percent – A stacked 100 percent bar chart is similar to a stacked bar chart. However, in a stacked 100 percent bar chart, the color blocks reflect the percentage of each item in the child dimension, out of 100 percent. For example, the percent each segment costs per region, as shown in the following image.



Bar charts show up to 2,500 data points on the axis for visuals that don't use group or color. For visuals that do use group or color, they show up to 50 data points on the axis and up to 50 data points for group or color. For more information about how Insights handles data that falls outside display limits, see the “Display limits” section in Visual types in Insights.

Procedures

Create a single-measure bar chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Horizontal bar chart** or **Vertical bar chart** icon.



4. Drag a dimension from the **Data** panel into the **X Axis** or **Y Axis** field well.
5. Drag a measure from the **Data** panel into the **Value** field well.

Create a multi-measure bar chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Horizontal bar chart** or **Vertical bar chart** icon.



4. Drag a dimension from the **Data** panel into the **X Axis** or **Y Axis** field well.
5. Drag at least two measures from the **Data** panel into the **Value** field well.

Create a clustered bar chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Horizontal bar chart** or **Vertical bar chart** icon.



4. Drag a dimension from the **Data** panel into the **X Axis** or **Y Axis** field well.
5. Drag a measure from the **Data** panel into the **Value** field well.
6. Drag a dimension from the **Data** panel into the **Group/Color** field well.

Create a stacked bar chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Horizontal stacked bar chart** or **Vertical stacked bar chart** icon.



4. Drag a dimension from the **Data** panel into the **X Axis** or **Y Axis** field well.
5. Drag a measure from the **Data** panel into the **Value** field well.
6. Drag a dimension from the **Data** panel into the **Group/Color** field well.
7. (Optional) Add data labels and show totals:

a. Click **Format visual** (the chart icon in the upper-right corner of the visual). The **Properties** panel opens.

b. Toggle on **Data labels**. Labels for each measure value appear in the chart.

c. Select **Show totals**. Totals appear for each bar in the chart.

Create a stacked 100 percent bar chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Horizontal stacked 100% bar chart** or **Vertical stacked 100% bar chart** icon.



4. Drag a dimension from the **Data** panel into the **X Axis** or **Y Axis** field well.
5. Drag at least two measures from the **Data** panel into the **Value** field well.

Bar chart features

The following table lists the actions you can do with bar charts.

Feature	Supported?	Comments	For more information
Change the legend display	Yes, with exceptions	Multi-measure and clustered bar charts display a legend. Single-measure horizontal bar charts don’t.	Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	Yes		Set the range and scale on visuals in Insights
Show or hide axis lines, grid lines, axis labels, and axis sort icons	Yes		Format axes and grid lines on visual types in Insights
Change the visual	Yes		Colors in visual types in

Feature	Supported?	Comments	For more information
colors			Insights
Focus on or exclude elements	Yes, with exceptions	You can focus on or exclude any bar on the chart, except when you are using a date field as the dimension for the axis. In that case, you can only focus on a bar, not exclude it.	Focus on visual elements Exclude visual elements
Sort	Yes	You can sort on the fields you choose for the axis and the values.	Sorting visual data in Insights
Perform field aggregation	Yes	You must apply aggregation to the field or fields you choose for the value. You cannot apply aggregation to the fields you choose for the axis or group/color.	Changing field aggregation
Add drill-downs	Yes	You can add drill-down levels to the axis and Group/Color field wells.	
Show data labels	Yes		Data labels on visual types in Insights
Show stacked bar chart totals	Yes	Showing totals in a stacked bar chart is only available when you choose to show data labels.	Create a stacked bar chart

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use box plots

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

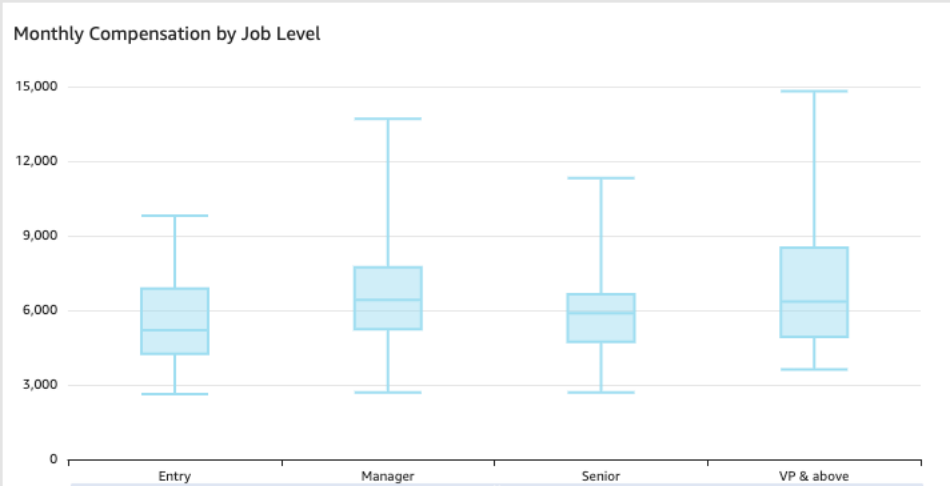
Box plots, also known as box and whisker plots, display data pooled from multiple sources into one visual, helping you make data-driven decisions. Use a box plot to visualize how data is distributed across an axis or over time, for example flights delayed over a seven-day time period. Typically, a box plot details information in quarters:

- **Minimum** – The lowest data point excluding outliers.
- **Maximum** – The highest data point excluding outliers.
- **Median** – The middle value of the dataset.
- **First Quartile** – The middle value between the smallest number and the median of the dataset. The first quartile doesn't include the minimum or the median.
- **Third Quartile** – The middle value between the largest number and the median of the dataset. The third quartile doesn't include the maximum or the median.

Outliers are extreme data points that aren't included in the calculation of a box plot's key values. Because outliers are calculated separately, their data points don't appear immediately after a box plot is created. Box plots display up to 10,000 data points. If a dataset contains more than 10,000 data points, a warning appears at the upper-right corner of the visual.

Box plots support some calculated fields, but not all. Any calculated field that uses a window function, for example avgOver, results in a SQL error.

The following screenshot shows a box plot.



Procedure

Create a basic box plot visual

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Box plot**icon.

4. Drag at least one measure from the **Data** panel into the **Value** field well.
5. (Optional) Drag a dimension from the **Data** panel into the **Group By** field well. Box plots support up to five metrics and one group-by but don't render if duplicate metrics are supplied.
6. (Optional) To add drill-down layers, drag at least one more dimension from the **Data** panel into the **Group By** field wells. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Related topics

- Formatting options available for each visual type in Insights—Learn about the features available with box plots
- Format a visual in Insights—Learn how to customize your box plot

- Add visuals to Insights analyses
- Visual types in Insights
- Customizing data presentation

Use combo charts

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Using a combo chart, you can create one visualization that shows two different types of data, for example trends and categories. Combo charts are also known as line-and-column (bar) charts because they combine a line chart with a bar chart. Bar charts are useful for comparing categories. Both bar charts and line charts are useful for displaying changes over time, but bar charts should show a greater difference between changes.

BEST PRACTICE Use a combo chart only if you want to show a relationship between the bars and the lines. If you need to explain how the two chart types relate, you should probably use two separate charts instead.

Insights supports the following types of combo charts:

- **Clustered bar combo charts** – display sets of single-color bars where each set represents a parent dimension and each bar represents a child dimension. Use this chart to make it easy to determine values for each bar.
- **Stacked bar combo charts** – display multi-color bars where each bar represents a parent dimension and each color represents a child dimension. Use this chart to make it easy to see relationships between child dimensions within a parent dimension. This chart shows the total value for the parent dimension and how each child adds to the total value. To determine the value for each child dimension, compare the size of the color section to the data labels for that axis.

Bars and lines show up to 2,500 data points on the axis for visuals that don't use group or color. For visuals that do use group or color, bars show up to 50 data points on the axis and up to 50 data points for group or color, and lines show 200 data points on the axis and up to 25 data points for group or color. For more information about how Insights handles data that falls outside display limits, see the “Display limits” section in Visual types in Insights.

Because each chart works differently, it can be helpful to understand the following points before you begin:

- The data points in each series render on different scales. Combo charts use a scale based on the maximum value for the selected measure.
- The distance between the numbers on the axis won't match between the lines and bars, even if you select the same scale for each chart type.
- For clarity, try to use different units for the measure in each data series.

Procedure

Create a combo chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Clustered bar combo chart** or **Stacked bar combo chart** icon.



4. Drag a dimension from the **Data** panel into the **X Axis**field well. This dimension is typically a text field that is related to the measure in some way and can be used to segment it to see more detailed information.
5. Drag at least one measure into **Bars** field well. Each bar in the chart represents a measure value for an item in the dimension you chose.
6. Drag at least one measure into the **Lines** field well.

   BEST PRACTICE The combo chart is like using two different types of visualization at the same time. Make sure that the data in the bars (or columns) directly relates to the data in the line or lines. Insights does not enforce this relationship, so it's essential that you determine this relationship yourself. Without some relation between the lines and bars, the visual loses meaning.

7. (Optional) Drag a measure into the **Group/Color for Bars** field well. If you use this field well, you can have only one measure in the **Bars** field well.
8. (Optional) To add drill-down layers, drag at least one more dimension into the **X Axis** or **Group/Color for Bars** field wells. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Combo chart features

The following table lists the actions you can do with combo charts.

Feature	Supported?	Comments	For more information
Change the legend display	Yes, with exceptions	Multi-measure combo charts display a legend, and single-measure combo charts don't.	Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	Yes	You can set the range for the axis.	Set the range and scale on visuals in Insights
Show or hide axis lines, grid lines, axis labels, and axis sort icons	Yes		Format axes and grid lines on visual types in Insights
Change the visual colors	Yes		Colors in visual types in Insights
Focus on or exclude elements	Yes, with exceptions	You can focus on or exclude any bar on the chart, except when you are using a date field as the dimension for the axis. In that case, you can only focus on a bar, not exclude it.	Focus on visual elements Exclude visual elements
Sort	Yes	You can sort on the fields you choose for the axis and the values.	Sorting visual data in Insights
Perform field aggregation	Yes	You must apply aggregation to the field or fields you choose for the value. You can't apply aggregation to the fields you choose for the axis or group/color.	Changing field aggregation
Add drill-downs	Yes	You can add drill-down levels to the	Adding drill-downs to

Feature	Supported?	Comments	For more information
		axis and Group/Color field wells.	visual data in Insights
Synchronize y-axis	Yes	Synchronize the y-axes for both bars and lines into a single axis.	Set the range and scale on visuals in Insights

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use custom visual content

You can embed images, online forms, webpages, and online videos in your Insights dashboards using the custom visual content chart type.

> **EXAMPLE** You can embed the image of your company logo in your dashboards. You can also embed an online video from your organization's latest conference or embed an online form asking readers of the dashboard if the dashboard is helpful.

After you create custom visual content, you can use navigation actions to navigate within them. You can also use parameters to control what appears in them.

Prerequisites

- You have the Insights Author license.
- The web content you want to embed is from a source that supports viewing or opening the content in an IFrame. If the source of the web content doesn't support being viewed or opened in an IFrame, the content doesn't appear in Insights, even if the URL is accurate.
- You have enabled all cookies in the browser that people will use to view the content. Blocking third-party cookies results in images not loading in Insights.

The following limitations apply to custom visual content:

- Only `https` URL schemes are supported.
- Custom visual content isn't supported in email reports.
- Images and websites that use hotlink protection won't load in custom visuals.

Page location

Insights > Analyses > Click an analysis

BEST PRACTICE

- When possible, use embeddable URLs, especially for videos, online forms, spreadsheets, and documents. Embeddable URLs create a better experience for readers of your dashboard and make interacting with the content easier. You can usually find the embeddable URL for content when you choose to share the content from the source website.
- To embed internal URLs or URLs that you own, you might need to set them to be opened in an IFrame.

Procedures

Embed an image in a dashboard

You can embed an online image in a dashboard using the image URL.

Embedded images don't appear in a browser that has third-party cookies blocked. To see embedded images in a dashboard, enable third-party cookies in your browser settings.

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Custom visual content**icon.



4. In the **Properties** panel on the right side of the page, expand **Custom Content**.
5. Enter the visual's URL in the **URL** field.
6. Click **Apply**.
7. Toggle **Show as image** on. The image appears in the visual.

This message appears if the URL is not an image, such as a URL to a slide show, gallery, or webpage : `This URL doesn't appear to be an image. Update the URL to an image.` To do so, open the image that you want to embed in a separate browser tab or choose an embeddable URL for the image (usually found when you choose to share the image).

8. (Optional) To change the image's size, select one of the following options from the **Image sizing options** drop-down list:
    - **Fit to width** – This option fits the image to the width of the visual.
    - **Fit to height** – This option fits the image to the height of the visual.
    - **Scale to visual** – This option scales the image to the width and height of the visual. This option might contort the image.
    - **Do not scale** – This option keeps the image at its original scale and doesn't fit the image to the dimensions of the visual. With this option, the image is centered in the visual, and the parts of the image that are within the width and height of the visual appear. Some parts of the image might not appear if the visual is smaller than the image. If the visual is larger than the image, however, the image is centered in the visual and is surrounded by white space.

Embed an online form in a dashboard

You can embed an online form in a dashboard using the embeddable URL.

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Custom visual content**icon.



4. In the **Properties** panel on the right side of the page, expand **Custom Content**.
5. Enter the form's URL in the **URL** field.

> **BEST PRACTICE** If possible, use an embeddable URL for the form. Using an embeddable URL creates a better experience for readers of your dashboard who might want to interact with the form. You can often find the embeddable URL when you choose to share the form on the site where you create it.

6. Click **Apply**. The form appears in the visual.

Embed a webpage in a dashboard

You can embed a webpage in a dashboard using the URL.

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Custom visual content**icon.



4. In the **Properties** panel on the right side of the page, expand **Custom Content**.
5. Enter the webpage's URL in the **URL** field.
6. Click **Apply**. The webpage appears in the visual.

Embed an online video in a dashboard

You can embed an online video in a dashboard using the embeddable video URL.

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Custom visual content**icon.



4. In the **Properties** panel on the right side of the page, expand **Custom Content**.
5. Enter the video's embeddable URL in the **URL** field.

   To find the embeddable URL for a video, share the video and copy the embed URL from IFrame code.

   > **EXAMPLE** The following is an example of an embed URL for a YouTube video: `https://www.youtube.com/embed/uniqueid`. For a Vimeo video, the following is an example of an embed URL: `https://player.vimeo.com/video/uniqueid`.

6. Click **Apply**. The video appears in the visual.

Related topics

- Add visuals to Insights analyses—More information about adding visuals to a dashboard
- Visual types in Insights

- Format a visual in Insights
- Customizing data presentation

Use donut charts

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Use donut charts to compare values for items in a dimension. The best use for this type of chart is to show a percentage of a total amount.

Each wedge in a donut chart represents one value in a dimension. The size of the wedge represents the proportion of the value for the selected measure that the item represents compared to the whole for the dimension. Donut charts are best when precision isn't important and there are few items in the dimension.

Donut charts show up to 20 data points for group or color. For more information about how Insights handles data that falls outside display limits, see the “Display limits” section in Visual types in Insights.

Procedure

Create a donut chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Donut chart**icon.



4. Drag a dimension from the **Data** panel into the **Group/Color** field well.
5. (Optional) To display the division of dimension values by a metric value, drag a measure into the **Value** field well.

6. (Optional) To add drill-down layers, drag at least one more field from the **Data** panel into the **Group/Color** field wells. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Donut chart features

The following table lists the actions you can do with donut charts.

Feature	Supported?	Comments	For more information
Change the legend display	Yes		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	Not applicable		Set the range and scale on visuals in Insights
Change the visual colors	Yes		Colors in visual types in Insights
Focus on or exclude elements	Yes, with exceptions	You can focus on or exclude a wedge in a donut chart unless you are using a date field as a dimension. In that case, you can only focus on a wedge, not exclude it.	Focus on visual elements Exclude visual elements
Sort	Yes	You can sort on the field that you choose for the value or the group or color.	Sort pivot tables in Insights
Perform field aggregation	Yes	You must apply aggregation to the field that you choose for the value. You cannot apply aggregation to the field that you choose for group or color.	Changing field aggregation
Add drill-downs	Yes	You can add drill-down levels to the	Adding drill-downs to

Feature	Supported?	Comments	For more information
		Group/Color field well.	visual data in Insights
Choose size	Yes	You can choose how thick the donut chart is: small, medium, or large.	Format a visual in Insights
Show totals	Yes	You can choose to display or hide the aggregate of the Value field. By default, this displays the total count of the Group/Color field or the total sum of the Value field.	Format a visual in Insights

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use funnel charts

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Use a funnel chart to visualize data that moves across multiple stages in a linear process. In a funnel chart, each stage of a process is represented in blocks of different shapes and colors. The first stage, known as the head, is the largest block and is followed by the smaller stages, known as the neck, in a funnel shape. The size of the block representing each stage in a funnel chart is a percentage of the total and is proportionate to its value. The bigger the size of the block, the bigger its value.

Funnel charts are often useful in business contexts because you can view trends or potential problem areas in each stage, such as bottlenecks. For example, they can help you visualize the amount of the potential revenue in each stage of a sale, from first contact to final sale and on through maintenance.

Procedure

Create a basic funnel chart visual

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Funnel chart**icon.



4. Drag a dimension from the **Data** panel into the **Group By** field well.
5. (Optional) To add drill-down layers, drag at least one more field from the **Data** panel into the **Group By** field well. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

   To understand the features supported by funnel charts, see Formatting options available for each visual type in Insights. For customization options, see Format a visual in Insights.

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use gauge charts

Use gauge charts to compare values for items in a measure. You can compare them to another measure or to a custom amount.

A gauge chart is similar to a nondigital gauge, for example a gas gauge in an automobile. It displays how much there is of the thing you are measuring. In a gauge chart, this measurement can exist alone or in relation to another measurement. Each color section in a gauge chart represents one value.

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Procedure

Create a gauge chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Gauge chart**icon.



4. Drag a dimension from the **Data** panel into the **Value** field well.
5. (Optional) To compare two measures, drag another measure into the **Target Value** field well. If you want to compare a single measure to a target value that isn't in your dataset, you can use a calculated field that contains a fixed value.
6. (Optional) To customize how the gauge chart looks, expand **Gauge options** in the **Properties** panel (left side of the page). The following options are available:
    - **Value displayed**—Hide value, display actual value, or display a comparison of two values
    - **Comparison method**—Compare values as a percent, the actual difference between values, or difference as a percent
    - **Axis style**—
        - **Range**—The numeric minimum and maximum range to display in the gauge chart
        - **Reserve padding** (%)—Added to the top of the range (target, actual value, or max)
    - **Arc style**—Degrees the arc displays (180° to 360°)
    - **Thickness**—Thickness of the arc (small, medium, or large)

- **Primary value font size**—Automatically selected by Insights, or sizes from extra small to extra large

Gauge chart features

The following table lists the actions you can do with gauge charts.

Feature	Supported?	Comments	For more information
Change the legend display	Yes		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Format gauge	Yes	You can customize the value displayed, the comparison method, the axis style, the arc style, and the thickness of the gauge.	
Change the axis range	No		
Change the visual colors	Yes	The foreground color the filled area; it represents the Value. The background color the unfilled area; it represents the Target value if one is selected.	Colors in visual types in Insights
Focus on or exclude elements	No		
Sort	No		Sorting visual data in Insights
Perform field aggregation	Yes		Changing field aggregation
Add drill-downs	No		

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use heat maps

Prerequisites

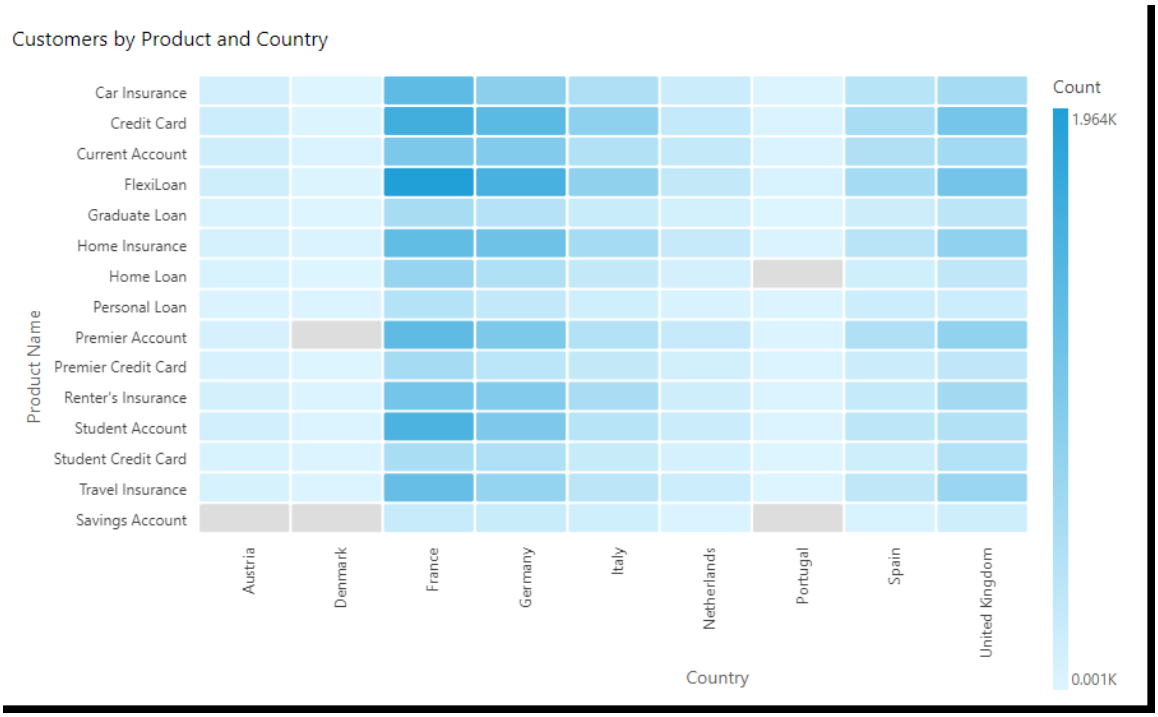
- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Use heat maps to show a measure for the intersection of two dimensions, with color-coding to easily differentiate where values fall in the range. Heat maps can also be used to show the count of values for the intersection of the two dimensions.

For example, the following heat map shows which products are most used by the customers in these countries, measured by a simple count.



Each rectangle on a heat map represents the value for the specified measure for the intersection of the selected dimensions. Rectangle color represents where the value falls in the range for the measure, with darker colors indicating higher values and lighter colors indicating lower ones.

Heat maps show up to 50 data points for rows and up to 50 data points for columns. For more information about how Insights handles data that falls outside display limits, see the “Display limits” section in Visual types in Insights.

BEST PRACTICE Heat maps are similar to pivot tables. Use a heat map if you want to identify trends and outliers because the use of color makes these easier to spot. Use a pivot table if you want to further analyze data on the visual, for example by changing column sort order or applying aggregate functions across rows or columns.

Procedure

Create a heat map

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Heat map**icon.



4. Drag a dimension from the **Data** panel into the **Rows** field well.
5. Drag a dimension into the **Columns** field well.
6. Drag a measure into the **Values** field well.
7. (Optional) To add drill-down layers, drag at least one more field from the **Data** panel into the **Rows** or **Columns** field wells. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Heat map features

The following table lists the actions you can do with heat maps.

Feature	Supported?	Comments	For more information
Change the legend display	Yes		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	Not applicable		Set the range and scale on visuals in Insights
Change the visual colors	No		Colors in visual types in Insights
Focus on or exclude elements	Yes, with exceptions	You can focus on or exclude a rectangle in a heat map, except when you are using a date field as the rows dimension. In that case, you can only focus on a rectangle, not exclude it.	Focus on visual elements Exclude visual elements
Sort	Yes	You can sort by the fields you choose for the columns and the values.	Sorting visual data in Insights

Feature	Supported?	Comments	For more information
Perform field aggregation	Yes	You must apply aggregation to the fields you choose for the value. You cannot apply aggregation to the fields you choose for the rows or columns.	Changing field aggregation
Add drill-downs	Yes	You can add drill-down levels to the Rows and Columns field wells.	Adding drill-downs to visual data in Insights
Conditional formatting	No		Conditional formatting on visual types in Insights

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use histograms

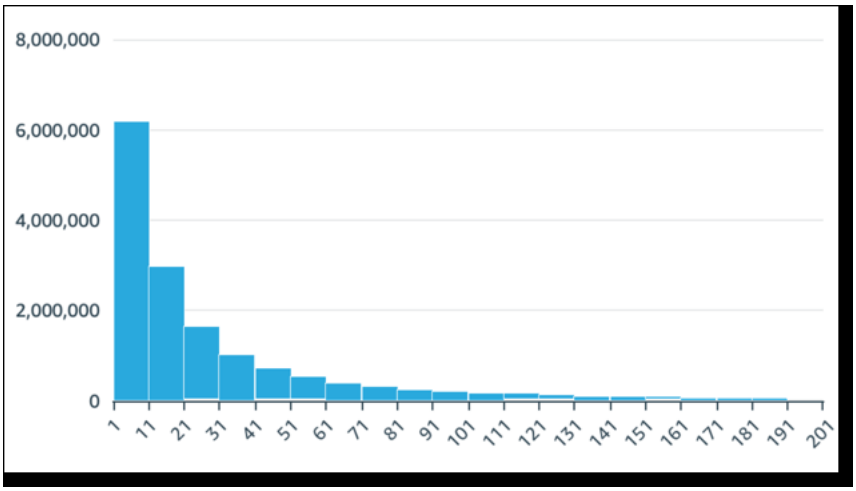
Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Use a histogram chart in Insights to display the distribution of continuous numerical values in your data. Insights uses un-normalized histograms, which use an absolute count of the data points or events in each bin.



BEST PRACTICE Make sure that you adjust the format settings so that you have a clearly identifiable shape. If your data contains outliers, this becomes clear if you spot one or more values off to the side of the X-axis. For information about how Insights handles data that falls outside display limits, see the "Display limits" section in Visual types in Insights.

Procedures

Create a histogram

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Histogram**icon.



4. Drag a measure from the **Data** panel into the **Group By** field well. The resulting histogram shows the following:
    - The X-axis displays 10 bins by default, representing the intervals in the measure that you choose. To customize the bins, see Format a histogram.
    - The Y-axis displays the absolute count of individual values in each bin.

Format a histogram

1. Hover over the histogram chart that you want to work with and click **Format visual** (the bar chart icon on the upper-right corner of the visual). The **Properties** panel opens.
2. Set the following options to control the display of the histogram:
    - Expand **Histogram**. Chose *one* of the following settings. You can format the bins either by count or width, not both together.
        - **Bin count**: The number of bins that display on the X-axis.
        - **Bin width**: The width (or length) of each interval. This setting controls the number of items or events to include in each bin.

            EXAMPLE If your data is in minutes, you can set this to 10 to show 10-minute intervals.
    - With the following settings, you can explore the best way to format the histogram for your dataset.

        EXAMPLE In some cases, you might have a tall peak in one bin while most of the other bins look sparse. This isn't a useful view.

        You can use the following settings individually or together:

        - Insights displays up to 100 bins (buckets) by default. If you want to display more (up to 1,000), change the **X-axis** setting for **Number of data points to show**.
        - Enable **Logarithmic Scale** in the **Y-axis** settings.

            Sometimes your data doesn't fit the shape that you want, and this mismatch can provide misleading results.

            EXAMPLE If the shape is skewed so far to the right that you can't read it properly, you can apply a log scale to it. Doing this doesn't normalize your data, but it does reduce the skew.
        - Display **Data labels**.

            You can enable the display of data labels to see the absolute counts in the chart. Even if you don't want to display these in most cases, you can enable them while you're developing an analysis. The labels can help you decide on formatting and filtering

options because they reveal counts in bins that are too small to stand out.

To see all the data labels, even if they overlap, enable **Allow labels to overlap**.

3. (Optional) Change other visual settings. For more information, see Format a visual in Insights.

Histogram features

The following table lists the actions you can do with histograms.

Feature	Supported?	Comments	For more information
Change the legend display	No		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	No	However, you can change the bin count or the bin interval width (range of distribution).	
Show or hide axis lines, grid lines, axis labels, and axis sort icons	Yes		Format axes and grid lines on visual types in Insights
Changing the visual colors	Yes		Colors in visual types in Insights
Focus on or exclude elements	No		
Sort	No		
Perform field aggregation	No	Histograms use only the count aggregation.	
Add drill-downs	No		

How histograms work

Although histograms look similar to bar charts, they are very different. In fact, the only similarity is their appearance because they use bars. On a histogram, each bar is called a *bin* or a *bucket*.

Each bin contains a range of values called an *interval*. When you pause on one of the bins, details about the interval appear in a tooltip that shows two numbers enclosed in glyphs. The type of enclosing glyphs indicates if the numbers inside them are part of the interval that's inside the selected bin, as follows:

- A square bracket next to a number means that the number is included.
- A parenthesis next to a number means that the number is excluded.

EXAMPLE

The first bar in a histogram displays the following notation.

```
[1, 10)
```

The square bracket means that the number 1 is included in the first interval. The parenthesis means that the number 10 is excluded.

In the same histogram, a second bar displays the following notation.

```
[10, 20)
```

In this case, 10 is included in the second interval, and 20 is excluded. The number 10 can't exist in both intervals, so the notation shows us which one includes it.

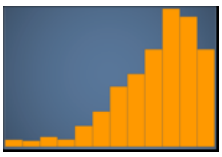
NOTE

The pattern used for marking intervals in a histogram comes from standard mathematical notation. The following examples show the possible patterns, using a set of numbers that includes 10, 20, and every number in between.

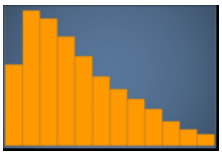
- [10, 20] – This set is closed. It has hard boundaries on both ends.
- [10, 21) – This set is half open. It has a hard boundary on the left and a soft boundary on the right.
- (9, 20] – This set is half open. It has a soft boundary on the left and a hard boundary on the right.
- (9, 21) – This set is open. It has soft boundaries on both ends.

Because the histogram uses quantitative data (numbers) rather than qualitative data, there's a logical order to the distribution of the data. This is called a *shape*. Bins that contain a higher number of values form a *peak*. Bins that contain a lower number of values form a *tail* on the edge of a chart and a *valley* between peaks. Most histograms fall into one of the following shapes:

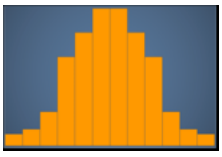
- Asymmetrical or *skewed* distributions have values that cluster near the left or the right—the low or high end of the X-axis. The direction of skewness is defined by where the longer tail of the data is, not by where the peak is. It's defined this way because this direction also describes the location of the mean (average). In skewed distributions, the mean and the median are two different numbers. The different types of skewed distribution are as follows:
  - *Negatively* skewed or *left* skewed – A chart that has the mean to the left of the peak. It has a longer tail to the left and a peak to the right, sometimes followed by a shorter tail. The following histogram displays a left-skewed distribution.

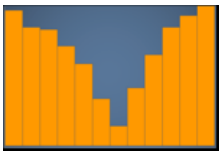
  - *Positively* skewed or *right* skewed – A chart that has the mean to the right of the peak. It has a longer tail to the right and a peak to the left, sometimes preceded by a shorter tail. The following histogram displays a right-skewed distribution.

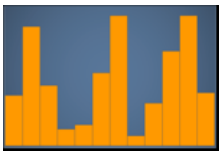
- Symmetrical or *normal* distributions have a shape that's mirrored on each side of a center point (for example, a bell curve). In a normal distribution, the mean and the median are the same value. The different types of normal distribution are as follows:
  - Normal distribution, or *unimodal* – A chart that has one central peak representing the most common value. This is commonly called a bell curve or a Gaussian distribution. The following histogram displays a normal distribution.

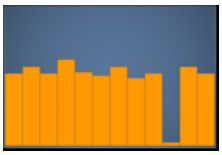
  - Bimodal – A chart that has two peaks representing the most common values. The following histogram displays a bimodal distribution.



- Multimodal – A chart that has three or more peaks representing the most common values. The following histogram displays a multimodal distribution.



- Uniform – A chart that has no peaks or valleys, with a relatively equal distribution of data. The following histogram displays a uniform distribution.



The following table shows how a histogram differs from a bar chart.

Histogram	Bar chart
A histogram displays the distribution of values in one field.	A bar chart compares the values in one field, grouped by dimension.
A histogram sorts values into bins that represent a range of values. **EXAMPLE** 1–10, 10–20, and so on.	A bar chart plots values that are grouped into categories.
The sum of all bins equals exactly 100% of the values in the filtered data.	A bar chart isn't required to display all of the available data. You can change display settings at the visual level. For example, a bar chart might show only the top 10 categories of data.
Rearranging bars detracts from the meaning of the chart as a whole.	Bars can be in any order without changing the meaning of the chart as a whole.
There are no spaces between the bars, to represent	There are spaces between the bars, to represent the

Histogram	Bar chart
the fact this is continuous data.	fact that this is categorical data.
If a line is included in a histogram, it represents the general shape of the data.	If a line is included in a bar chart, it's called a combo chart, and the line represents a different measure than the bars.

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use KPIs

Prerequisites

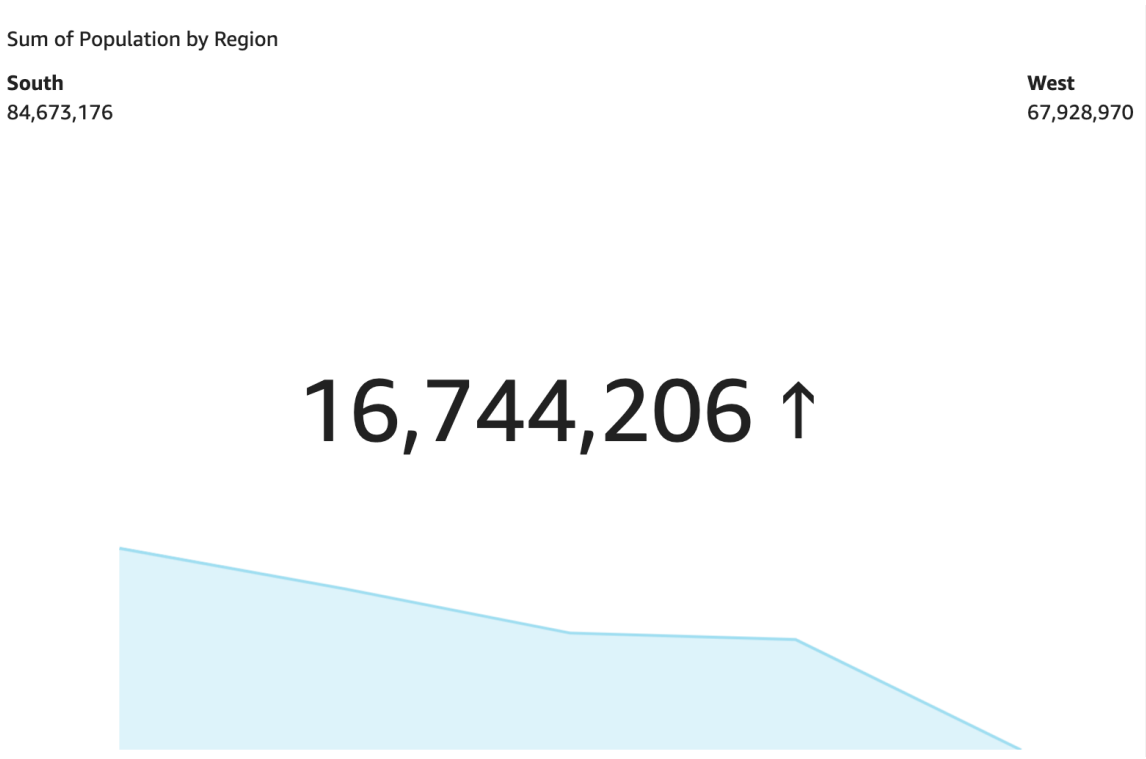
- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Use a key performance indicator (KPI) to visualize a comparison between a key value and its target value.

A KPI displays a value comparison, the two values being compared, and a visual that provides context to the data that's displayed. You can choose from a set of predesigned layouts to suit your business needs. The following image shows an example of a KPI visual that uses a sparkline.



Procedures

Create a KPI

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Key Performance Indicator (KPI)**icon.

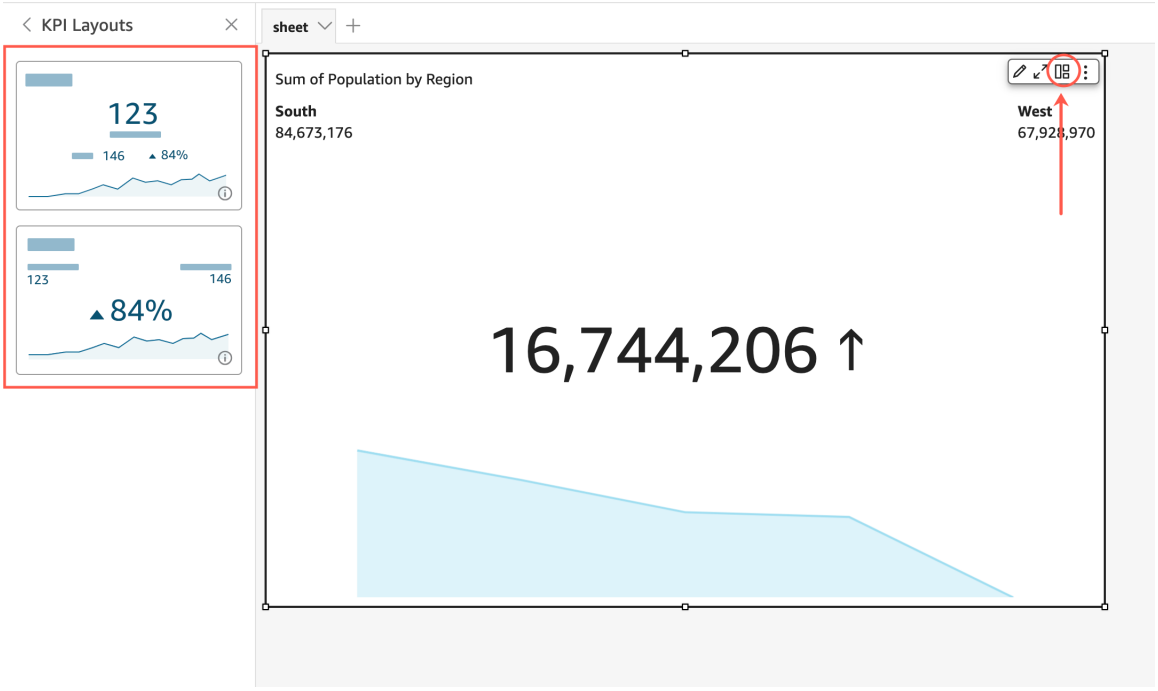


4. Drag a measure from the **Data** panel into the **Value** field well.
5. Drag a different measure into the **Target Value** field well.
6. (Optional) To format the KPI chart, click **Format visual** (the bar chart icon in the upper-right corner of the visual) and then use the settings in the **Properties** panel to customize the chart. For more information on KPI formatting options, see KPI options.

Change the layout of a KPI

1. Hover over the visual and click **KPI layouts**. The **KPI Layouts** panel opens.
2. Click the KPI layout that you want to use.

The following image shows the **KPI Layouts** menu.



KPI features

The following table lists the actions you can do with KPIs.

Feature	Supported?	Comments	For more information
Change the title display	Yes		Format visual titles and subtitles in Insights
Remove the title	Yes	You can choose not to display a title.	

Feature	Supported?	Comments	For more information
Change comparison method	Yes	By default, Insights automatically chooses a method. The settings are auto, difference, percent, and difference as percent.	
Change the primary value displayed	Yes	You can choose comparison (default) or actual.	
Display or remove the progress bar	Yes	You can format the visual to either display (default) or not display a progress bar.	

Related topics

- KPI options
- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use line charts

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Use line charts to compare changes in measure values over period of time for the following scenarios:

- One measure over a period of time

  EXAMPLE Gross sales by month

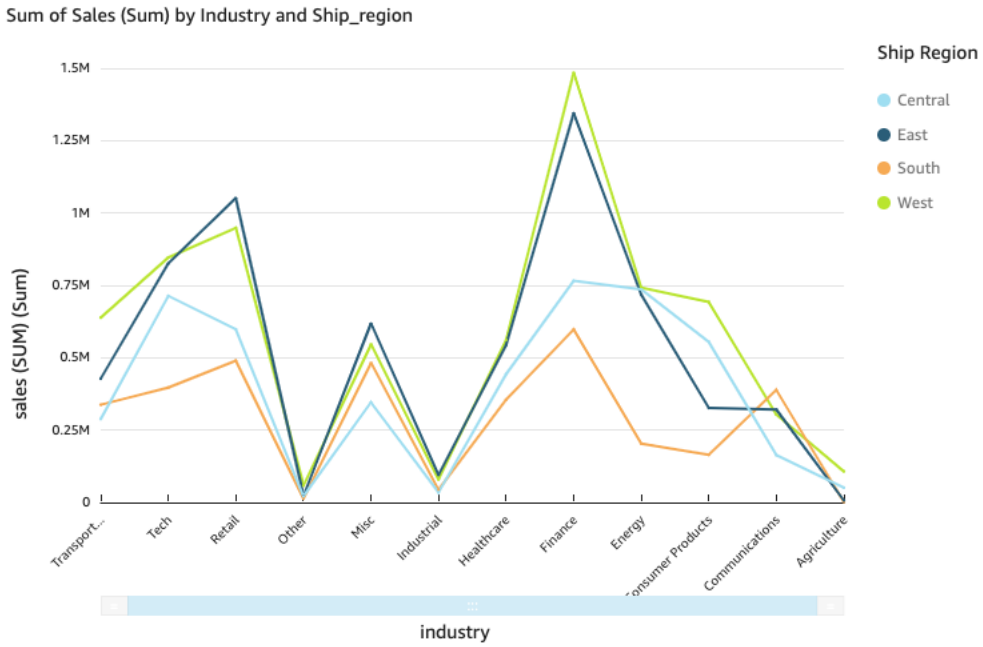
- Multiple measures over a period of time

  EXAMPLE Gross sales and net sales by month

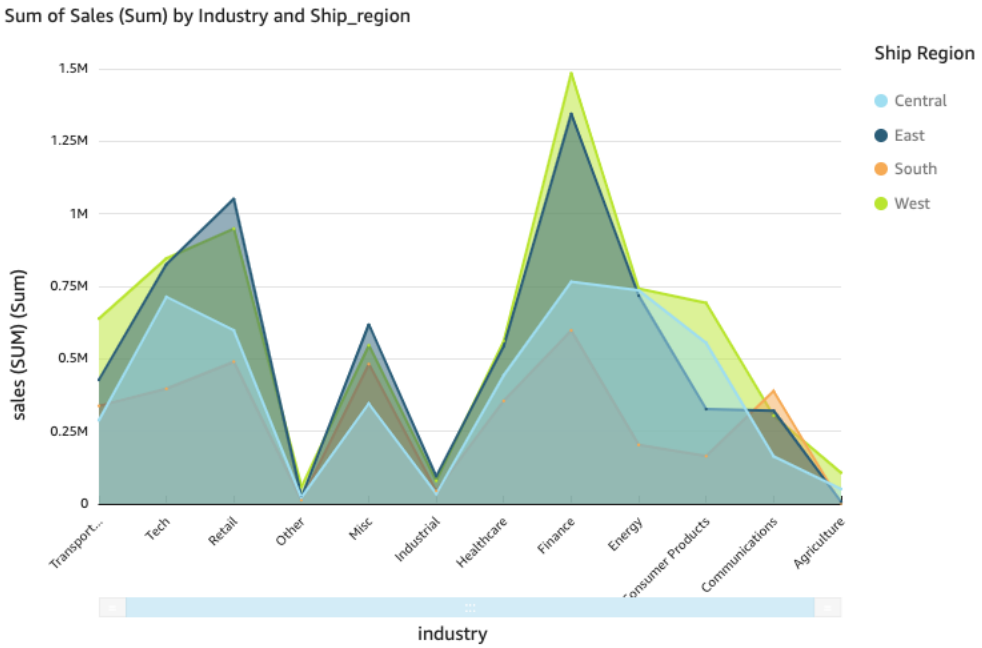
- One measure for a dimension over a period of time

  EXAMPLE Number of flight delays per day by airline

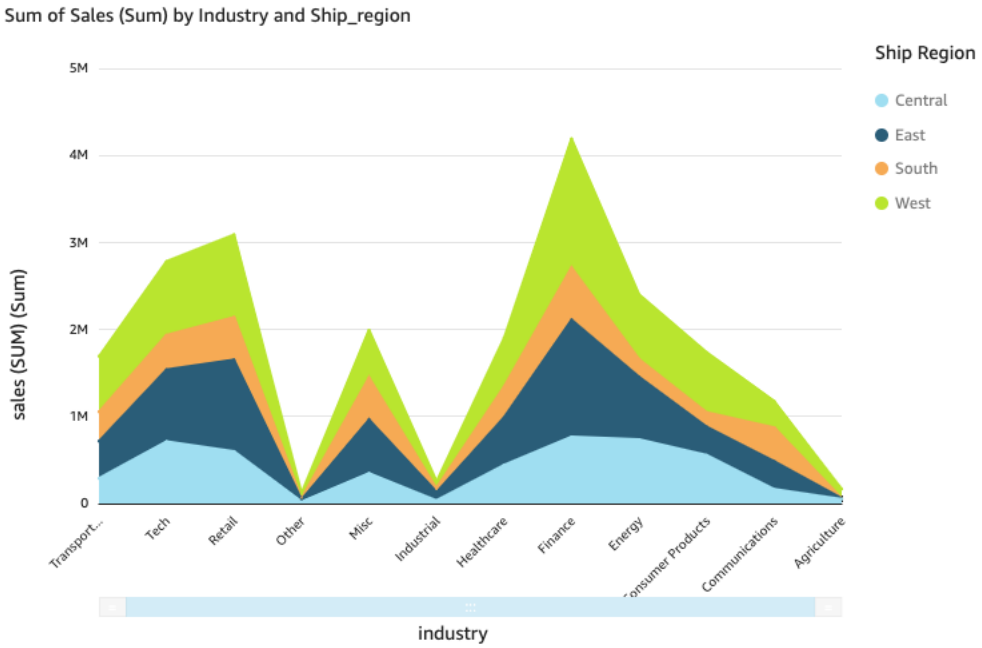
Line charts show the individual values of a set of measures or dimensions against the range displayed by the Y axis. The following screenshot shows a line chart.



Area line charts differ from regular line charts in that each value is represented by a colored area of the chart instead of just a line to make it easier to evaluate item values relative to each other. The following screenshot shows an area line chart. In this version of a line chart, the area between the line and the x-axis is filled with color.



The following screenshot shows a stacked area line chart. Use stacked area line charts to compare changes in values for one or more groups of measures or dimensions over a period of time. In this version of a line chart, the area between the line and the X axis is filled with color. Also, the individual lines are layered to more clearly show the relationships between them. The values on the y-axis show the scale of the differences between data points.



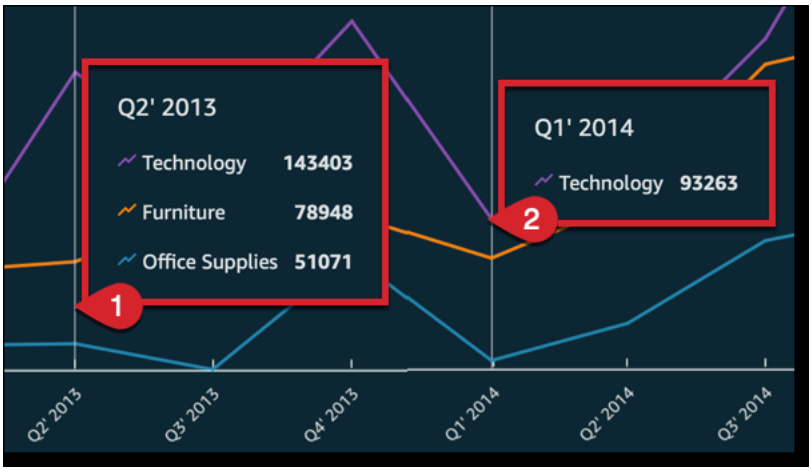
Line charts show up to 10,000 data points on the x-axis when no color field is selected. When color is populated, line charts show up to 400 data points on the x-axis and up to 25 data points for color. For more information about data that falls outside the display limit for this visual type, see the "Display limits" section in Visual types in Insights.

Procedures

View the values on a line chart

Each line on the chart represents a measure value over a period of time.

- Hover over any line (1 in the screenshot) to see a pop-up legend that shows the values for each line on the X axis.
- If you hover over a data point (2), you can see the Value for that specific point on the X axis.



Create a line chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Line chart**, **Area line chart**, or **Stacked area line chart** icon.



4. Drag a dimension from the **Data** panel into the **X Axis** field well.

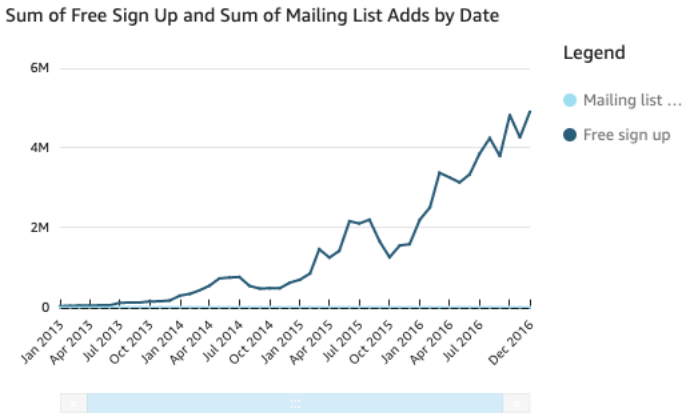
5. Drag a measure into the **Value** field well. With steps 4 and 5, you create a single-measure line chart.
    - (Optional) To create a multi-measure line chart, drag at least one more measure into the **Value** field well.
    - (Optional) To create a multi-dimension line chart, drag a dimension into the **Color** field well.
6. (Optional) To add drill-down layers, at least one more field into the **X axis** or **Color** field wells. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Create a dual-axis line chart

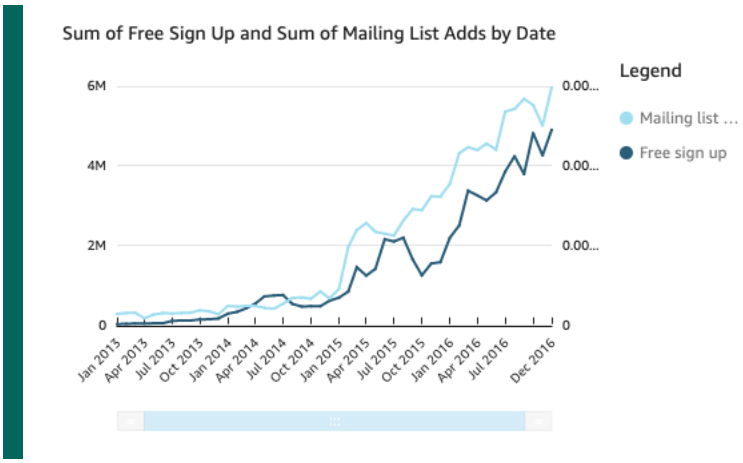
If you have two or more metrics that you want to display in the same line chart, you can create a dual-axis line chart. A dual-axis chart is a chart with two Y-axes (one axis at the left of the chart, and one axis at the right of the chart).

EXAMPLE

You create a line chart that shows the number of visitors who signed up for a mailing list and for a free service over a period of time. If the scale between those two measures varies widely over time, your chart might look something like the following line chart. Because the scale between measures varies so greatly, the measure with the smaller scale appears nearly flat at zero.



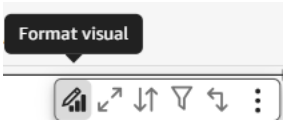
To show these measures in the same chart, you create a dual-axis line chart. The following is an example of the same line chart with two Y-axes. Both lines are now visible.



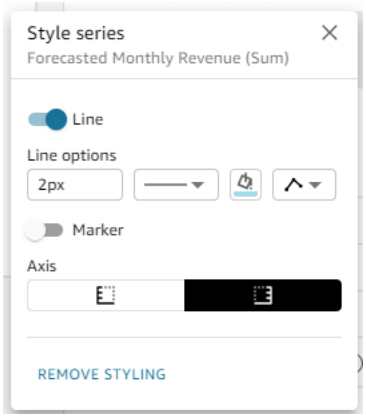
1. In your analysis, create a line chart. For instructions, see Create a line chart.
2. In the **Value** field well, click the three vertical dots and select **Show on: Right Y-axis**.

You can also create a dual-axis line chart using the **Properties** pane:

1. On the menu in the upper-right corner of the line chart, click **Format visual**. The **Properties** panel opens.



2. Expand **Data series**.
3. Click the value that you want to place on a separate axis. Click **Select Series to Style** to quickly find a value if you need to. The **Style series** window opens.
4. Click the **Axis** icon.



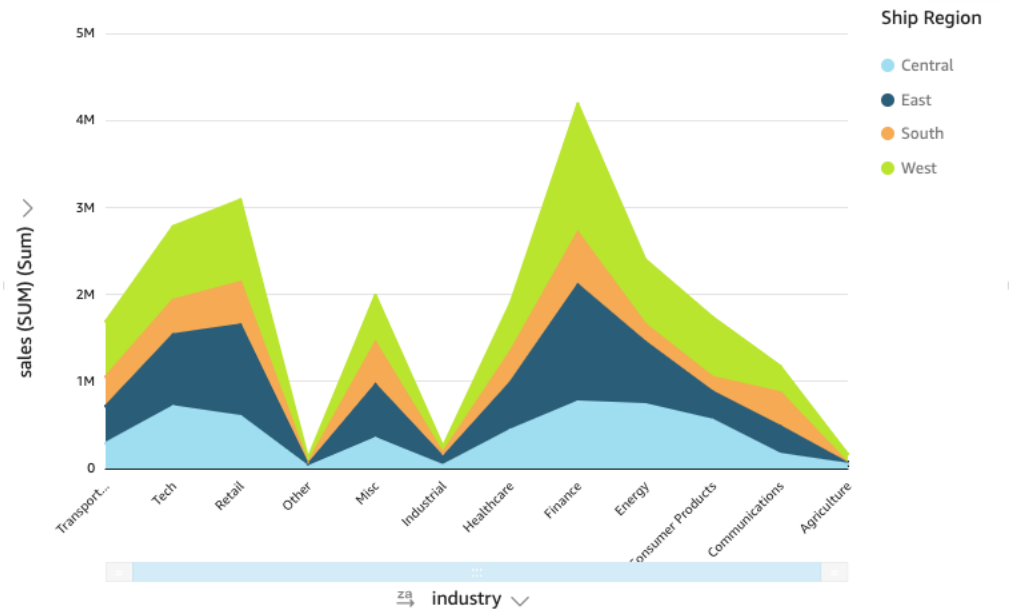
The chart updates with two axes.

For more information about formatting axis lines, see Format axes and grid lines on visual types in Insights. For more information about adjusting the range and scale of an axis, see Set the range and scale on visuals in Insights.

Simplify a stacked area line chart

Because a stacked area line chart works differently than other line charts, simplify it if you can. Then the audience won't try to interpret the numbers. Instead, they can focus on the relationships of each set of values to the whole. One way to simplify is to remove the numbers down the left side of the screen by reducing the step size for the axis.

1. Hover over the line chart and click **Format visual**. The **Properties** panel opens.
2. Expand **Y-axis**.
3. Select **Step size**.
4. Enter **2**. The following screenshot shows the result.



Line chart features

The following table lists the actions you can do with line charts.

Feature	Supported?	Comments	For more information
Change the legend display	Yes		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	Yes	You can set the range for the Y axis.	Set the range and scale on visuals in Insights
Show or hide axis lines, grid lines, axis labels, and axis sort icons	Yes		Format axes and grid lines on visual types in Insights
Add a second Y-axis	Yes		Create a dual-axis line chart

Feature	Supported?	Comments	For more information
Change the visual colors	Yes		Colors in visual types in Insights
Focus on or exclude elements	Yes, with exceptions	You can focus on or exclude any line on the chart, except in the following cases: ■ You create a multi-dimension line chart and use a date field as the dimension for the line color. ■ You create a measure or multi-measure line chart and use a date field as the dimension for the X axis. In these cases, you can only focus on a line, not exclude it.	Focus on visual elements Exclude visual elements
Sort	Yes, with exceptions	You can sort data for numeric measures in the **X axis** and **Value** field wells. Other data is automatically sorted in ascending order.	Sorting visual data in Insights
Perform field aggregation	Yes	You must apply aggregation to the field that you choose for the value. You cannot apply aggregation to the fields you choose for the X axis and color.	Changing field aggregation
Add drill-downs	Yes	You can add drill-down levels to the **X axis** and **Color** field wells.	Adding drill-downs to visual data in Insights

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Create maps in Insights

You can create two types of maps in Insights: point maps and filled maps. *Point maps* show the difference between data values for each location by size. *Filled maps* show the difference between data values for each location by varying shades of color.

Before you get started creating maps, make sure that the dataset you are using contains location data. *Location data* is data that corresponds to latitudinal and longitudinal values. Location data can include a column for latitude and a column for longitude in your dataset. It can also include a column with city names. Insights can chart latitude and longitude coordinates. It also recognizes geographic components such as country, state or region, county or district, city, and ZIP code or postal code.

To learn more about creating maps in Insights, see the following pages.

Topics in this section

- Create point maps
- Create filled maps
- Interact with maps

Create point maps

You can create point maps in Insights to show the difference between data values for each location by size. Each point on this type of map corresponds to a geographic location in your data, such as a country, state or province, or city. The size of the points on the map represents the magnitude of the field in the **Size** field well, in relation to other values in the same field. The color of the points represents the values in the **Color** field well. The field values in the **Color** field well display in the legend if you choose a field for color.

Prerequisites

- You have the Insights Author license.
- Your dataset includes the following types of data:
  - One numeric field (measure) for size
  - (Optional) A categorical field (dimension) for color

Page location

Insights > Analyses > Click an analysis

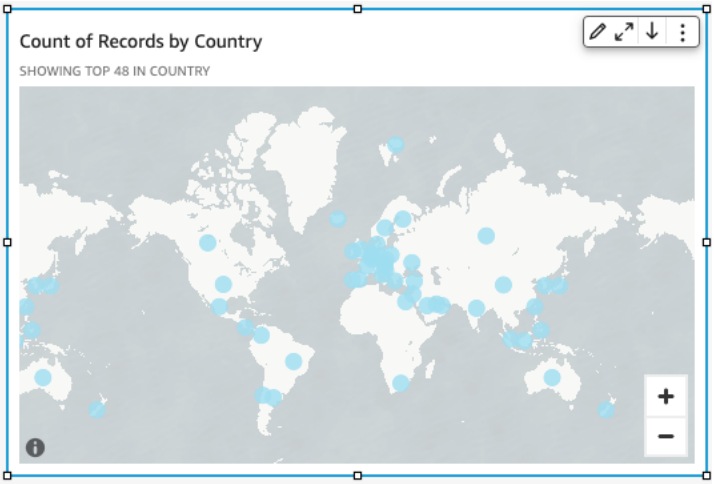
Procedure

Create a point map

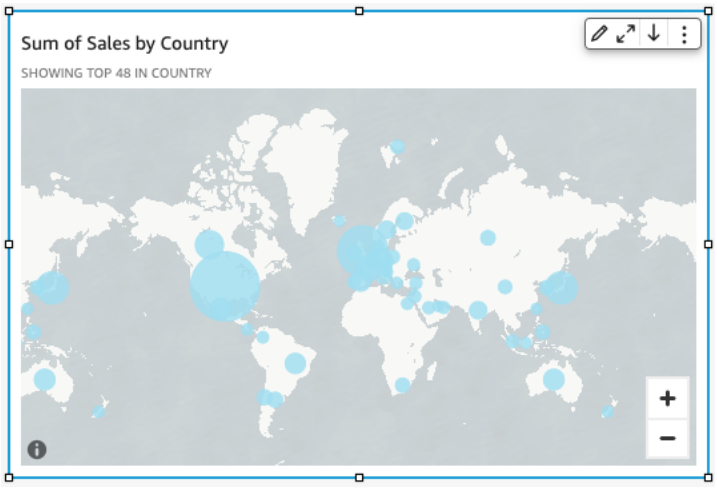
1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Points on map** icon.



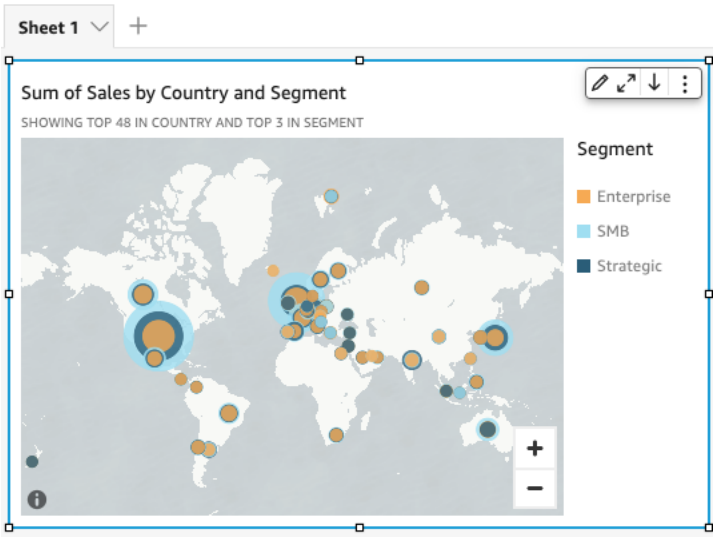
4. Drag a dimension from the **Data** panel into the field well. A point map appears with a point for each location in your data. If the field is part of a geographic hierarchy, the hierarchy displays in the field well.



5. Drag a measure into the **Size** field well. The points on the map update to show the magnitude of values for each location.



6. (Optional) Drag a dimension into the Color field well. Each point updates to show a point for each categorical value in the dimension.



Related topics

- Customize maps in Insights
- Create filled maps
- Interact with maps

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Create filled maps

You can create filled maps in Insights to show the difference between data values for each location by varying shades of color.

Prerequisites

- You have the Insights Author license.
- You are using a dataset that has the following:
  - (Optional) A numeric field (measure) for color

Page location

Insights > Analyses > Click an analysis

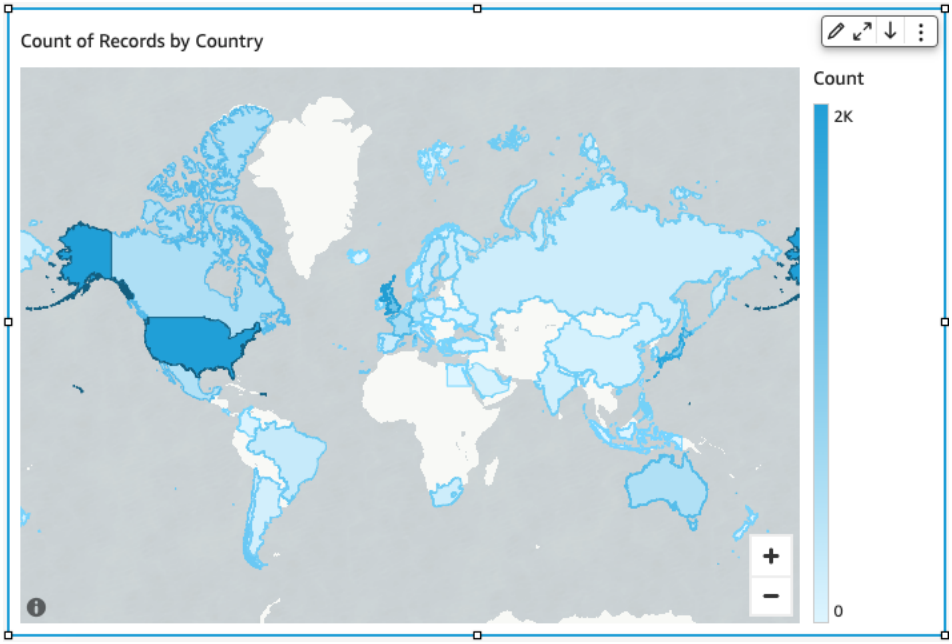
Procedure

Create a filled map

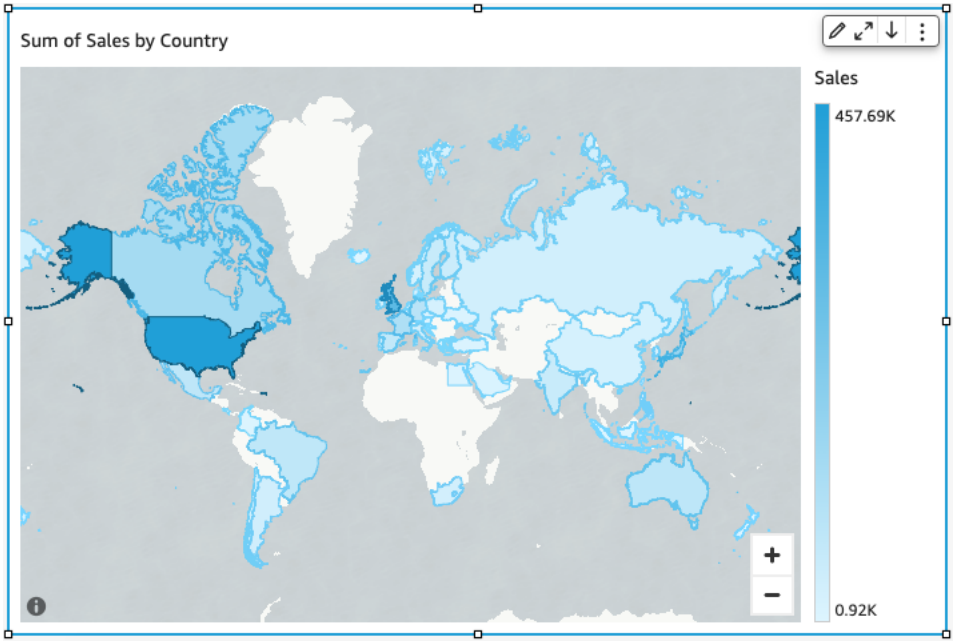
1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Filled map**icon.



4. Drag a dimension from the **Data** panel into the **Location** field well. A filled map appears with each location in your data filled in by the number of times they appear in your dataset (the count). If the field is part of a geographic hierarchy, the hierarchy displays in the field well.



5. (Optional) Drag a measure into the **Color** field well. Each location updates to show the sum of the measure.



Related topics

- Customize maps in Insights
- Create point maps
- Interact with maps
- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Interact with maps

When you view a map visual in an Insights analysis or published dashboard, you can interact with it to explore your data. By default, map visuals are always zoomed based on the underlying data.

Prerequisites

- You have the Insights Reader or Insights Author permission.

Page location

Insights > Dashboards or Analyses > Click a dashboard or analysis

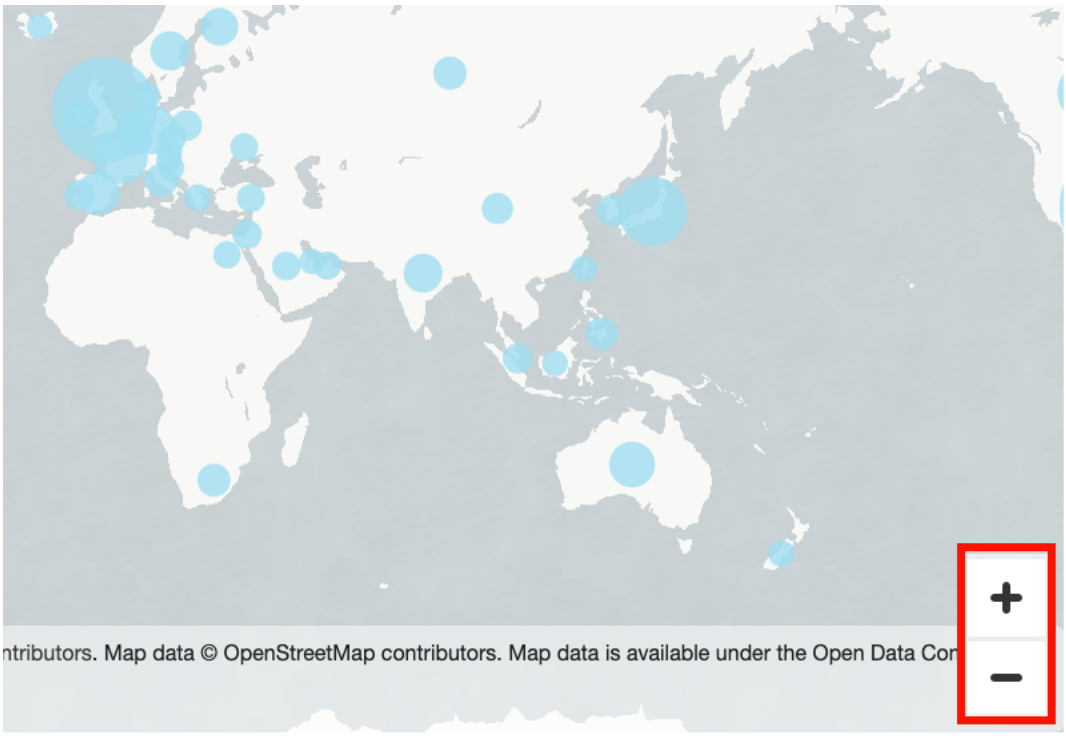
Procedures

Pan in a map visual

- Click anywhere on the map visual and drag your cursor in the direction that you want to pan the map.

Zoom in or out in a map visual

- Click **Zoom in** (the plus icon) or **Zoom out** (the minus icon) at bottom right of the map. Or you can double-click the map to zoom in and shift-double-click to zoom out.


ntributors. Map data © OpenStreetMap contributors. Map data is available under the Open Data Cor

Zoom back to all the data

- Click the **Zoom to data** icon. This icon appears when you pan or zoom in on a map.



Related topics

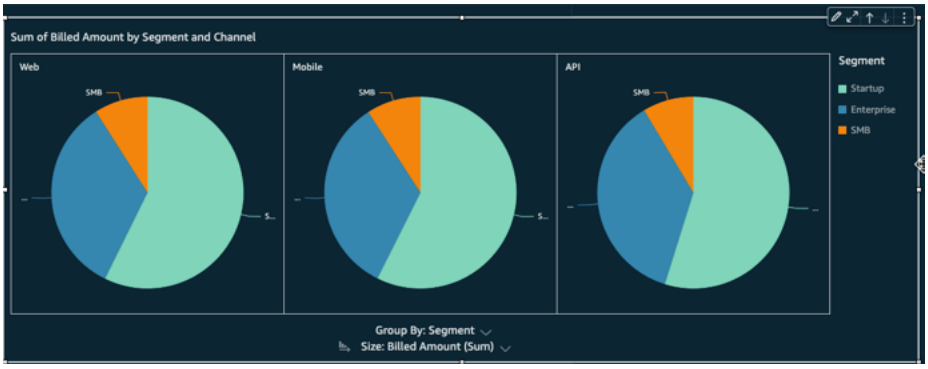
- Create point maps
- Create filled maps
- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

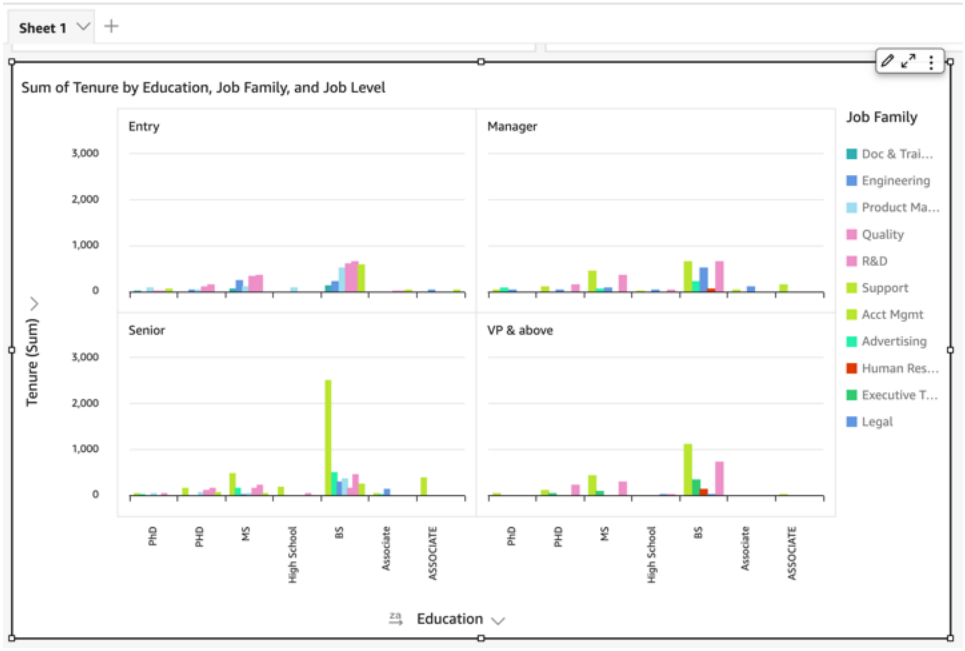
Use small multiples

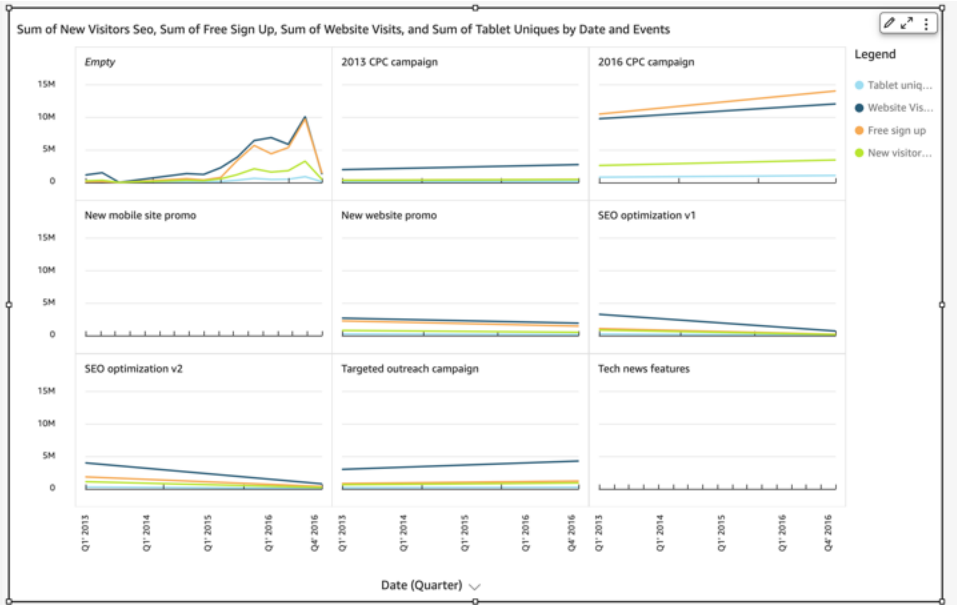
Small multiples are copies of the same chart, each showing a different view of the same data. When you activate the small multiples feature, Insights creates a container or shelf of small visuals, presented side-by-side. Using small multiples is a way to get a holistic view of your business in an efficient and interactive

way.

The following screenshots show examples of small multiples.







Prerequisites

- You have the Insights Author license.
- You have created a line, bar, or pie chart that you want to multiply (for instructions, see Use line charts, Use bar charts, or Use pie charts)

Page location

Insights > Analyses > Click an analysis

Procedure

Add small visuals to your analysis

1. Click the chart that you want to divide into multiple charts.
2. Drag a dimension from the **Data** panel into the **Small Multiples** field well. The visual divides into many smaller visuals.
3. Enlarge the container that holds the small multiples so that you can see all of them at once.
4. (Optional) To format the set of small multiples, click **Format visual** (the pencil icon in the upper-right corner of the visual). The **Properties** panel opens. Expand **Multiples Options** to adjust the following settings:

- **Layout**
  - **Visible rows**
  - **Visible columns**
  - Number of panels
- **Title options**
  - **Panel title** (toggle)
  - Font size and color
  - Font weight
  - Text alignment
- **Border options**
  - **Panel border (toggle)**
  - Line thickness, style, and color
  - **Panel gutter** (toggle), with an option for **Spacing**
  - **Panel background** (toggle), with an option for **Background color**

Related topics

- Use line charts
- Use bar charts
- Use pie charts
- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use pie charts

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Use pie charts to compare values for items in a dimension. The best use for this type of chart is to show a percentage of a total amount.

Each wedge in a pie chart represents one item in the dimension. Wedge size represents the proportion of the value for the selected measure that the item represents compared to the whole for the dimension. Pie charts are best when precision isn't important and there are few items in the dimension.

Pie charts show up to 20 data points for group or color. For more information about how Insights handles data that falls outside display limits, see the “Display limits” section in Visual types in Insights.

Procedure

Create a pie chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Pie chart**icon.



4. Drag a dimension from the **Data** panel into the **Group/Color** field well. The chart displays the division of values by row count.
5. (Optional) To display the division of dimension values by a metric value, drag a measure into the **Value** field well.
6. Drag a different measure into the **Target Value** field well.
7. (Optional) To add drill-down layers, drag at least one more dimension into the **Group/Color** field well. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Pie chart features

The following table lists the actions you can do with pie charts.

Feature	Supported?	Comments	For more information
Change the legend display	Yes		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	Not applicable		Set the range and scale on visuals in Insights
Show or hide axis labels	Yes		Format axes and grid lines on visual types in Insights
Change the visual colors	Yes		Colors in visual types in Insights
Focus on or exclude elements	Yes, with exceptions	You can focus on or exclude a wedge in a pie chart, except when you are using a date field as a dimension. In that case, you can only focus on a wedge, not exclude it.	Focus on visual elements Exclude visual elements
Sort	Yes	You can sort on the field that you choose for the value or the group or color.	Sorting visual data in Insights
Perform field aggregation	Yes	You must apply aggregation to the field that you choose for the value. You cannot apply aggregation to the field that you choose for group or color.	Changing field aggregation
Add drill-downs	Yes	You can add drill-down levels to the **Group/Color** field well.	Adding drill-downs to visual data in Insights

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use pivot tables

Prerequisites

- You have the Insights Author license.

Use pivot tables to show measure values for the intersection of two dimensions.

Pivot tables are similar to heat maps. Use a pivot table if you want to analyze data on the visual. Use a heat map if you want to identify trends and outliers because the use of color makes these easier to spot.

To create a pivot table, choose at least one field of any data type, and choose the pivot table icon. Insights creates the table and populates the cell values with the count of the column value for the intersecting row value. Typically, you choose a measure and two dimensions measurable by that measure.

Pivot tables support scroll down and right. You can add up to 20 fields as rows and 20 fields as columns. Up to 500,000 records are supported.

Using a pivot table, you can do the following:

- Specify multiple measures to populate the cell values of the table so that you can see a range of data
- Cluster pivot table columns and rows to show values for subcategories grouped by related dimension
- Sort values in pivot table rows or columns
- Apply statistical functions
- Add totals and subtotals to rows and columns
- Use infinite scroll
- Transpose fields used by rows and columns
- Create custom total aggregations

As with all visual types, you can add and remove fields. You can also change the field associated with a visual element, change field aggregation, and change date field granularity. In addition, you can focus on or exclude rows or columns. For more information about how to make these changes to a pivot table, see Changing fields used by a visual in Insights.

For information on formatting pivot tables, see Format a visual in Insights.

For information on custom total aggregations for pivot tables, see Customize how totals in tables are calculated.

Topics in this section

- Create a pivot table
- Orient pivot table values
- Expand and collapse pivot table clusters
- Show and hide pivot table columns in Insights
- Sort pivot tables in Insights
- Use table calculation in pivot tables
- Pivot table limitations
- Pivot table best practices

Pivot table features

Pivot tables don't display a legend.

The following table lists the actions you can do with pivot tables.

Feature	Supported?	Comments	For more information
Change the legend display	No		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights

Feature	Supported?	Comments	For more information
Change the axis range	Not applicable		Set the range and scale on visuals in Insights
Change the visual colors	No		Colors in visual types in Insights
Focus on or exclude elements	Yes, with exceptions	You can focus on or exclude any column or row, except when you are using a date field as one of the dimensions. In that case, you can only focus on the column or row that uses the date dimension, not exclude it.	Focus on visual elements Exclude visual elements
Sort	Yes	You can sort fields in the **Rows** or **Columns** field wells alphabetically or by a metric in ascending or descending order.	Sorting visual data in Insights Sort pivot tables in Insights
Perform field aggregation	Yes	You must apply aggregation to the field or fields you choose for the value. You can't apply aggregation to the fields that you choose for the rows or columns. If you create a multi-measure pivot table, you can apply different types of aggregation to the different measures. For example, you can show the sum of the sales amount and the maximum discount amount.	Changing field aggregation
Add drill-downs	No		Adding drill-downs to visual data in Insights

Feature	Supported?	Comments	For more information
Show and hide totals and subtotals	Yes	You can show or hide totals and subtotals for rows and columns. Metrics automatically roll up to show subtotals when you collapse a row or column. If you use a table calculation, use aggregates to display roll-ups.	
Export or copy data	Yes	You can export all of the data to a CSV file. You can select and copy the content of the cells.	Export data from visuals
Conditional formatting	Yes	You can add conditional formatting for values, subtotals, and totals.	Conditional formatting on visual types in Insights

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Create a pivot table

Prerequisites

- You have the Insights Author license.

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis

Procedure

Create a pivot table

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Pivot table**icon.



4. Drag a dimension from the **Data** panel into the **Rows** field well.
5. Drag a dimension into the **Columns** field well.
6. Drag a measure into the **Values** field well. With steps 4–6, you create a single-measure pivot table.
7. (Optional) To create a multi-measure pivot table, drag at least one more measure into the **Values** field well.
8. (Optional) To create a clustered pivot table, drag at least one more dimension into the **Rows** field well and at least one more dimension into the **Columns** field well.

   You can also select multiple fields for all of the pivot table field wells if you want to. Doing this combines the multi-measure and clustered pivot table approaches.

NOTE To view roll-ups for calculated fields, make sure that you are using aggregates. For example, a calculated field with `field-1 / field-2` doesn't display a summary when rolled up. However, `sum(field-1) / sum(field-2)` does display a roll-up summary.

Choose a layout

You can further customize the way your data is presented with Tabular and Hierarchy layout options. For pivot tables that use a tabular layout, each row field is displayed in its own column. For pivot tables that use a hierarchy layout, all row fields are displayed in a single column. Indentation is used to differentiate row headers of different fields.

1. Click **Format visual** (the pencil icon in the upper-right corner of the visual). The **Properties** panel opens.
2. Expand **Pivot options**.

3. Choose a layout option. The formatting options available vary based on the layout that you choose for your pivot table visual. For more information about formatting differences between tabular and hierarchy pivot tables, see Format tables and pivot tables in Insights.

Related topics

- Orient pivot table values
- Expand and collapse pivot table clusters
- Show and hide pivot table columns in Insights
- Sort pivot tables in Insights
- Use table calculation in pivot tables
- Pivot table limitations
- Pivot table best practices
- Format tables and pivot tables in Insights

Orient pivot table values

You can choose to display a pivot table in a columnar or row-based format. Columnar is the default.

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis

Procedures

Change a pivot table format

1. Click the pivot table visual that you want to edit.
2. Click **Format visual** (the chart icon in the upper-right corner of the visual). The **Properties** panel opens.
3. Expand **Pivot options**.
4. In the **Values position** section, select one of the following options:
    - For a columnar format, select **Columns**.
    - For a row format, select **Rows**. A column with the value name is added to the right of the row header column.

> **NOTE** If you use only one metric, you can eliminate the repeated header by selecting **Hide single metric**. For more information, see Font and style on visual types in Insights.

Transpose the fields used by the rows and columns

- Click **Swap rows and columns** () in the upper-right corner of the visual.

See options for showing and hiding totals and subtotals or exporting data to a CSV file

- Click **Menu options** (the three dots at the upper-right corner of the visual).

Related topics

- Create a pivot table
- Expand and collapse pivot table clusters
- Show and hide pivot table columns in Insights
- Sort pivot tables in Insights
- Use table calculation in pivot tables
- Pivot table limitations
- Pivot table best practices

Expand and collapse pivot table clusters

If you are using grouped columns or rows in a pivot table, you can expand or collapse a group to show or hide its data in the visual.

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights that has at least two dimensions in the **Rows** field wells and/or at least two dimensions in the **Columns** field wells (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis

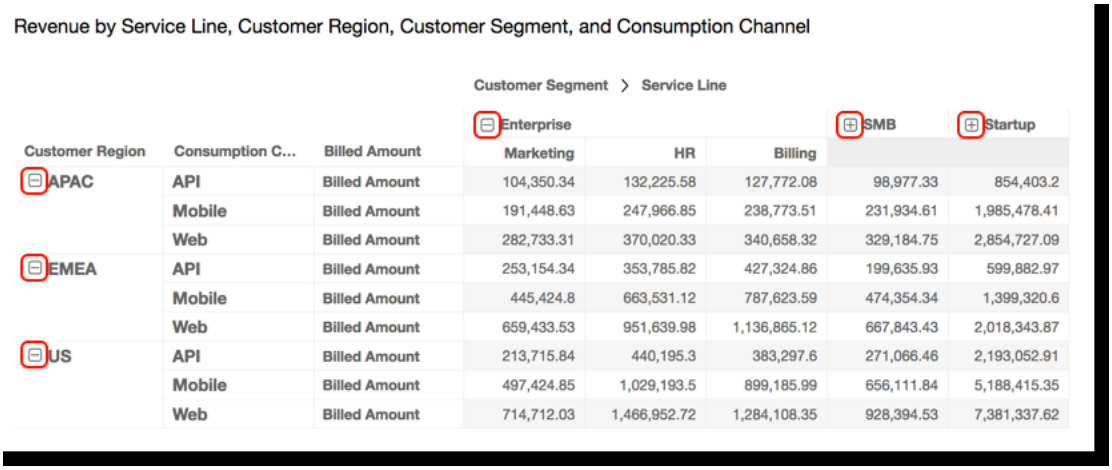
Procedure

Expand or collapse a pivot table group

1. Click the pivot table visual that you want to edit.
2. Choose one of the following:
   - To collapse a group, click **Collapse** (the minus icon) near the name of the field. The group's data is summarized in the row or column.
   - To expand a group, click **Expand** (the plus icon) near the name of the field.

   In the following screenshot, `Customer Region` and the `Enterprise` segment are expanded, and

`SMB` and `Startup` are collapsed.



Revenue by Service Line, Customer Region, Customer Segment, and Consumption Channel

			Customer Segment > Service Line				
			⊖ Enterprise			⊞ SMB	⊞ Startup
Customer Region	Consumption C...	Billed Amount	Marketing	HR	Billing		
⊖ APAC	API	Billed Amount	104,350.34	132,225.58	127,772.08	98,977.33	854,403.2
	Mobile	Billed Amount	191,448.63	247,966.85	238,773.51	231,934.61	1,985,478.41
	Web	Billed Amount	282,733.31	370,020.33	340,658.32	329,184.75	2,854,727.09
⊖ EMEA	API	Billed Amount	253,154.34	353,785.82	427,324.86	199,635.93	599,882.97
	Mobile	Billed Amount	445,424.8	663,531.12	787,623.59	474,354.34	1,399,320.6
	Web	Billed Amount	659,433.53	951,639.98	1,136,865.12	667,843.43	2,018,343.87
⊖ US	API	Billed Amount	213,715.84	440,195.3	383,297.6	271,066.46	2,193,052.91
	Mobile	Billed Amount	497,424.85	1,029,193.5	899,185.99	656,111.84	5,188,415.35
	Web	Billed Amount	714,712.03	1,466,952.72	1,284,108.35	928,394.53	7,381,337.62

Related topics

- Create a pivot table
- Orient pivot table values
- Show and hide pivot table columns in Insights
- Sort pivot tables in Insights
- Use table calculation in pivot tables
- Pivot table limitations
- Pivot table best practices

Show and hide pivot table columns in Insights

By default, all columns, rows, and their field values appear when you create a pivot table. If you hide fields and publish the pivot table as part of a dashboard, anyone who subscribes to the dashboard can export the pivot table to a comma-separated value (CSV) or Microsoft Excel file. They can choose to export only the visible fields or all fields. For more information, see the “Exporting data from a dashboard to a CSV” section in Export and print interactive dashboard reports.

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

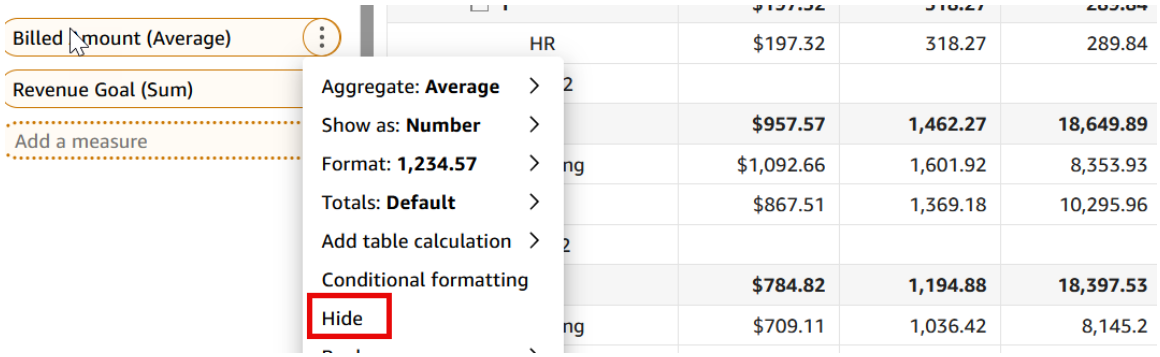
Insights > Analyses > Click an analysis > Click the pivot table

Procedures

Hide a column or row in a pivot table

You can hide columns and rows that you don't want to appear in the pivot table without changing the pivot table values. If you have more than one measure in the pivot table, you can also hide values.

- Click the three dots for the field in the **Rows**, **Columns**, or **Values** field wells, and then select **Hide**.

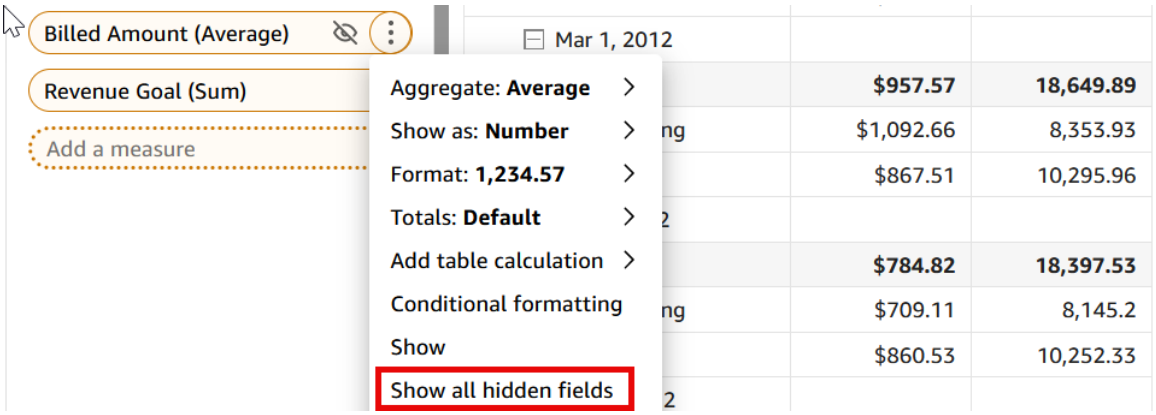


Show a hidden field in a pivot table

- Click the three dots for the field in the **Rows**, **Columns**, or **Values** field well, and then select **Show**.

Show all hidden fields in a pivot table

- Click the three dots next to any field in the **Rows**, **Columns**, or **Values** field well, and then select **Show all hidden fields**.



Related topics

- Create a pivot table
- Orient pivot table values
- Expand and collapse pivot table clusters
- Sort pivot tables in Insights
- Use table calculation in pivot tables
- Pivot table limitations
- Pivot table best practices

Sort pivot tables in Insights

In Insights, you can sort values in a pivot table by fields in the **Rows** and **Columns** field wells or quickly by column headers in the pivot table. In pivot tables, you can sort rows and columns independently of each other in alphabetical order or by a measure.

> **NOTE** You can't run Total, Difference, and Percent Difference table calculations when a pivot table is being sorted by a measure. For more information about using table calculations in pivot tables, see Use table calculation in pivot tables.

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

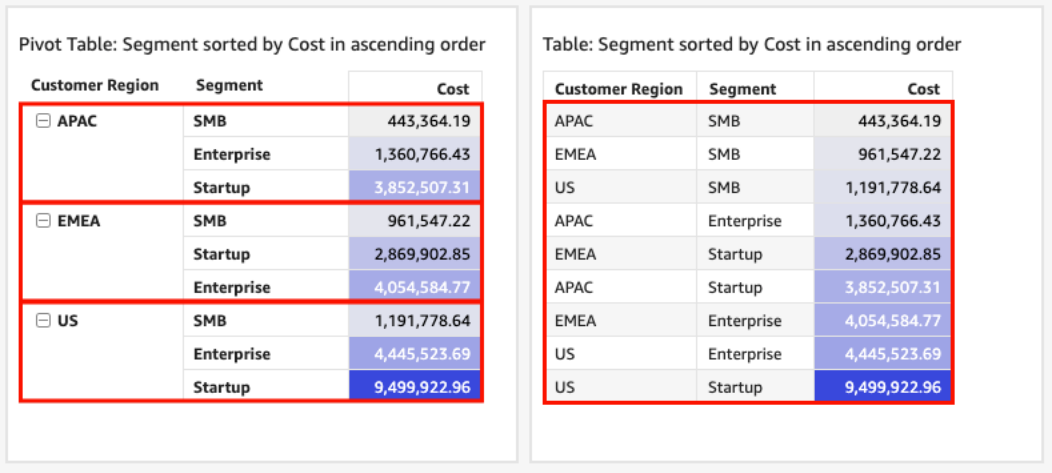
BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis > Click a pivot table

How sorting in pivot tables works

When you have multiple panes in a pivot table, sorting applies to each pane independently. For example, the `Segment` column in the pivot table on the left is being sorted in ascending order by `Cost`. Given that there are multiple panes, the sort starts over for each pane, and the rows within each pane (for `Segment`) are ordered by lowest to highest cost. The table on the right has the same sort applied, but the sort is being applied across the entire table, as shown following.



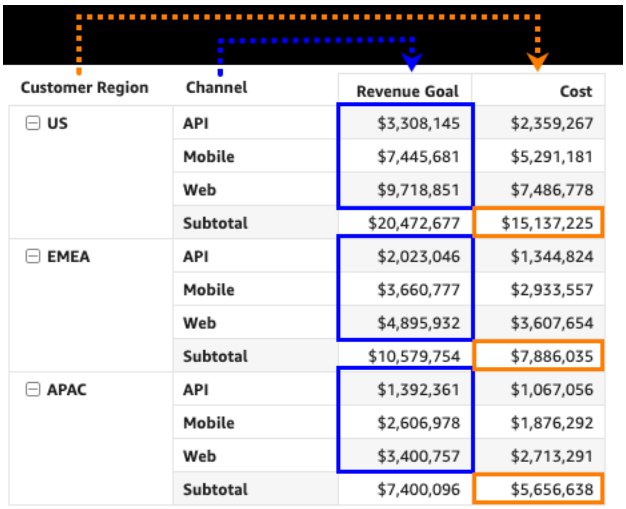
Pivot Table: Segment sorted by Cost in ascending order

Customer Region	Segment	Cost
APAC	SMB	443,364.19
	Enterprise	1,360,766.43
	Startup	3,852,507.31
EMEA	SMB	961,547.22
	Startup	2,869,902.85
	Enterprise	4,054,584.77
US	SMB	1,191,778.64
	Enterprise	4,445,523.69
	Startup	9,499,922.96

Table: Segment sorted by Cost in ascending order

Customer Region	Segment	Cost
APAC	SMB	443,364.19
EMEA	SMB	961,547.22
US	SMB	1,191,778.64
APAC	Enterprise	1,360,766.43
EMEA	Startup	2,869,902.85
APAC	Startup	3,852,507.31
EMEA	Enterprise	4,054,584.77
US	Enterprise	4,445,523.69
US	Startup	9,499,922.96

When you apply multiple sorts to a pivot table, sorting is applied from the outside dimension to the inside dimension. Consider the following example image of a pivot table. The `Customer Region` column is sorted by `Cost` in descending order (as shown in orange). The `Channel` column is sorted by `Revenue Goal` in ascending order (as shown in blue).



Customer Region	Channel	Revenue Goal	Cost
US	API	$3,308,145	$2,359,267
	Mobile	$7,445,681	$5,291,181
	Web	$9,718,851	$7,486,778
	Subtotal	$20,472,677	$15,137,225
EMEA	API	$2,023,046	$1,344,824
	Mobile	$3,660,777	$2,933,557
	Web	$4,895,932	$3,607,654
	Subtotal	$10,579,754	$7,886,035
APAC	API	$1,392,361	$1,067,056
	Mobile	$2,606,978	$1,876,292
	Web	$3,400,757	$2,713,291
	Subtotal	$7,400,096	$5,656,638

Procedures

Sort values in a tabular pivot table using row or column headers

1. Click the header that you want to sort.
2. For **Sort by**, select a field to sort by and a sort order. You can sort dimension fields alphabetically a–z or z–a, or you can sort them by a measure in ascending or descending order.

Sort a pivot table using value headers

1. Click the value header that you want to sort.
2. Select **Sort ascending** or **Sort descending**.

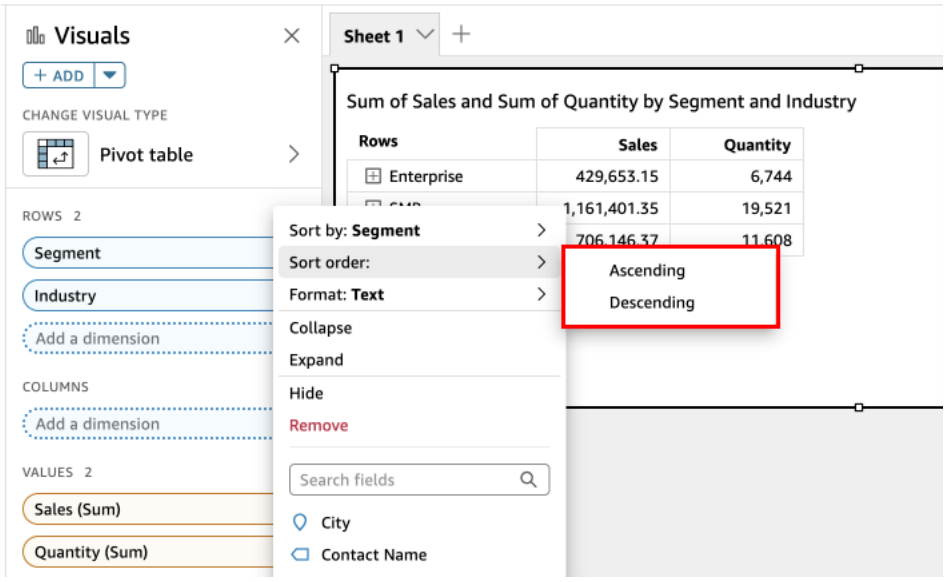
   Sorting by value headers in a pivot table also works on subtotals.

Sort values in a tabular pivot table using the field wells

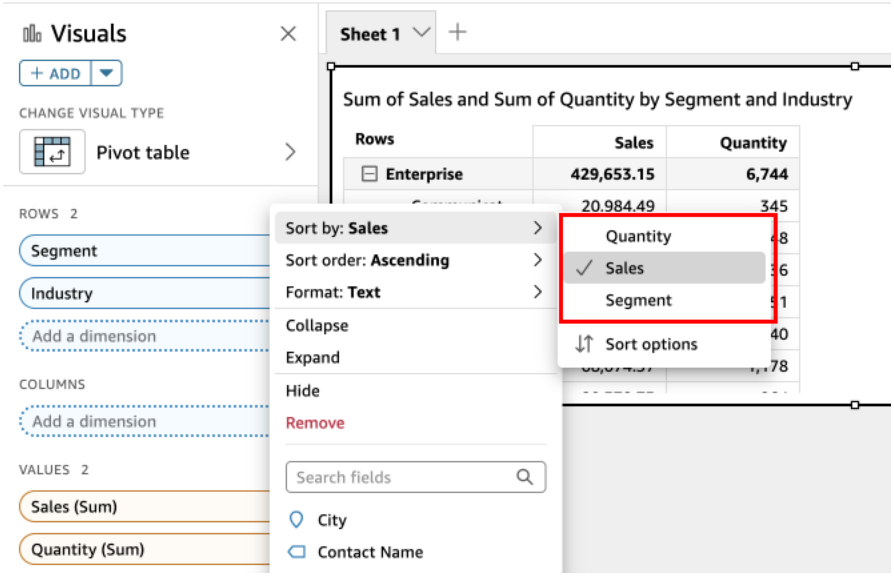
- In the **Rows** or **Columns** field well, click the three dots next to the field that you want to sort, and then select how you want to sort the field from the **Sort by** list.

  You can sort dimension fields in the **Rows** or **Columns** field wells alphabetically from a–z or z–a, or you can sort them by a measure in ascending or descending order. You also have the option to **Collapse** all or **Expand** all rows or columns for the field you choose in the field well. You can also **Remove** the field or **Replace** it with another field.

- To sort a dimension field alphabetically, click the three dots next to the field in the **Rows** or **Columns** field well, and then select **Sort order: Ascending** or **Descending**.



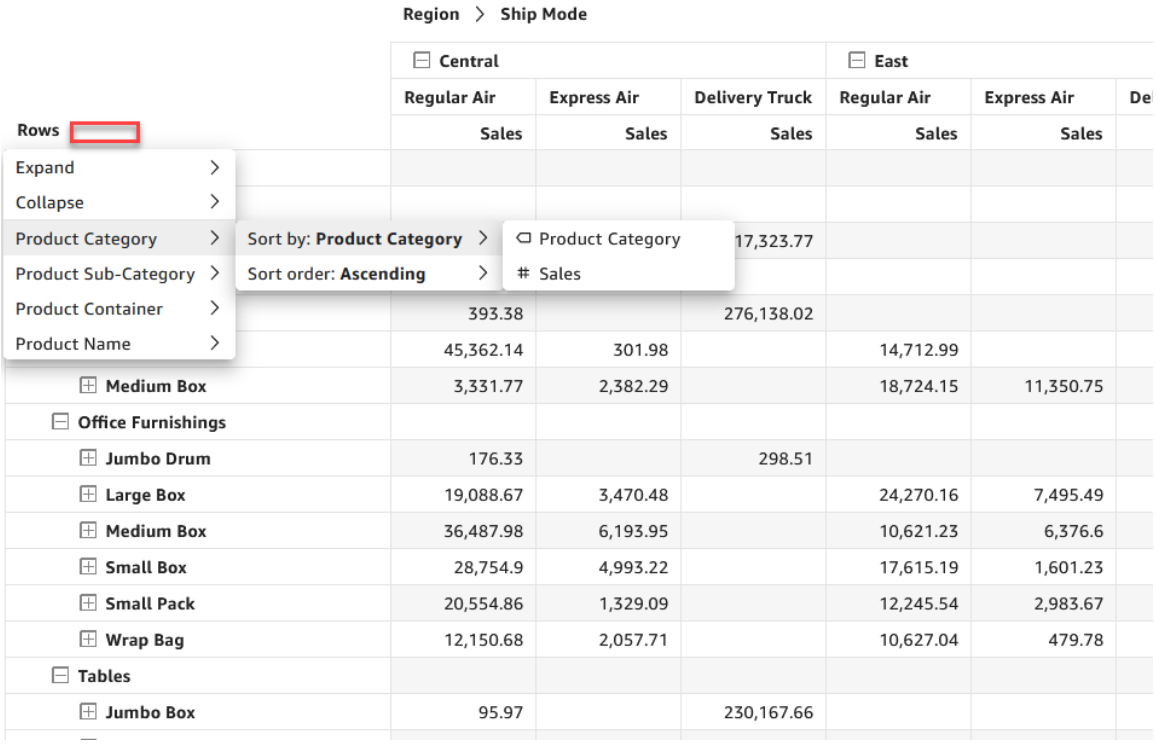
- To sort a dimension field by a measure, click the three dots next to the field in the **Rows** or **Columns** field well. Then select a measure from the **Sort by** list, and then select **Sort order: Ascending** or **Descending**.



Sort hierarchy pivot tables using the field wells

For tabular pivot tables, each field in the **Rows** field well has a separate title cell. For hierarchy pivot tables, all row fields are displayed in a single column.

- To **Sort**, **Collapse**, and **Expand** these row fields, click **Rows** to open the menu and select the option that you want. Each field in a hierarchy pivot table can be individually sorted from this menu.



More advanced formatting options such as **Hide** and **Remove** are available from the field well menus.

Related topics

- Create a pivot table
- Orient pivot table values
- Expand and collapse pivot table clusters
- Show and hide pivot table columns in Insights
- Use table calculation in pivot tables
- Pivot table limitations
- Pivot table best practices

Use table calculation in pivot tables

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis

You can use table calculations to apply statistical functions to pivot table cells that contain measures (numeric values).

The data type of the cell value automatically changes to work for your calculation.

EXAMPLE You apply the **Rank** function to a currency data type. The values display as integers rather than currency because rank isn't measured as currency. Similarly, if you apply the **Percent difference** function instead, the cell values display as percentages.

Topics in this section

Use the following pages to understand which functions you can use in calculations and how to apply or remove them.

- Add or delete pivot table calculations
- Functions for pivot table calculations
- Ways to apply pivot table calculations

Add or delete pivot table calculations

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis

Topics in this section

Use the following pages to add, modify, and remove table calculations on a pivot table.

- Add a pivot table calculation
- Change how a calculation is applied in a pivot table
- Remove a calculation from a pivot table

Add a pivot table calculation

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

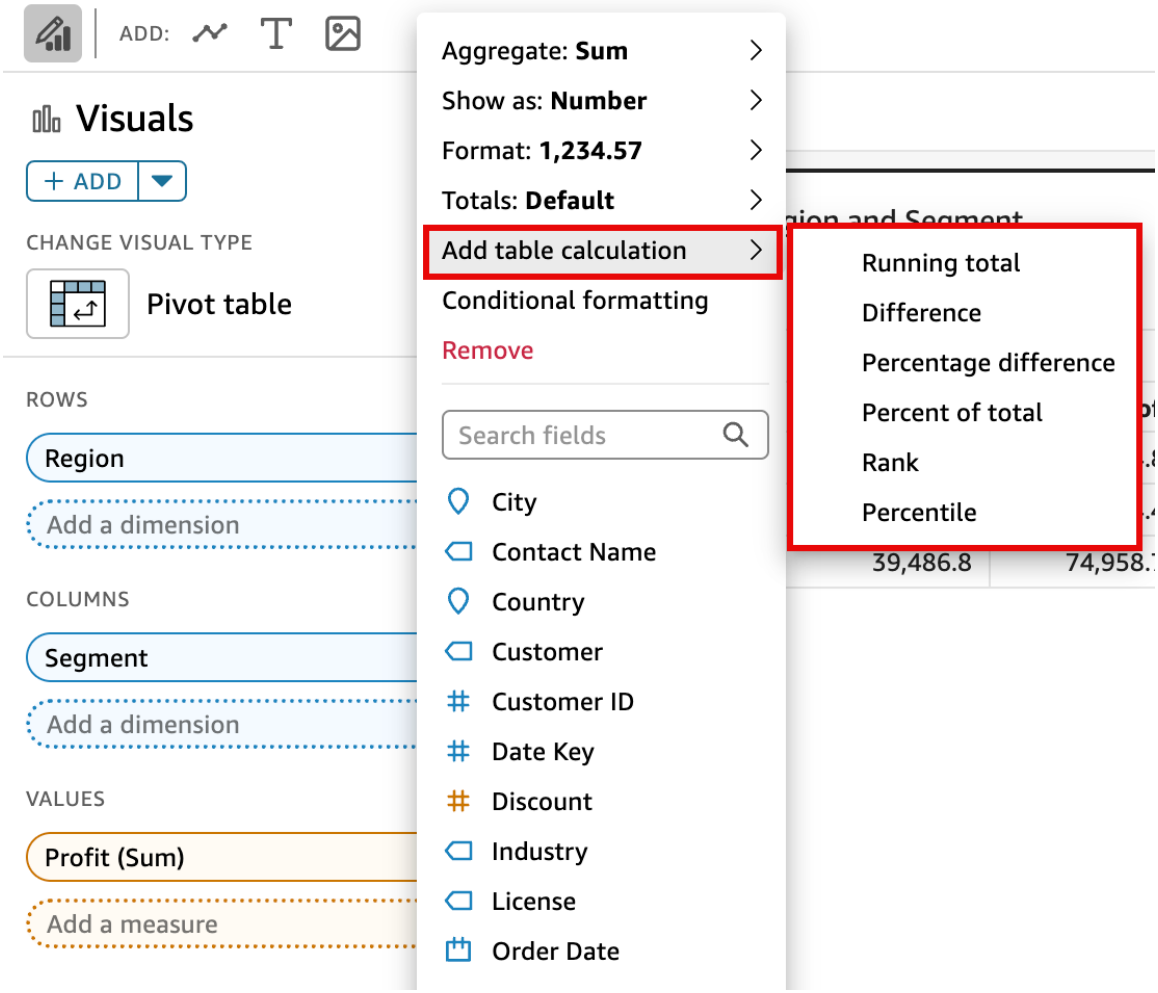
Page location

Insights > Analyses > Click an analysis > Click a pivot table

Procedure

Add a table calculation to a pivot table

- In the **Values** field well, click the three dots next to the field that you want to apply a table calculation to, hover over **Add table calculation**, and select the function to apply.



NOTE You can't run Total, Difference, and Percent Difference table calculations when a pivot table is being sorted by a measure. To use these table calculations, remove the sort from the pivot table.

Related topics

- Change how a calculation is applied in a pivot table
- Remove a calculation from a pivot table

Change how a calculation is applied in a pivot table

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

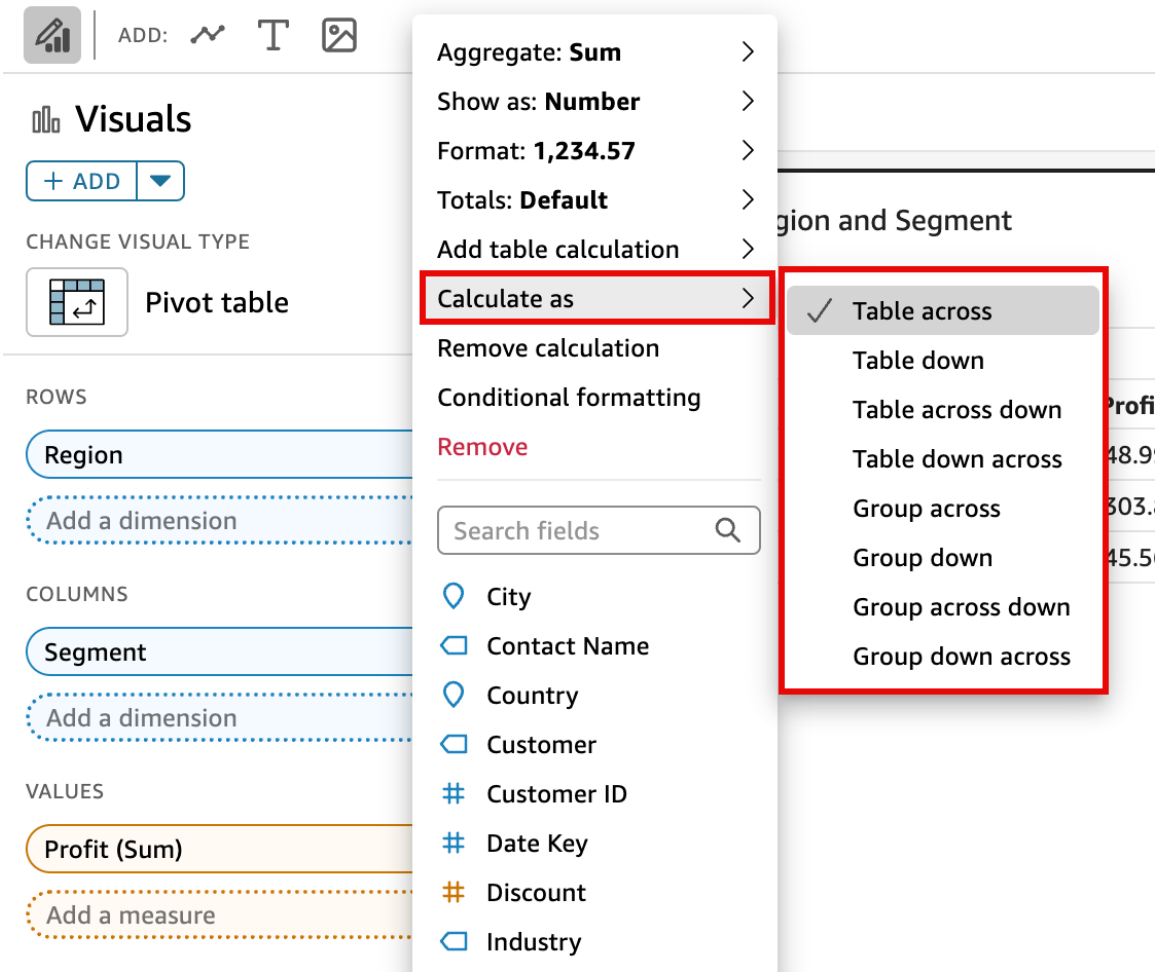
Page location

Insights > Analyses > Click an analysis > Click a pivot table

Procedure

Change the way a table calculation is applied to a pivot table

- In the **Values** field well, click the three dots next to the field with the calculation that you want to change, hover over **Calculate as**, and select the way that you want the calculation applied.



Related topics

- Add a pivot table calculation
- Remove a calculation from a pivot table

Remove a calculation from a pivot table

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis > Click a pivot table

Procedure

Remove a table calculation from a pivot table

1. In the **Values** field well, click the three dots next to the field with the calculation that you want to remove.
2. Select **Remove**.

Related topics

- Add or delete pivot table calculations
- Change how a calculation is applied in a pivot table

Functions for pivot table calculations

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

Page location

Insights > Analyses > Click an analysis > Click a pivot table

You can use the following functions in pivot table calculations.

Running total

The **Running total** function calculates the sum of a given cell value and the values of all cells prior to it. This sum is calculated as `Cell1=Cell1, Cell2=Cell1+Cell2, Cell3=Cell1+Cell2+Cell3`, and so on.

EXAMPLE

You have the following data:

Sum of Billed Amount by Date, Customer Region, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014	$257K	$178K	$82K	$246K	$163K	$74K
	2015	$471K	$335K	$149K	$465K	$322K	$146K
	2016	$819K	$572K	$260K	$805K	$548K	$253K
EMEA	2014	$376K	$259K	$122K	$353K	$249K	$114K
	2015	$589K	$414K	$209K	$576K	$401K	$198K
	2016	$968K	$671K	$336K	$932K	$651K	$316K
US	2014	$709K	$496K	$213K	$729K	$501K	$217K
	2015	$1,253K	$872K	$375K	$1,267K	$903K	$375K
	2016	$2,181K	$1,538K	$645K	$2,192K	$1,554K	$654K

Applying the **Running total** function across the table rows, using **Table across** for **Calculate as**, gives you the following results:

Sum of Billed Amount by Date, Customer Region, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014	$257K	$435K	$516K	$762K	$925K	$999K
	2015	$471K	$806K	$954K	$1,419K	$1,742K	$1,888K
	2016	$819K	$1,391K	$1,651K	$2,456K	$3,005K	$3,258K
EMEA	2014	$376K	$635K	$757K	$1,111K	$1,360K	$1,473K
	2015	$589K	$1,003K	$1,212K	$1,788K	$2,188K	$2,386K
	2016	$968K	$1,639K	$1,975K	$2,907K	$3,558K	$3,873K
US	2014	$709K	$1,205K	$1,417K	$2,146K	$2,647K	$2,864K
	2015	$1,253K	$2,126K	$2,500K	$3,767K	$4,670K	$5,044K
	2016	$2,181K	$3,720K	$4,365K	$6,557K	$8,111K	$8,765K

Difference

The **Difference** function calculates the difference between a cell value and value of the cell prior to it. This difference is calculated as `Cell1=Cell1-null, Cell2=Cell2-Cell1, Cell3=Cell3-Cell2`, and so on. Because `Cell1-null = null`, the Cell1 value is always empty.

EXAMPLE

You have the following data:

Sum of Billed Amount by Date, Customer Region, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014	$257K	$178K	$82K	$246K	$163K	$74K
	2015	$471K	$335K	$149K	$465K	$322K	$146K
	2016	$819K	$572K	$260K	$805K	$548K	$253K
EMEA	2014	$376K	$259K	$122K	$353K	$249K	$114K
	2015	$589K	$414K	$209K	$576K	$401K	$198K
	2016	$968K	$671K	$336K	$932K	$651K	$316K
US	2014	$709K	$496K	$213K	$729K	$501K	$217K
	2015	$1,253K	$872K	$375K	$1,267K	$903K	$375K
	2016	$2,181K	$1,538K	$645K	$2,192K	$1,554K	$654K

Applying the **Difference** function across the table rows, using **Table across** for **Calculate as**, gives you the following results:

Sum of Billed Amount by Date, Customer Region, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014		-$78K	-$96K	$164K	-$83K	-$90K
	2015		-$136K	-$186K	$317K	-$143K	-$176K
	2016		-$247K	-$312K	$545K	-$257K	-$295K
EMEA	2014		-$117K	-$137K	$231K	-$104K	-$135K
	2015		-$176K	-$204K	$366K	-$175K	-$203K
	2016		-$297K	-$335K	$595K	-$281K	-$335K
US	2014		-$213K	-$284K	$517K	-$228K	-$284K
	2015		-$381K	-$498K	$892K	-$364K	-$528K
	2016		-$643K	-$893K	$1,547K	-$638K	-$900K

Percentage difference

The **Percentage Difference** function calculates the percent difference between a cell value and the value of the cell prior to it, divided by the value of the cell prior to it. This value is calculated as `Cell1=(Cell1-null)/null, Cell2=(Cell2-Cell1)/Cell1, Cell3=(Cell3-Cell2)/Cell2`, and so on. Because `(Cell1-null)/null = null`, the Cell1 value is always empty.

EXAMPLE

Take the following rows:

Sum of Billed Amount by Date, Customer Region, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014	$257K	$178K	$82K	$246K	$163K	$74K
	2015	$471K	$335K	$149K	$465K	$322K	$146K
	2016	$819K	$572K	$260K	$805K	$548K	$253K
EMEA	2014	$376K	$259K	$122K	$353K	$249K	$114K
	2015	$589K	$414K	$209K	$576K	$401K	$198K
	2016	$968K	$671K	$336K	$932K	$651K	$316K
US	2014	$709K	$496K	$213K	$729K	$501K	$217K
	2015	$1,253K	$872K	$375K	$1,267K	$903K	$375K
	2016	$2,181K	$1,538K	$645K	$2,192K	$1,554K	$654K

Applying the **Percentage Difference** function across the table rows, using **Table across** for **Calculate as**, gives you the following results.

Sum of Billed Amount by Date, Customer Region, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014		-30.56%	-54.15%	200.96%	-33.64%	-54.88%
	2015		-28.91%	-55.61%	213.06%	-30.67%	-54.71%
	2016		-30.17%	-54.52%	209.77%	-31.94%	-53.80%
EMEA	2014		-31.03%	-52.93%	189.54%	-29.52%	-54.34%
	2015		-29.79%	-49.37%	174.91%	-30.38%	-50.64%
	2016		-30.68%	-49.86%	177.00%	-30.16%	-51.51%
US	2014		-29.99%	-57.15%	243.08%	-31.27%	-56.68%
	2015		-30.37%	-57.04%	237.94%	-28.71%	-58.50%
	2016		-29.48%	-58.06%	239.84%	-29.10%	-57.92%

Percent of total

The **Percent of Total** function calculates the percentage the given cell represents of the sum of all of the cells included in the calculation. This percentage is calculated as `Cell1=Cell1/(sum of all cells)`, `Cell2=Cell2/(sum of all cells)`, and so on.

EXAMPLE

You have the following data:

Sum of Billed Amount by Date, Customer Region, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014	$257K	$178K	$82K	$246K	$163K	$74K
	2015	$471K	$335K	$149K	$465K	$322K	$146K
	2016	$819K	$572K	$260K	$805K	$548K	$253K
EMEA	2014	$376K	$259K	$122K	$353K	$249K	$114K
	2015	$589K	$414K	$209K	$576K	$401K	$198K
	2016	$968K	$671K	$336K	$932K	$651K	$316K
US	2014	$709K	$496K	$213K	$729K	$501K	$217K
	2015	$1,253K	$872K	$375K	$1,267K	$903K	$375K
	2016	$2,181K	$1,538K	$645K	$2,192K	$1,554K	$654K

Applying the **Percent of Total** function across the table rows, using **Table across** for **Calculate as**, gives you the following results:

Sum of Billed Amount by Date, Customer Region, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014	21.47%	14.90%	6.83%	20.56%	13.64%	6.15%
	2015	20.54%	14.60%	6.48%	20.29%	14.06%	6.37%
	2016	20.40%	14.24%	6.47%	20.06%	13.65%	6.30%
EMEA	2014	20.00%	13.79%	6.49%	18.79%	13.24%	6.04%
	2015	19.07%	13.39%	6.77%	18.63%	12.97%	6.40%
	2016	19.31%	13.38%	6.71%	18.59%	12.98%	6.29%
US	2014	19.61%	13.72%	5.88%	20.17%	13.86%	6.00%
	2015	19.38%	13.49%	5.79%	19.59%	13.96%	5.79%
	2016	19.38%	13.66%	5.73%	19.48%	13.81%	5.81%

Rank

The **Rank** function calculates the rank of the cell value compared to the values of the other cells included in the calculation. Rank always shows the highest value equal to 1 and lowest value equal to the count of cells included in the calculation. If there are two or more cells with equal values, they receive the same rank but are considered to take up their own spots in the ranking. Thus, the next highest value is pushed down in rank by the number of cells at the rank above it, minus one.

EXAMPLE If you rank the values 5,3,3,4,3,2, their ranks are 1,3,3,2,3,6.

EXAMPLE

You have the following data:

Sum of Billed Amount by Customer Region and Service Line

	Service Line		
Customer Region	Marketing	HR	Billing
APAC	$1,357K	$3,023K	$3,122K
EMEA	$2,247K	$3,788K	$3,944K
US	$4,657K	$8,392K	$8,282K

Applying the **Rank** function across the table rows, using **Table across** for **Calculate as**, gives you the following results:

Sum of Billed Amount by Customer Region and Service Line

	Service Line		
Customer Region	Marketing	HR	Billing
APAC	3	2	1
EMEA	3	2	1
US	3	1	2

Percentile

The **Percentile** function calculates the percent of the values of the cells included in the calculation that are at or below the value for the given cell.

This percent is calculated as follows:

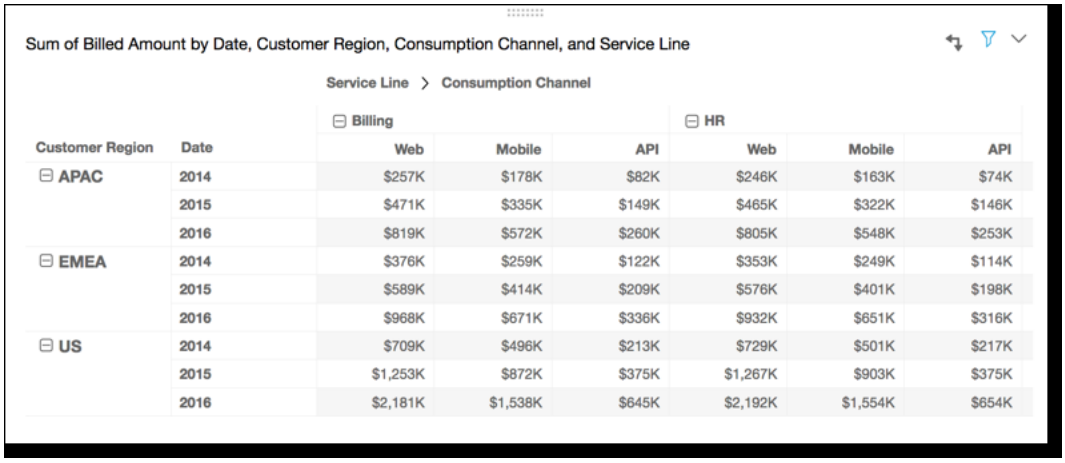
```
percentile rank(x) = 100 * B / N

Where:
```

```
B = number of scores below x
N = number of scores
```

EXAMPLE

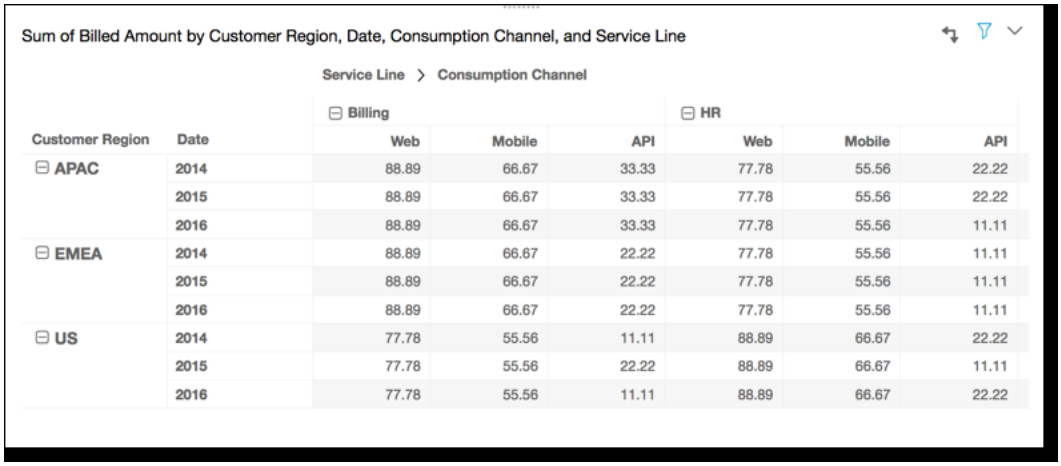
You have the following data:



Sum of Billed Amount by Date, Customer Region, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014	$257K	$178K	$82K	$246K	$163K	$74K
	2015	$471K	$335K	$149K	$465K	$322K	$146K
	2016	$819K	$572K	$260K	$805K	$548K	$253K
EMEA	2014	$376K	$259K	$122K	$353K	$249K	$114K
	2015	$589K	$414K	$209K	$576K	$401K	$198K
	2016	$968K	$671K	$336K	$932K	$651K	$316K
US	2014	$709K	$496K	$213K	$729K	$501K	$217K
	2015	$1,253K	$872K	$375K	$1,267K	$903K	$375K
	2016	$2,181K	$1,538K	$645K	$2,192K	$1,554K	$654K

Applying the **Percentile** function across the table rows, using **Table across** for **Calculate as**, gives you the following results:



Sum of Billed Amount by Customer Region, Date, Consumption Channel, and Service Line

		Service Line > Consumption Channel					
		Billing			HR		
Customer Region	Date	Web	Mobile	API	Web	Mobile	API
APAC	2014	88.89	66.67	33.33	77.78	55.56	22.22
	2015	88.89	66.67	33.33	77.78	55.56	22.22
	2016	88.89	66.67	33.33	77.78	55.56	11.11
EMEA	2014	88.89	66.67	22.22	77.78	55.56	11.11
	2015	88.89	66.67	22.22	77.78	55.56	11.11
	2016	88.89	66.67	22.22	77.78	55.56	11.11
US	2014	77.78	55.56	11.11	88.89	66.67	22.22
	2015	77.78	55.56	22.22	88.89	66.67	11.11
	2016	77.78	55.56	11.11	88.89	66.67	22.22

Related topics

- Add or delete pivot table calculations
- Ways to apply pivot table calculations

Ways to apply pivot table calculations

You can apply table calculations in the ways described following. Table calculations apply to only one field at a time. Thus, if you have a pivot table with multiple values, calculations are only applied to the cells representing the field that you applied the calculation to.

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis > Click a pivot table

Table across

Using **Table across** applies the calculation across the rows of the pivot table, regardless of any grouping. This application is the default.

EXAMPLE

Take the following pivot table:

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$410K	$186K
	2015	$1,137K	$795K	$361K
	2016	$1,997K	$1,379K	$638K
⊟ EMEA	2014	$932K	$646K	$302K
	2015	$1,511K	$1,046K	$531K
	2016	$2,461K	$1,702K	$848K
⊟ US	2014	$1,816K	$1,257K	$539K
	2015	$3,230K	$2,272K	$963K
	2016	$5,613K	$3,971K	$1,669K

Applying the **Running total** function using **Table across** gives you the following results, with row totals in the last column:

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$1,009K	$1,195K
	2015	$1,137K	$1,932K	$2,293K
	2016	$1,997K	$3,376K	$4,014K
⊟ EMEA	2014	$932K	$1,578K	$1,880K
	2015	$1,511K	$2,557K	$3,088K
	2016	$2,461K	$4,163K	$5,011K
⊟ US	2014	$1,816K	$3,074K	$3,613K
	2015	$3,230K	$5,502K	$6,465K
	2016	$5,613K	$9,584K	$11,253K

Table down

Using **Table down** applies the calculation down the columns of the pivot table, regardless of any grouping.

EXAMPLE

Take the following pivot table:

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$410K	$186K
	2015	$1,137K	$795K	$361K
	2016	$1,997K	$1,379K	$638K
⊟ EMEA	2014	$932K	$646K	$302K
	2015	$1,511K	$1,046K	$531K
	2016	$2,461K	$1,702K	$848K
⊟ US	2014	$1,816K	$1,257K	$539K
	2015	$3,230K	$2,272K	$963K
	2016	$5,613K	$3,971K	$1,669K

Applying the **Running total** function using **Table down** gives you the following results, with column totals in the last row:

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$410K	$186K
	2015	$1,735K	$1,205K	$547K
	2016	$3,733K	$2,584K	$1,185K
⊟ EMEA	2014	$4,665K	$3,230K	$1,487K
	2015	$6,176K	$4,276K	$2,017K
	2016	$8,637K	$5,978K	$2,865K
⊟ US	2014	$10,454K	$7,235K	$3,404K
	2015	$13,684K	$9,507K	$4,367K
	2016	$19,297K	$13,478K	$6,036K

Table across down

Using **Table across down** applies the calculation across the rows of the pivot table and then takes the results and reapplies the calculation down the columns of the pivot table.

EXAMPLE

Take the following pivot table:

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$410K	$186K
	2015	$1,137K	$795K	$361K
	2016	$1,997K	$1,379K	$638K
⊟ EMEA	2014	$932K	$646K	$302K
	2015	$1,511K	$1,046K	$531K
	2016	$2,461K	$1,702K	$848K
⊟ US	2014	$1,816K	$1,257K	$539K
	2015	$3,230K	$2,272K	$963K
	2016	$5,613K	$3,971K	$1,669K

Applying the **Running total** function using **Table across down** gives you the following results. In this case, totals are summed both down and across, with the grand total in the lower-right cell.

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$1,009K	$1,195K
	2015	$2,332K	$3,127K	$3,488K
	2016	$5,485K	$6,864K	$7,501K
⊟ EMEA	2014	$8,433K	$9,079K	$9,381K
	2015	$10,893K	$11,939K	$12,469K
	2016	$14,931K	$16,633K	$17,480K
⊟ US	2014	$19,297K	$20,554K	$21,093K
	2015	$24,323K	$26,595K	$27,558K
	2016	$33,171K	$37,142K	$38,811K

You can also apply the **Rank** function using **Table across down**. Doing so means that the initial ranks are determined across the table rows and then those ranks are in turn ranked down the columns. This approach gives you the following results:

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	21	24	27
	2015	13	18	25
	2016	6	11	20
⊟ EMEA	2014	16	19	26
	2015	10	14	23
	2016	4	8	17
⊟ US	2014	7	12	22
	2015	3	5	15
	2016	1	2	9

Table down across

Using **Table down across** applies the calculation down the columns of the pivot table. It then takes the results and reapplies the calculation across the rows of the pivot table.

EXAMPLE

Take the following pivot table:

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$410K	$186K
	2015	$1,137K	$795K	$361K
	2016	$1,997K	$1,379K	$638K
⊟ EMEA	2014	$932K	$646K	$302K
	2015	$1,511K	$1,046K	$531K
	2016	$2,461K	$1,702K	$848K
⊟ US	2014	$1,816K	$1,257K	$539K
	2015	$3,230K	$2,272K	$963K
	2016	$5,613K	$3,971K	$1,669K

You can apply the **Running total** function using **Table down across** to get the following results. In this case, totals are summed both down and across, with the grand total in the lower-right cell.

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$1,009K	$1,195K
	2015	$2,332K	$3,127K	$3,488K
	2016	$5,485K	$6,864K	$7,501K
⊟ EMEA	2014	$8,433K	$9,079K	$9,381K
	2015	$10,893K	$11,939K	$12,469K
	2016	$14,931K	$16,633K	$17,480K
⊟ US	2014	$19,297K	$20,554K	$21,093K
	2015	$24,323K	$26,595K	$27,558K
	2016	$33,171K	$37,142K	$38,811K

You can apply the **Rank** function using **Table down across** to get the following results. In this case, the initial ranks are determined down the table columns. Then those ranks are in turn ranked across the rows.

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	21	24	27
	2015	13	18	25
	2016	6	11	20
⊟ EMEA	2014	16	19	26
	2015	10	14	23
	2016	4	8	17
⊟ US	2014	7	12	22
	2015	3	5	15
	2016	1	2	9

Group across

Using **Group across** applies the calculation across the rows of the pivot table within group boundaries, as determined by the second level of grouping applied to the columns.

EXAMPLE If you group by field-2 and then by field-1, grouping is applied at the field-2 level. If you group by field-3, field-2, and field-1, grouping is again applied at the field-2 level. When there is no grouping, **Group across** returns the same results as **Table across**.

EXAMPLE

Take the following pivot table where columns are grouped by `Service Line` and then by `Consumption Channel`.

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$410K	$186K
	2015	$1,137K	$795K	$361K
	2016	$1,997K	$1,379K	$638K
⊟ EMEA	2014	$932K	$646K	$302K
	2015	$1,511K	$1,046K	$531K
	2016	$2,461K	$1,702K	$848K
⊟ US	2014	$1,816K	$1,257K	$539K
	2015	$3,230K	$2,272K	$963K
	2016	$5,613K	$3,971K	$1,669K

You can apply the **Running total** function using **Group across** to get the following results. In this case, the function is applied across the rows, bounded by the columns for each service category group. The `Mobile` columns display the total for both `Consumption Channel` values

for the given `Service Line`, for the `Customer Region` and `Date` (year) represented by the given row. For example, the highlighted cell represents the total for the `APAC` region for `2012`, for all `Consumption Channel` values in the `Service Line` named `Billing`.

Sum of Billed Amount by Customer Region, Date, Service Line, and Consumption Channel

		Service Line > Consumption Channel			
		⊟ Billing		⊟ Marketing	
Customer Region	Date	API	Mobile	API	Mobile
⊟ APAC	2012	$23K	$74K		
	2013	$45K	$153K	$3K	$11K
	2014	$82K	$260K	$31K	$100K
⊟ EMEA	2012	$22K	$78K		
	2013	$50K	$172K	$4K	$15K
	2014	$122K	$381K	$66K	$204K
⊟ US	2012	$43K	$140K		
	2013	$114K	$382K	$14K	$48K
	2014	$213K	$709K	$110K	$370K

Group down

Using **Group down** applies the calculation down the columns of the pivot table within group boundaries, as determined by the second level of grouping applied to the rows.

EXAMPLE If you group by field-2 and then by field-1, grouping is applied at the field-2 level. If you group by field-3, field-2, and field-1, grouping is again applied at the field-2 level. When there is no grouping, **Group down** returns the same results as **Table down**.

EXAMPLE

Take the following pivot table where rows are grouped by `Customer Region` and then by `Date` (year).

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$410K	$186K
	2015	$1,137K	$795K	$361K
	2016	$1,997K	$1,379K	$638K
⊟ EMEA	2014	$932K	$646K	$302K
	2015	$1,511K	$1,046K	$531K
	2016	$2,461K	$1,702K	$848K
⊟ US	2014	$1,816K	$1,257K	$539K
	2015	$3,230K	$2,272K	$963K
	2016	$5,613K	$3,971K	$1,669K

You can apply the **Running total** function using **Group down** to get the following results. In this case, the function is applied down the columns, bounded by the rows for each `Customer Region` group. The `2014` rows display the total for all years for the given `Customer Region`, for the `Service Line` and `Consumption Channel` represented by the given column. For example, the highlighted cell represents the total the `APAC` region, for the `Billing` service for the `Mobile` channel, for all the `Date` values (years) that display in the report.

Sum of Billed Amount by Customer Region, Date, Service Line, and Consumption Channel

		Service Line > Consumption Channel			
		⊟ Billing		⊟ Marketing	
Customer Region	Date	API	Mobile	API	Mobile
⊟ APAC	2012	$23K	$51K		
	2013	$68K	$159K	$3K	$8K
	2014	$149K	$337K	$34K	$77K
⊟ EMEA	2012	$22K	$56K		
	2013	$72K	$178K	$4K	$11K
	2014	$194K	$438K	$70K	$148K
⊟ US	2012	$43K	$97K		
	2013	$157K	$365K	$14K	$34K
	2014	$370K	$861K	$124K	$294K

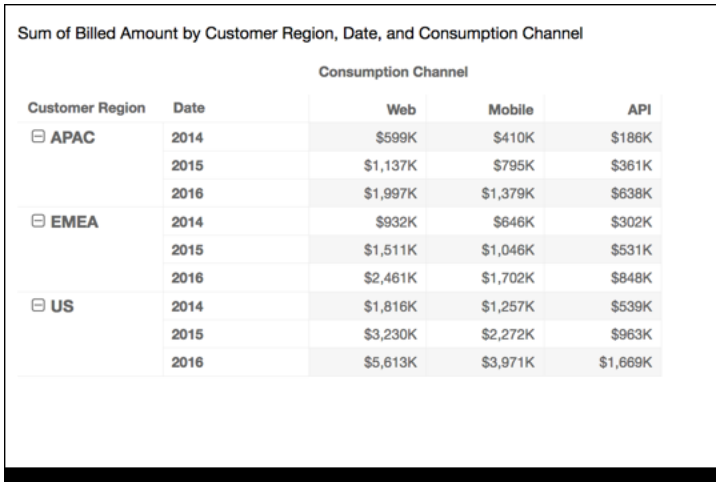
Group across down

Using **Group across down** applies the calculation across the rows within group boundaries, as determined by the second level of grouping applied to the columns. Then the function takes the results and reapplies the calculation down the columns of the pivot table. It does so within group boundaries as determined by the second level of grouping applied to the rows.

EXAMPLE If you group a row or column by field-2 and then by field-1, grouping is applied at the field-2 level. If you group by field-3, field-2, and field-1, grouping is again applied at the field-2 level. When there is no grouping, **Group across down** returns the same results as **Table across down**.

EXAMPLE

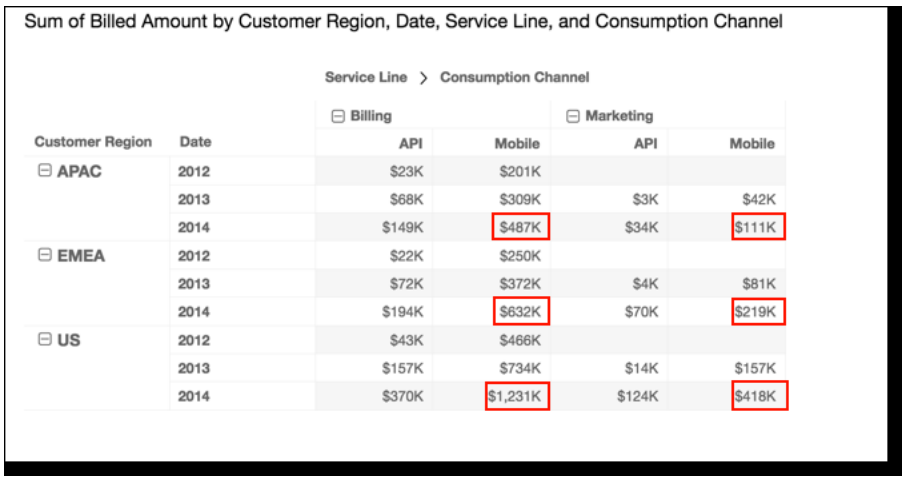
Take the following pivot table where columns are grouped by `Service Line` and then by `Consumption Channel`. Rows are grouped by `Customer Region` and then by `Date` (year).



Sum of Billed Amount by Customer Region, Date, and Consumption Channel

		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$410K	$186K
	2015	$1,137K	$795K	$361K
	2016	$1,997K	$1,379K	$638K
⊟ EMEA	2014	$932K	$646K	$302K
	2015	$1,511K	$1,046K	$531K
	2016	$2,461K	$1,702K	$848K
⊟ US	2014	$1,816K	$1,257K	$539K
	2015	$3,230K	$2,272K	$963K
	2016	$5,613K	$3,971K	$1,669K

You can apply the **Running total** function using **Group across down** to get the following results. In this case, totals are summed both down and across within the group boundaries. Here, these boundaries are `Service Line` for the columns and `Customer Region` for the rows. The grand total appears in the lower-right cell for the group.



Sum of Billed Amount by Customer Region, Date, Service Line, and Consumption Channel

		Service Line › Consumption Channel			
		⊟ Billing		⊟ Marketing	
Customer Region	Date	API	Mobile	API	Mobile
⊟ APAC	2012	$23K	$201K		
	2013	$68K	$309K	$3K	$42K
	2014	$149K	$487K	$34K	$111K
⊟ EMEA	2012	$22K	$250K		
	2013	$72K	$372K	$4K	$81K
	2014	$194K	$632K	$70K	$219K
⊟ US	2012	$43K	$466K		
	2013	$157K	$734K	$14K	$157K
	2014	$370K	$1,231K	$124K	$418K

You can apply the **Rank** function using **Group across down** to get the following results. In this case, the function is first applied across the rows bounded by each `Service Line` group. The function is then applied again to the results of that first calculation, this time applied down the columns bounded by each `Customer Region` group.

Sum of Billed Amount by Customer Region, Date, Service Line, and Consumption Channel

		Service Line > Consumption Channel			
		⊖ Billing		⊖ Marketing	
Customer Region	Date	API	Mobile	API	Mobile
⊖ APAC	2012	6	4		
	2013	5	2	4	3
	2014	3	1	2	1
⊖ EMEA	2012	6	4		
	2013	5	2	4	3
	2014	3	1	2	1
⊖ US	2012	6	5		
	2013	4	2	4	3
	2014	3	1	2	1

Group down across

Using **Group down across** applies a calculation down the columns within group boundaries, as determined by the second level of grouping applied to the rows. Then Insights takes the results and reapplies the calculation across the rows of the pivot table. Again, it reapplies the calculation within group boundaries as determined by the second level of grouping applied to the columns.

EXAMPLE If you group a row or column by field-2 and then by field-1, grouping is applied at the field-2 level. If you group by field-3, field-2, and field-1, grouping is again applied at the field-2 level. When there is no grouping, **Group down across** returns the same results as **Table down across**.

EXAMPLE

For example, take the following pivot table. Columns are grouped by `Service Line` and then by `Consumption Channel`. Rows are grouped by `Customer Region` and then by `Date` (year).

Sum of Billed Amount by Customer Region, Date, and Consumption Channel

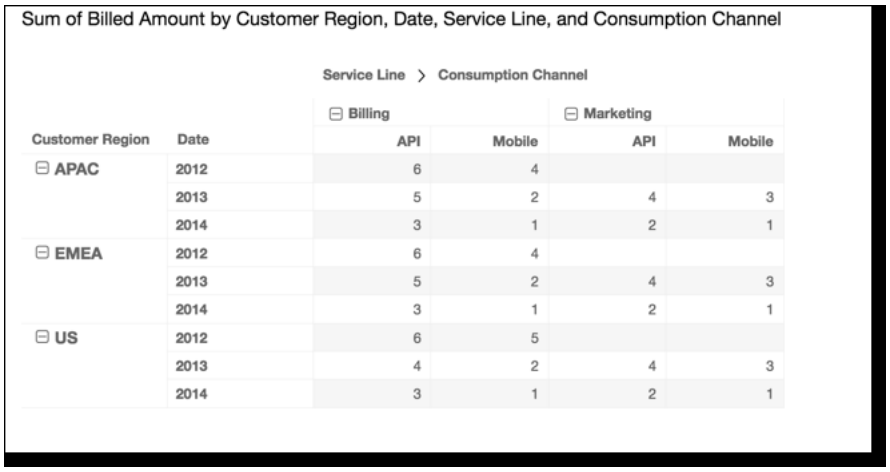
		Consumption Channel		
Customer Region	Date	Web	Mobile	API
⊟ APAC	2014	$599K	$410K	$186K
	2015	$1,137K	$795K	$361K
	2016	$1,997K	$1,379K	$638K
⊟ EMEA	2014	$932K	$646K	$302K
	2015	$1,511K	$1,046K	$531K
	2016	$2,461K	$1,702K	$848K
⊟ US	2014	$1,816K	$1,257K	$539K
	2015	$3,230K	$2,272K	$963K
	2016	$5,613K	$3,971K	$1,669K

You can apply the **Running total** function using **Group down across** to get the following results. In this case, totals are summed both down and across within the group boundaries. In this case, these are `Service Category` for the columns and `Customer Region` for the rows. The grand total is in the lower-right cell for the group.

Sum of Billed Amount by Customer Region, Date, Service Line, and Consumption Channel

		Service Line › Consumption Channel			
		⊟ Billing		⊟ Marketing	
Customer Region	Date	API	Mobile	API	Mobile
⊟ APAC	2012	$23K	$201K		
	2013	$68K	$309K	$3K	$42K
	2014	$149K	$487K	$34K	$111K
⊟ EMEA	2012	$22K	$250K		
	2013	$72K	$372K	$4K	$81K
	2014	$194K	$632K	$70K	$219K
⊟ US	2012	$43K	$466K		
	2013	$157K	$734K	$14K	$157K
	2014	$370K	$1,231K	$124K	$418K

You can apply the **Rank** function using **Group down across** to get the following results. In this case, the function is first applied down the columns bounded by each `Customer Region` group. The function is then applied again to the results of that first calculation, this time applied across the rows bounded by each `Service Line` group.



Sum of Billed Amount by Customer Region, Date, Service Line, and Consumption Channel

		Service Line > Consumption Channel			
		Billing		Marketing	
Customer Region	Date	API	Mobile	API	Mobile
APAC	2012	6	4		
	2013	5	2	4	3
	2014	3	1	2	1
EMEA	2012	6	4		
	2013	5	2	4	3
	2014	3	1	2	1
US	2012	6	5		
	2013	4	2	4	3
	2014	3	1	2	1

Related topics

- Add or delete pivot table calculations
- Functions for pivot table calculations

Pivot table limitations

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis > Click a pivot table

The following limitations apply to pivot tables:

- You can create pivot tables with up to 500,000 records.
- You can add any combination of row and column field values that add up to 40. For example, if you have 10 row field values, then you can add up to 30 column field values.

- You can create pivot table calculations only on nonaggregated values. For example, if you create a calculated field that is a sum of a measure, you can't also add a pivot table calculation to it.
- If you are sorting by a custom metric, you can't add a table calculation until you remove the custom metric sort.
- If you are using a table calculation and then add a custom metric, you can't sort by the custom metric.
- Totals and subtotals are blank for table calculations on metrics aggregated by distinct count.

Related topics

- Create a pivot table
- Orient pivot table values
- Expand and collapse pivot table clusters
- Show and hide pivot table columns in Insights
- Sort pivot tables in Insights
- Use table calculation in pivot tables
- Pivot table best practices

Pivot table best practices

Prerequisites

- You have the Insights Author license.
- You have created a pivot table in Insights (see Create a pivot table for instructions).

BEST PRACTICE For optimal performance and responsiveness, use regular tables instead of pivot tables whenever possible. Reserve pivot tables only for cases where their advanced features are specifically required.

Page location

Insights > Analyses > Click an analysis > Click a pivot table

It's best to think of visuals as building blocks. Rather than using one visual for multiple purposes, use each visual to facilitate one aspect of a larger business decision. The viewer should have enough data to make a well-informed decision, without being overwhelmed because the visual includes all possibilities.

It's best to deploy a minimal set of rows, columns, metrics, and table calculations, rather than offering all possible combinations in one pivot table. If you include too many, you risk overwhelming the viewer, and you can also run into the computational limitations of the underlying database.

To reduce the level of complexity and reduce the potential for errors, you can take the following actions:

- Apply filters to reduce the data included in for the visual.
- Use fewer fields in the **Row** and **Column** field wells.
- Use as few fields as possible in the **Values** field well.
- Create additional pivot tables so that each displays fewer metrics.

In some cases, there's a business need to examine many metrics in relation to each other. In these cases, it can be better to use multiple visuals on the same dashboard, each showing a single metric. You can reduce the size of the visuals on the dashboard and place them next to each other in a group. If a decision the viewer makes based on one visual creates the need for a different view, you can deploy custom URL actions to launch another dashboard according to the choices made by the user.

Related topics

- Create a pivot table
- Orient pivot table values
- Expand and collapse pivot table clusters
- Show and hide pivot table columns in Insights
- Sort pivot tables in Insights
- Use table calculation in pivot tables
- Pivot table limitations

Use radar charts

Prerequisites

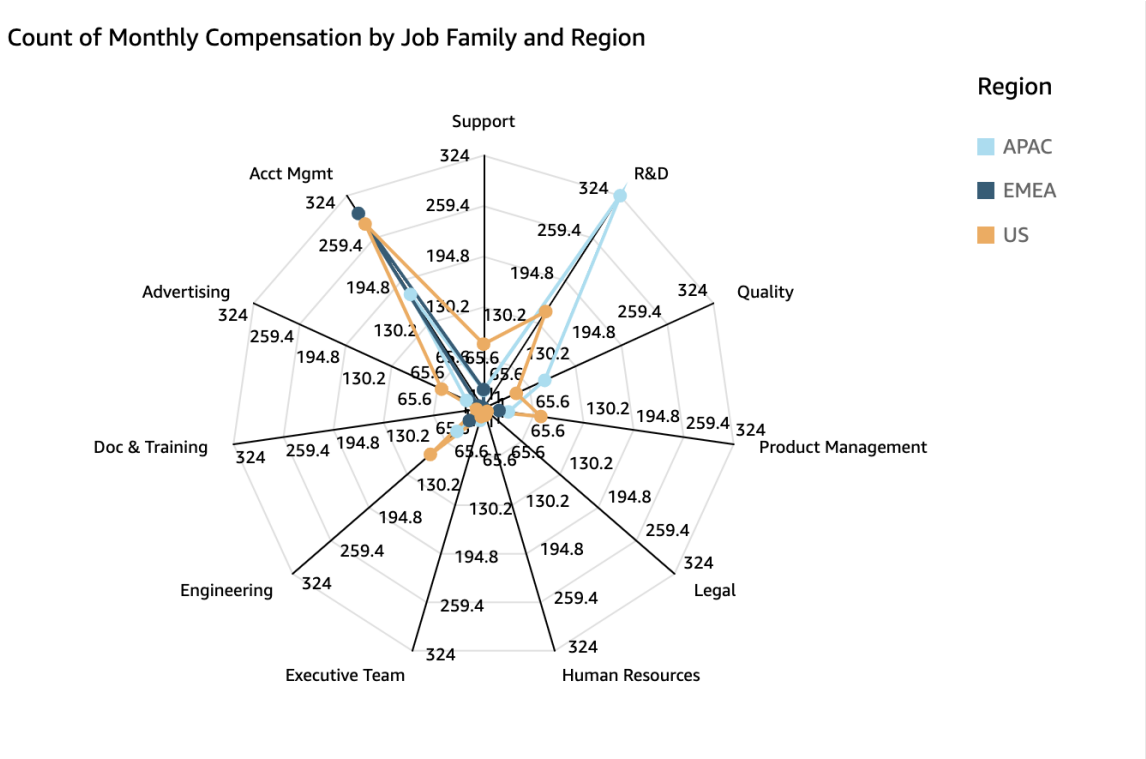
- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

You can use radar charts, which are also known as spider charts, to visualize multivariate data in Insights. In a radar chart, one or more groups of values are plotted over multiple common variables. Each variable has its own axis, and each axis is arranged radially around a central point. The data points from a single observation are plotted on each axis and connected to each other to form a polygon. Multiple observations can be plotted in a single radar chart to display multiple polygons, which makes it easier to spot outlying values for multiple observations quickly.

The following image shows an example of a radar chart.



Procedure

Create a radar chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Radar Chart**icon.



4. Drag fields from the **Data** panel into the field wells. The way that you place fields in the different field wells determines the axis that a radar chart is organized around:
   - In a radar chart that uses a **value axis**, dimension values are shown as lines, and axes represent value fields. To create a radar chart that uses a value axis, drag one dimension into the **Color** field well and at least one value into the **Value** field well.
   - In a radar chart that uses a **dimension axis**, group dimension values are shown as axes, and value fields are shown as lines. All axes share a range and scale. To create a radar chart that uses a dimension axis, drag one dimension into the **Group** field well and at least one value into the **Value** field well.
   - In a radar chart that uses a **dimension-color axis**, group dimension values are shown as axes, and color dimension values are shown as lines. All axes share a range and scale. To create a radar chart that uses a dimension-color axis, drag one dimension into the **Category** field well, one value into the **Value** field well, and one dimension into the **Color** field well.

Radar chart features

The following table lists the actions you can do with radar charts.

Feature	Supported?	Comments	For more information
Change the legend display	Yes		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights

Feature	Supported?	Comments	For more information
Change the axis range	Yes		Set the range and scale on visuals in Insights
Change the visual colors	Yes		Colors in visual types in Insights
Focus on or exclude elements	Yes		Focus on visual elements Exclude visual elements
Sort	Limited	You can only sort data fields that are in the **Category** and **Color** field wells.	Sorting visual data in Insights
Perform field aggregation	Yes		Changing field aggregation
Add drill-downs	Not supported		Adding drill-downs to visual data in Insights
Choose size	Yes		Format a visual in Insights
Show totals	Not supported		Format a visual in Insights

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use Sankey diagrams

Use Sankey diagrams to show flows from one category to another, or paths from one stage to the next.

For example, a Sankey diagram can show the number of people migrating from one country to another. A Sankey diagram can also show the path a web visitor takes from one page to the next on a company website, with possible stops along the way.

Prerequisites

- You have the Insights Author license.
- You are using a dataset that contains a measure and two dimensions. One of these dimensions contains source categories, and the other contains destination categories.

Page location

Insights > Analyses > Click an analysis

Data for Sankey diagrams

The following table is a simple example of data for a Sankey diagram.

Dimension (Source)	Dimension (Destination)	Measure (Weight)
A	W	500
A	X	23
A	Y	147

The following Sankey diagram is created when the dimensions and measure are added to the field well, with the A node on the left linking to the W, Y, and X nodes on the right. The width of each link between nodes is determined by the value in the Measure (Weight) column. The nodes are automatically ordered.

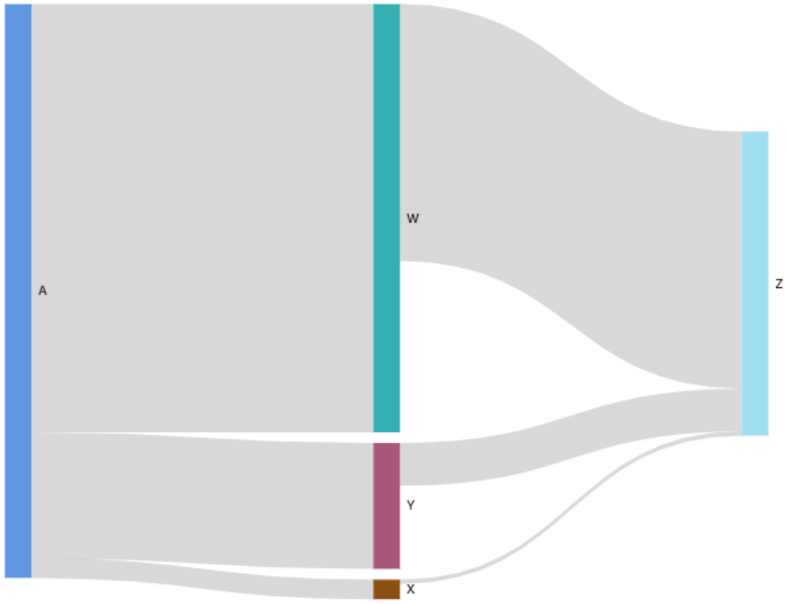


To create multilevel Sankey diagrams in Insights, your dataset should still contain a measure and two dimensions (one for source and one for destination), but in this case your data values differ.

The following table is a simple example of data for a multilevel Sankey diagram with two stages.

Dimension (Source)	Dimension (Destination)	Measure (Weight)
A	W	500
A	X	23
A	Y	147
W	Z	300
X	Z	5
Y	Z	50

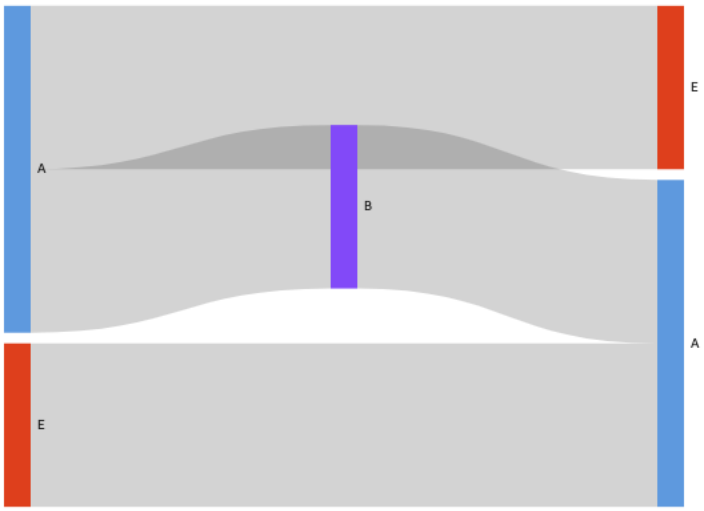
The following Sankey diagram is created when the dimensions and measure are added to the field well. Here, the A node on the left links to the W, Y, and X nodes in the middle, and the W, Y, and X nodes then link to the Z node on the right. The width of each link between nodes is determined by the value in the Measure (Weight) column.



Working with cyclical data

Sometimes, the data that you use for a Sankey diagram contains cycles. For example, suppose that you're visualizing user traffic flows between pages on a website. You might discover that users who come to page A move to page E and then come back to page A. An entire flow might look something like A-E-A-B-A-E-A.

When your data contains cycles, the nodes in each cycle are repeated in Insights. For example, if your data contains the flow A-E-A-B-A-E-A, the following Sankey diagram is created.



Procedures

Create a Sankey diagram

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Sankey diagram**icon.



4. Drag a dimension from the **Data** panel into the **Source** field well.
5. Drag a dimension into the **Destination** field.
6. Drag a measure into the **Weight** field.

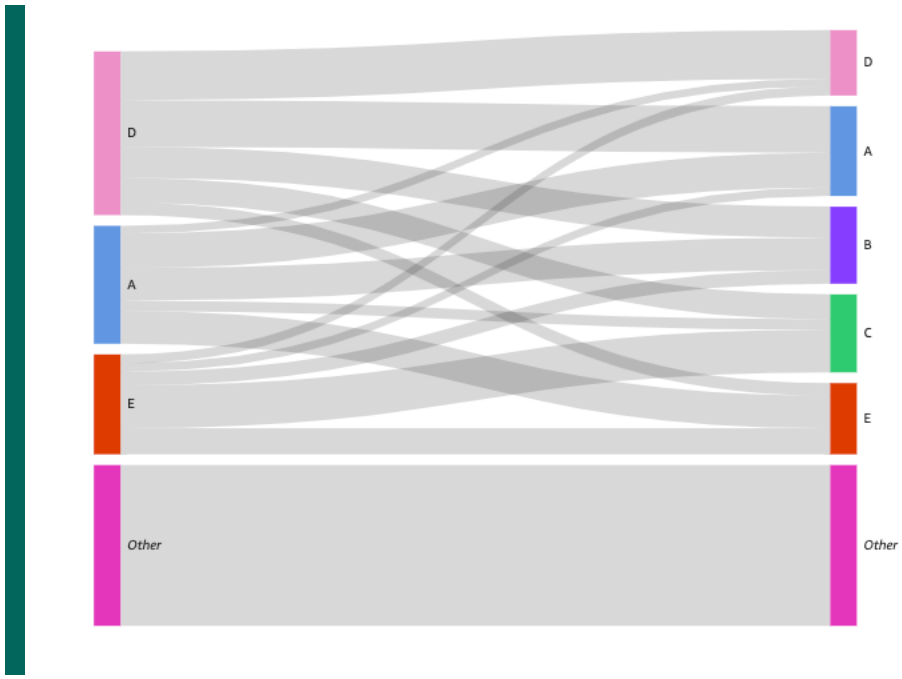
Customize the number of nodes that appear in a Sankey diagram

Insights supports up to 100 Source/Destination nodes.

1. Hover over the visual and click **Format visual**. The **Properties** panel opens.
2. Expand **Source** or **Destination**.
3. Enter a number in the **Number of nodes displayed** field. The nodes in the diagram update to the number that you specified. The top nodes are automatically shown. All other nodes are placed in an **Other** category.

> **NOTE** Specifying the number of Source nodes controls how many Source nodes can appear overall in the diagram. Specifying the number of Destination nodes controls how many Destination nodes can appear per Source node. This means that if there is more than one Source node in your diagram, the overall number of Destination nodes will be higher than the number specified.

> **EXAMPLE**
> The following Sankey diagram has a limit of three source nodes (out of five), so the top three are shown in the diagram. The other two source nodes are placed in the Other category.



Remove the Other category from the diagram

- Click the **Other** category and select **Hide “other” categories**.

Sankey diagram features

The following table lists the actions you can do with Sankey diagrams.

Feature	Supported?	For more information
Change the legend display	No	
Change the title display	Yes	Format visual titles and subtitles in Insights
Change the axis range	No	
Change the visual colors	No	
Focus on or exclude elements	Yes	Focus on visual elements Exclude visual elements
Sort	No	
Perform field aggregation	Yes	Changing field aggregation

Feature	Supported?	For more information
Add drill-downs	No	
Conditional formatting	No	

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use scatter plots

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Use scatter plots to visualize two or three measures across two dimensions.

Each bubble on the scatter plot represents one or two dimension values. The X and Y axes represent two different measures that apply to the dimension. A bubble appears on the chart at the point where the values for the two measures for an item in the dimension intersect. Optionally, you can also use bubble size to represent an additional measure.

Scatter plots show up to 2500 datapoints in aggregated and unaggregated scenarios regardless of whether a color or label dimension is used in the visual. For more information about how Insights handles data that falls outside display limits, see the “Display limits” section in Visual types in Insights.

Procedure

Create a scatter plot

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Scatter plot**icon.



4. Drag a measure from the **Data** panel into the **X Axis** field well.
5. Drag a measure into the **Y Axis** field well.
6. (Optional) Drag a dimension into the **Color** field well.
7. (Optional) Drag a dimension into the **Label** field well.
8. (Optional) Drag a measure into the **Size** field well.
9. (Optional) To add drill-down layers, drag at least one more dimension into the **Color** field well. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Scatter plot features

The following table lists the actions you can do with scatter plots.

Feature	Supported?	Comments	For more information
Change the legend display	Yes, with exceptions	Scatter plots display a legend if you have the **Color** field well populated.	Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	Yes	You can set the range for both the X and Y axes.	Set the range and scale on visuals in Insights
Show or hide axis lines, grid lines, axis labels, and	Yes		Format axes and grid lines on visual types in Insights

Feature	Supported?	Comments	For more information
axis sort icons			
Change the visual colors	Yes		Colors in visual types in Insights
Focus on or exclude elements	Yes, with exceptions	You can focus on or exclude a bubble in a scatter plot, except when you are using a date field as a dimension. In that case, you can only focus on a bubble, not exclude it.	Focus on visual elements Exclude visual elements
Sort	No		Sorting visual data in Insights
Perform field aggregation	Yes	You must apply aggregation to the fields you choose for the X axis, Y axis, and size. You cannot apply aggregation to the field that you choose for the group or color.	Changing field aggregation
Display unaggregated fields	Yes	To display unaggregated X and Y axis values, click the three dots next to the field and select **Aggregate** > **None**. If your scatter plot shows unaggregated fields, you can't apply aggregations to the field that is in the **Color** or **Label** field well. Scatter plots do not support mixed aggregation.	
Add drill-downs	Yes	You can add drill-down levels to the **Color** field well.	Adding drill-downs to visual data in Insights

Scatter plot use cases

To plot unaggregated values even if you have data in the **Color** field well, use the aggregate option **None** on the field menu, which also contains aggregation options like **Sum**, **Min**, and **Max**. If one value is set to be aggregated, the other value will be automatically set as aggregated. The same applies to unaggregated scenarios. Mixed aggregation scenarios are not supported, meaning that one value cannot be set as aggregated while the other is unaggregated.

> **NOTE** The unaggregated scenario, which is the **None** option, is supported only for numerical values, while categorical values, such as dates or dimensions, will display only aggregate values, such as **Count** and **Count distinct**.

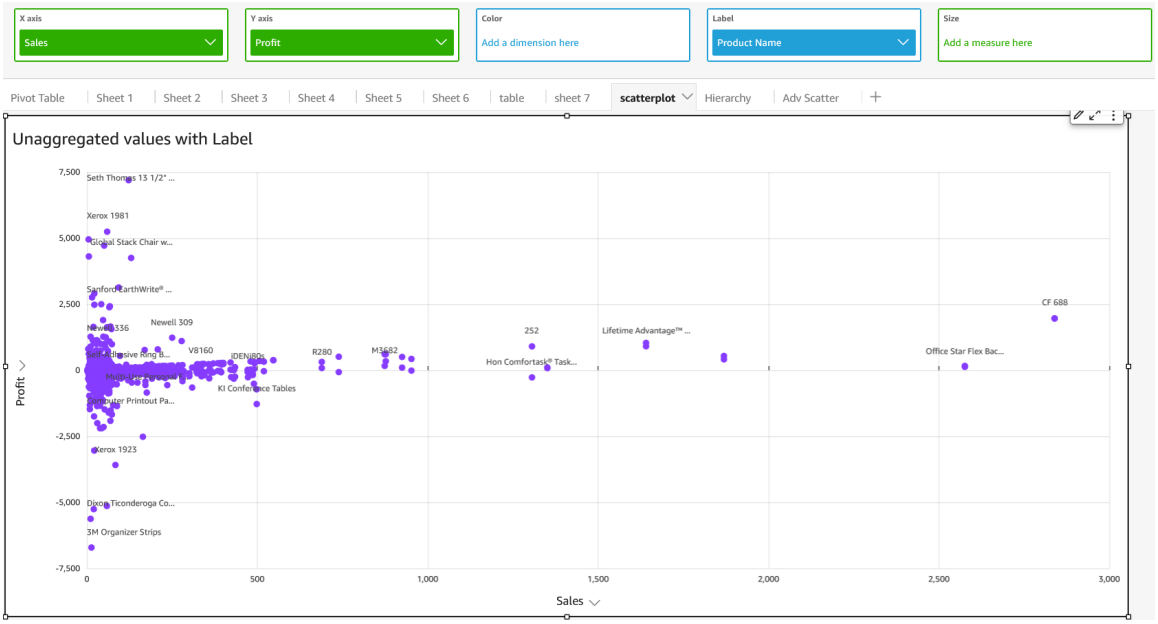
Using the **none** option, you can choose to set both X and Y values to either aggregated or unaggregated from the **X Axis** and **Y Axis** field menus. This will define whether or not values will be aggregated by dimensions in the **Color** and **Label** field wells. To get started, add the required fields and choose the appropriate aggregation based on your use case,as shown in the following sections.

Unaggregated use cases

- Unaggregated X and Y values with Color



- Unaggregated X and Y values with Label

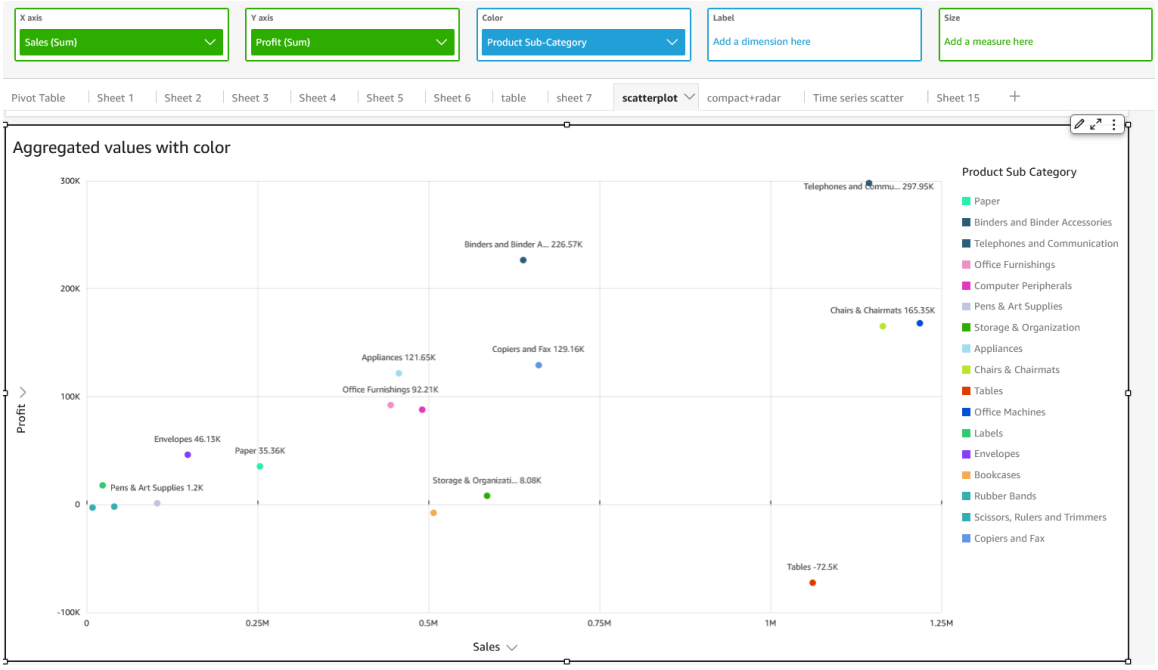


- Unaggregated X and Y values with Color and Label

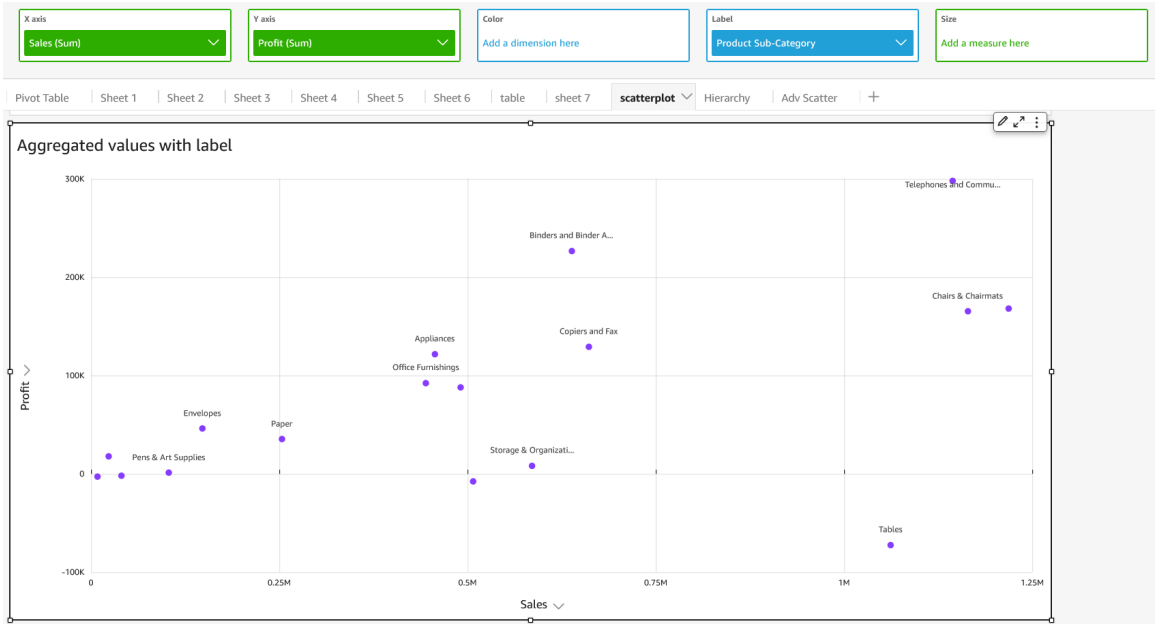


Aggregated use cases

- Aggregated X and Y values with Color



- Aggregated X and Y values with Label



- Aggregated X and Y values with Color and Label



Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use tables as visuals

Use a table visual to see a customized table view of your data. Table visuals don't display a legend.

- You have the Insights Author license.

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Procedures

Create a table visual

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Table**icon.



4. Drag at least one measure from the **Data** panel into the **Value** field well. You can add as many columns as you need, up to 200. You can also add calculated columns.
5. (Optional) To create an aggregated view of the data, drag at least one dimension into the **Group By** field well.

Hide a column in a table

- Click the column and select **Hide**.

Show hidden columns in a table

- Click any column and select **Show all hidden fields**.

Transpose columns to rows and rows to columns

- Click **Swap rows and columns** ( ) in the upper-right corner of the table. This icon has two arrows at a 90 degree angle.

Wrap the text in headers

1. Click **Format visual** in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Headers**.
3. Select **Wrap text**.

Rearrange columns in a table

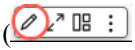
Do one of the following:

- In the **Visuals** panel, drag and drop the data fields to adjust their order.
- Click a column header in the table and click the **Move** arrow.

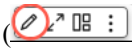
Edit a table's title

1. Click **Format visual** in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Display Settings**.
3. Click the paintbrush icon next to **Edit title**. The **Edit title** window opens.
4. Edit the title and then click **Save**.

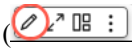
Hide a table's title

1. Click **Format visual** () in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Display Settings**.
3. Click **Click to hide** (the eye icon) next to **Edit title**.

Add totals to a table

1. Click **Format visual** () in the upper-right corner of the table. The **Properties** panel opens.
2. Toggle the switch in the **Totals** section to on.

Move totals to the top of a table

1. Click **Format visual** () in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Totals**.
3. In the **Position** section, select **Top**.

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation
- Formatting options available for each visual type in Insights

Style URL fields in tables

If your table contains URLs, you can turn those static URLs into links or images.

Prerequisites

- You have the Insights Author license.
- You have created a table. See Use tables as visuals for instructions.

Page location

Insights > Analyses > Click an analysis > Click a table

Procedures

Add links to your tables

You can add up to 500 rows of links for each page in a table. Only https and mailto hyperlinks are supported.

1. Click **Format visual** (the chart icon in the upper-right corner of the table). The **Properties** panel opens.
2. Expand **Field styling**.
3. Select the field you want to style from the **Select field to style** drop-down list.
4. In the URL options section, select **Make URLs hyperlinks**.
5. (Optional) In the **Open in** section, select how you want the links to open if someone clicks them.
6. (Optional) In the **Style as** section, select how you want the links to appear.

Adjust the font size of a link URL or icon

1. Click **Format visual** (the chart icon in the upper-right corner of the table). The **Properties** panel opens.
2. Expand **Cells**.
3. In the **Text** section, select a size from the drop-down list.

Show URLs as images

You can set any URLs in your table that point to images to appear in the table as images. Doing this can be useful when you want to include an image of a product as a part of a table.

1. Click **Format visual** (the chart icon in the upper-right corner of the table). The **Properties** panel opens.
2. Expand **Field styling**.
3. Select the field you want to style from the **Select field to style** drop-down list.
4. In the **URL options** section, select **Show URLs as images**.
5. (Optional) In the **Image sizing** section, select how you want the image to appear in the table. **Fit to cell height** is selected by default.

Related topics

- Freeze columns in table visuals
- Customize how totals in tables are calculated
- Sort data in tables

Freeze columns in table visuals

Freezing columns to your table visuals locks specific columns in place on screen. This allows essential information to remain visible while readers scroll across the table, giving them a constant reference point for key data or information as they interact with other parts of the table. All pinned columns are fixed to the far left side of the table and stay visible on screen at all times.

Prerequisites

- You have the Insights Author license.
- You have created a table. See Use tables as visuals for instructions.

Page location

Insights > Analyses > Click an analysis > Click a table

Procedures

Freeze columns in a table

1. Click the header for the column that you want to pin.
2. Choose one of the following options.

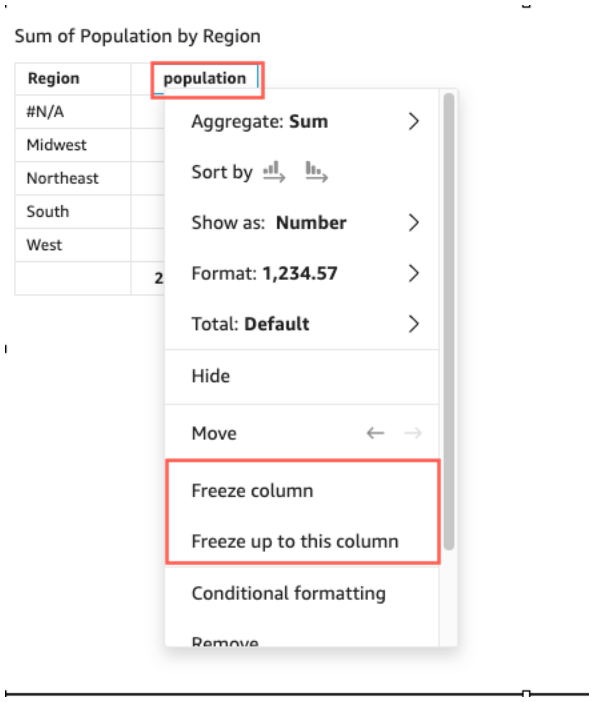
- To freeze only this column, select **Freeze column**. If the column was not the farthest left column in the table, it moves to that position.
- To freeze this column and all the columns to its left, select **Freeze up to this column**.

Adjust the order of frozen columns

1. Click the header for the column you want to move.
2. Click the **Move** arrows.

Unfreeze columns in a table

1. Click the header for the column that you want to unfreeze.
2. Choose one of the following options.
   - To unfreeze that column only, select **Unfreeze column**.
   - To unfreeze all frozen columns, select **Unfreeze all columns**.



Related topics

- Style URL fields in tables
- Customize how totals in tables are calculated

- Sort data in tables

Customize how totals in tables are calculated

Insights authors can define the total and subtotal aggregations for their table or pivot table visuals from the field wells.

Prerequisites

- You have the Insights Author license.
- You have created a table or pivot table. See Use tables as visuals or Create a pivot table for instructions.
- (For tables) The Totals setting (Format visual > Properties > Totals) is toggled on.

Page location

Insights > Analyses > Click an analysis > Click a table

Procedure

Change the aggregation of a total or subtotal

1. In the **Value** field wells, click the three dots next to the field that you want to change.
2. Hover over **Total**, and then select the aggregation that you want. The following options are available.
    - **Default**—The total calculation uses the same aggregation as the metric field.
    - **Sum**—Calculates the sum of the data in the visual.
    - **Average**—Calculates the average of the data in the visual.
    - **Max**—Calculates the maximum value of the data in the visual.
    - **Min**—Calculates the minimum value of the data in the visual.
    - **None (Hide)**—Totals are not calculated. If you select this option, the total and subtotal cells in the visual are left blank. If the outer dimension is sorted with the metric field that calculates the total or subtotal, the dimension is sorted alphabetically. If you change the value from **None (Hide)** to another value, the outer dimension is sorted by the subtotals that are calculated with the specified aggregation type.

The following limitations apply to custom totals.

- Conditional formatting is not supported for custom totals.
- Total aggregations aren't supported for string columns. Total aggregations include **Min**, **Max**, **Sum**, and **Average**.
- Date columns are incompatible with **Average** and **Sum** total aggregation functions.

Related topics

- Style URL fields in tables
- Freeze columns in table visuals
- Sort data in tables

Sort data in tables

You can sort up to ten columns in a single table.

Prerequisites

- You have the Insights Author license.
- You have created a table. See Use tables as visuals for instructions.

Page location

Insights > Analyses > Click an analysis > Click a table

Procedures

Sort a single column

By default, new sorts are sorted in an ascending order. If you select a new column to sort by, the previous sort order is overridden.

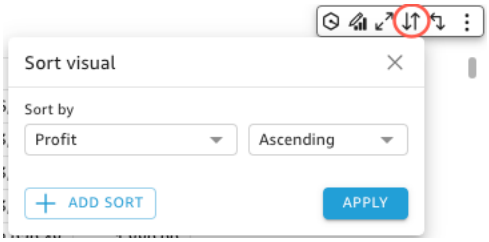
There are three ways that you can sort a single column.

Option 1: Use a column header

1. Click the header of the column that you want to sort.
2. In the **Sort by** section, hover over the field that is currently listed and select the field that you want to sort by.

Option 2: Use the Sort visual menu

1. Click **Sort visual** in the upper-right corner of the table. The **Sort visual** window opens.



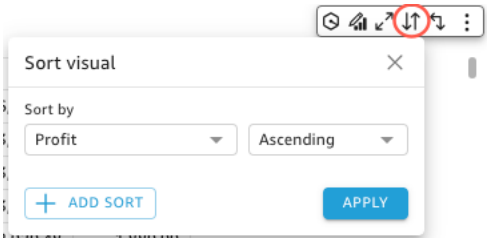
2. Select the field you want to sort by from the **Sort by** drop-down list.
3. Select **Ascending** or **Descending**.
4. Click **Apply**.

Option 3: Use a field well

1. In the **Visuals** panel > **Group By** field wells, click the three dots on the data field that you want to sort by.
2. Hover over **Sort by** and select the field name.

Sort by multiple columns

1. Click **Sort visual** in the upper-right corner of the table. The **Sort visual** window opens.

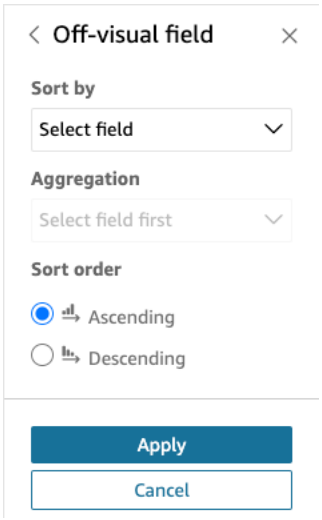


2. Select the first field that you want to sort by from the **Sort by** drop-down list.
3. Click **Add Sort**.
4. Select the second field that you want to sort by from the **Then by** drop-down list. You can add up to ten sorts to a table.
5. Click **Apply**. Columns are sorted in the order that you added them.

Sort the table by a field that does not appear in the table

An off-visual sort sorts the values in a table by a field and aggregation that is a part of the dataset that the table uses but not in one of the table's field wells. You can configure one off-visual sort to a single table at a time.

1. Click any column header in the table.
2. In the **Sort by** section, hover over the field that is currently listed and select **Off-visual field**. The **Off-visual field** panel opens.

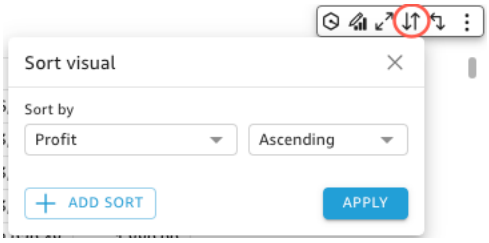


3. Select the field that you want to sort by from the **Sort by** drop-down list.
4. Select the aggregation you want to use from the **Aggregation** drop-down list.
5. In the Sort order section, select **Ascending** or **Descending**.
6. Click **Apply**. The table updates, and if you click **Sort visual**, the sort appears in the **Sort visual** window.

If you add an off-visual sort to a table that already has a single or multi-column sort, the off-visual sort overrides all other sorts. If you apply the off-visual sort first, you can add and reorder more sorts to the table.

Revert a table to its original state

1. Click **Sort visual** in the upper-right corner of the table. The **Sort visual** window opens.



2. Click **Reset**.

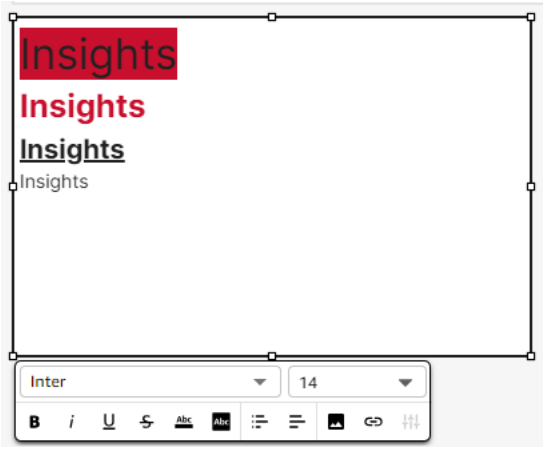
Related topics

- Style URL fields in tables
- Freeze columns in table visuals
- Customize how totals in tables are calculated

Use text boxes

With text boxes, you can add context to sheets in an analysis. Text can hold directions, descriptions, or even hyperlinks to external websites.

The following screenshot shows an example of a text box.



Prerequisites

You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Procedure

Create a text box

1. Click **Add Text** (the **T** icon in the top menu). A blank text box appears.
2. Click the blank area in the text box and enter text. The formatting menu appears.
3. (Optional) Use the formatting menu to change the font type, style, color, size, spacing, size in pixels, text highlights, and alignment.

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use tree maps

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

Tree maps visualize one or two measures for a dimension.

Each rectangle on the tree map represents one item in the dimension. Rectangle size represents the proportion of the value for the selected measure that the item represents compared to the whole for the dimension. You can optionally use rectangle color to represent another measure for the item. Rectangle color represents where the value for the item falls in the range for the measure, with darker colors indicating higher values and lighter colors indicating lower ones.

Tree maps show up to 100 data points for the **Group By** field. For more information about how Insights handles data that falls outside display limits, see the “Display limits” section in Visual types in Insights.

Procedure

Create a tree map

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Tree map**icon.



4. Drag a dimension from the **Data** panel into the **Group By** field well.
5. Drag a measure into the **Size** field well.
6. (Optional) Drag a different measure into the **Color** field well.
7. (Optional) To add drill-down layers, drag at least one more dimension into the **Group By** field well. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Tree map features

The following table lists the actions you can do with tree maps.

Feature	Supported?	Comments	For more information
Change the legend display	Yes		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	Not applicable		Set the range and scale on visuals in Insights
Change the visual	No		Colors in visual types in

Feature	Supported?	Comments	For more information
colors			Insights
Focus on or exclude elements	Yes, with exceptions	You can focus on or exclude a rectangle from a tree map, except when you are using a date field as the dimension. In that case, you can only focus on a rectangle, not exclude it.	Focus on visual elements Exclude visual elements
Sort	No	Default sorting is in descending order by the measure in the **Size** column.	Sorting visual data in Insights
Perform field aggregation	Yes	You must apply aggregation to the fields you choose for size and color. You cannot apply aggregation to the field that you choose to group by.	Changing field aggregation
Add drill-downs	Yes	You can add drill-down levels to the **Group By** field well.	Adding drill-downs to visual data in Insights

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use waterfall charts

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

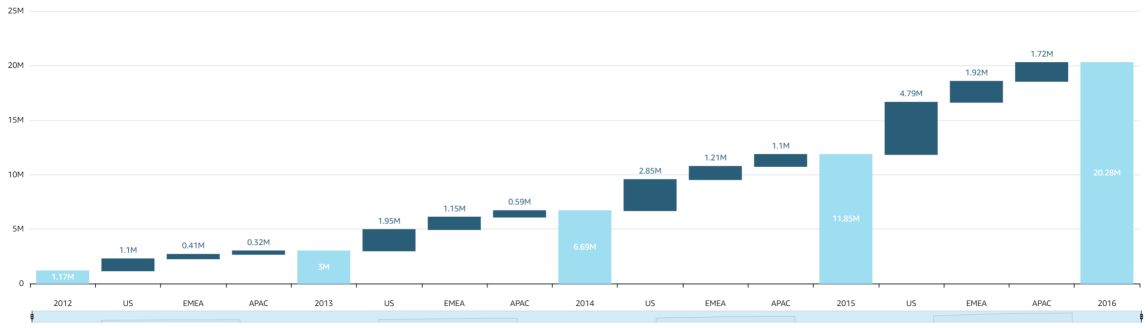
Waterfall charts visualize a sequential summation as values are added or subtracted. In a waterfall chart, the initial value goes through a (positive or negative) change, with each change represented as a bar. The last bar represents the final total. Waterfall charts are also known as bridges because the connectors between the bars bridge the bars together, showing that they visually belong to the same story.

Waterfall charts are most commonly used to present financial data because you can show change within one time period or from one time period to another. This way, you can visualize the different factors that impact your project cost.

EXAMPLE You can use a waterfall chart to show gross sales to net income within the same month, or the difference in net income from last year to this year, and the factors that were responsible for this change.

You can also use waterfall charts to present statistical data, for example how many new employees you hired and how many employees left your company within a year.

The following screenshot shows a waterfall chart.



Procedure

Create a basic waterfall chart

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Waterfall chart**icon.



4. Drag at least one field from the **Data** panel into the **Category** or **Value** field well.
5. (Optional) To add drill-down layers, drag at least one more field into the **Category** or **Value** field well. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Use word clouds

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis

The following screenshot shows an example of a word cloud.



Word clouds are an engaging way to display how often a word is used in relation to other words in a dataset. The best use for this type of visual is to show word or phrase frequency. It can also make a fun addition to show trending items or actions. You can use a fixed dataset for creative purposes.

> **EXAMPLE** You might make a word cloud of team goals, motivational phrases, various translations of a specific word, or anything else that you want to draw attention to.

Each word in a word cloud represents one or more values in a dimension. The size of the word represents the frequency of a value's occurrence in a selected dimension, in proportion to the occurrences of other values in the same dimension.

> **BEST PRACTICE** Use word clouds when precision isn't important and there aren't a large number of distinct values. Word clouds usually look better with 20–100 words or phrases, but the format settings offer a wide range of flexibility. If you choose too many words, they can become too small to be legible, depending on the size of your display.

Procedures

Create a word cloud

1. Click **Visualize** (the bar chart icon in the tool bar). The **Visuals** panel opens.
2. Click **Add**.
3. Click the **Word Cloud**icon.



4. Drag a dimension from the **Data** panel into the **Group By** field well.

   > **NOTE** Word clouds are limited to 500 unique values for **Group By**. For more information about how Insights handles data that falls outside display limits, see the "Display limits" section in Visual types in Insights.

5. (Optional) Drag a measure into the **Size** field well.
6. (Optional) To add drill-down layers, drag at least one more dimension into the **Group By** field well. For more information about adding drill-downs, see Adding drill-downs to visual data in Insights.

Show more or fewer words in a word cloud

By default, word clouds display 100 distinct words.

1. Click **Format visual** in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Group by**.
3. Enter the maximum number of words you want to display in the **Number of words** field.

Remove the word "other" from a word cloud

1. Click **Menu options** (the three vertical dots) in the upper-right corner of the visual.
2. Select **Hide "other" categories**.

Word cloud features

The following table lists the actions you can do with word clouds.

Feature	Supported?	Comments	For more information
Change the legend display	No		Legends on visual types in Insights
Change the title display	Yes		Format visual titles and subtitles in Insights
Change the axis range	Not applicable		Set the range and scale on

Feature	Supported?	Comments	For more information
			visuals in Insights
Change the visual colors	Yes	To change the color, choose a word and then choose a color.	Colors in visual types in Insights
Focus on or exclude elements	Yes		Focus on visual elements Exclude visual elements
Sort	Yes		Sorting visual data in Insights
Perform field aggregation	Yes	You can't apply aggregation to the field that you choose for **Group By**. You must apply an aggregation to the field that you choose for **Size**.	Changing field aggregation
Add drill-downs	Yes	You can add drill-down levels to the **Group By** field well.	Adding drill-downs to visual data in Insights
Use format options	Yes	You can choose to allow vertical words, emphasize scale, use a fluid layout, use lowercase, and set the amount of padding between words. You can set the maximum string length for the word cloud (default is 40). You can also choose the number of words for the **Group By** field (default is 100; maximum is 500).	Format a visual in Insights
Show totals	No		Format a visual in Insights

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Format a visual in Insights

You have a variety of options to format and style your data visualizations.

Prerequisites

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis > Click a visual

Procedure

Format a visual

- Click the **Format visual** icon on the upper-right corner of the visual. The **Properties** panel opens with options that vary based on the type of visual or control. For more information about formatting a visual control, see Using a control with a parameter in Insights.

Topics in this section

Use the following sections to format and style your content:

NOTE Any format changes you apply from the field wells affect only the visual you have selected.

- Formatting options available for each visual type in Insights
- Format tables and pivot tables in Insights
- Add colored data bars to tables in Insights
- Customize maps in Insights

- Format axes and grid lines on visual types in Insights
- Colors in visual types in Insights
- Working with field-level coloring in Insights
- Conditional formatting on visual types in Insights
- Font and style on visual types in Insights
- KPI options
- Labels on visual types in Insights
- Formatting visual numeric data based on language settings in Insights
- Legends on visual types in Insights
- Line and marker styling on line charts in Insights
- Missing data on visual types in Insights
- Reference lines on visual types in Insights
- Format radar charts in Insights
- Set the range and scale on visuals in Insights
- Small multiples axis options
- Format visual titles and subtitles in Insights
- Tooltips on visual types in Insights

Formatting options available for each visual type in Insights

Prerequisite

- You have the Insights Author license.

Page location

Insights > Analyses > Click an analysis > Click a visual

The following list breaks down what type of formatting works in a visualization during analysis:

- Bar charts (both horizontal and vertical) support the following formatting:
  - Customize, display, or hide title, field labels, and data labels
  - Customize, display, or hide legend (exception: simple charts without clustering or multiple measures don't show a legend)
  - Specify axis range and steps on the x-axis for horizontal bar charts, and on the y-axis for vertical bar charts
  - Choose how many data points to display on the x-axis for vertical bar charts, and on the y-axis for horizontal bar charts
  - Show or hide axis lines, axis labels, axis sort icons, and chart grid lines
  - Customize, display, or remove reference lines
  - Show or hide the “other” category

  Horizontal bar charts support sorting on the y-axis and **Value**. Vertical bar charts support sorting on the x-axis and **Value**.

  Stacked bar charts support showing totals.

- Box plots support the following formatting:
  - Customize, display, or hide title
  - Customize, display, or hide legend
  - Specify axis range and label tick on the x-axis and axis range and step on the y-axis
  - Show or hide axis lines, axis labels, axis sort icons, and chart grid lines
  - Choose how many data points to display on the y-axis.
  - Show or hide the “other” category
  - Add reference lines

  Box plots support sorting on **Group By**.

- Combo charts support the following formatting:
  - Customize, display, or hide title, field labels, and data labels
  - Customize, display, or hide legend (exception: simple charts without clustering, stacking, or multiple measures don't show a legend)

- Specify axis range on bars and lines
- Synchronize the Y axes for both bars and lines into a single axis.
- Choose how many data points to display on the x-axis
- Show or hide axis lines, axis labels, axis sort icons, and chart grid lines
- Customize, display, or remove reference lines
- Show or hide the "other" category

Combo charts support sorting on the x-axis, **Bars**, and **Lines**.

- Donut charts support the following formatting:
  - Customize, display, or hide title, data labels, and legend
  - Customize, display, or hide the labels for group or color and value fields
  - Choose how many slices to display from **Group/Color**
  - Show or hide the "other" category

  Donut charts support sorting on **Group/Color** and **Value**.
- Filled maps support the following formatting:
  - Customize, display, or hide title.
  - Customize, display, or hide the legend

  Filled maps support sorting on **Location** and **Color**.
- Funnel charts support the following formatting:
  - Customize, display, or hide title, and data labels
  - Customize, display, or hide the labels for group or color and value fields
  - Choose how many stages to display in the **Group By** field
  - Show or hide the "other" category

  Funnel charts support sorting on **Group By** and **Value**.
- Gauge charts support the following formatting:
  - Customize, display, or hide title. Display or hide axis labels.
  - Customize how to display the value or values: hidden, actual value, comparison

- Choose the comparison method (available when you use two measures)
- Choose the axis range and padding to display in the gauge chart
- Choose the arc style (degrees from 180 to 360) and arc thickness

Gauge charts don't support sorting.

- Geospatial charts (maps) support the following formatting:
  - Customize, display, or hide title and legend
  - Choose the base map image.
  - Choose to display map points with or without clustering.

  Geospatial charts don't support sorting.
- Heat maps support the following formatting:
  - Customize, display, or hide title, legend, and labels
  - Choose how many rows and columns to display
  - Choose colors or gradients.
  - Show or hide the "other" category

  Heat maps support sorting on **Values** and **Columns**.
- Histogram charts support the following formatting:
  - Customize, display, or hide title, field labels, and data labels
  - Specify axis range, scale, and steps on the y-axis
  - Choose how many data points to display on the x-axis
  - Show or hide axis lines, axis labels, axis sort icons, and chart grid lines

  Histogram charts don't support sorting.
- Key performance indicators (KPIs) support the following formatting:
  - Customize, display, or hide title
  - Display or hide trend arrows and progress bar
  - Customize comparison method as auto, difference, percent (%), or difference as percent (%)

- Customize primary value displayed to be comparison or actual
- Conditional formatting

KPIs don't support sorting.

- Line charts support the following formatting:
  - Customize, display, or hide title, field labels, and data labels
  - Customize, display, or hide legend (exception: simple charts don't show a legend)
  - Specify axis range and steps (on y-axis)
  - Choose how many data points to display on the x-axis
  - Show or hide axis lines, axis labels, axis sort icons, and chart grid lines
  - Customize, display, or remove reference lines
  - Customize the styling of lines and the markers for data points on a line
  - Show or hide the "other" category, except when the x-axis is a date

  Line charts support sorting on the x-axis and Value for numeric purposes only.
- Pie charts support the following formatting:
  - Customize, display, or hide title, data labels, and legend
  - Customize, display, or hide the labels for group or color and value fields
  - Show metrics as values, percentages, or both
  - Choose how many slices to display from the **Group/Color** field
  - Show or hide the "other" category

  Pie charts support sorting on **Value** and **Group/Color**.
- Pivot tables support the following formatting:
  - Customize, display, or hide title
  - Customize, display, or hide the labels for column, row, and value fields
  - Customize the font sizes for table headers and cells/body
  - Display or hide totals and subtotals on rows or columns
  - Custom labels for totals or subtotals

- Choose additional styling options: fit table to view, hide +/- buttons, hide column field names, hide duplicate label when using single metric
- Conditional formatting

Pivot tables support sorting on **Column** and **Row**. For more information on sorting pivot table data, see Sort pivot tables in Insights.

- Scatter plots support the following formatting:
  - Customize, display, or hide title, legend, field labels, and data labels
  - Customize, display, or remove reference lines
  - Specify axis range (on x-axis and y-axis)
  - Show or hide axis lines, axis labels, axis sort icons, and chart grid lines

  Scatter plots don't support sorting.

- Tables support the following formatting:
  - Customize, display, or hide title, legend, and columns
  - Customize, display, or hide the column names for group-by and value fields
  - Customize the font sizes for table headers and cells/body
  - Display or hide totals at the top or bottom of the table
  - Provide a custom label for totals
  - Add conditional formatting

  Tables support sorting on **Group By** and **Value**.

- Tree maps support the following formatting:
  - Customize, display, or hide title and legend
  - Customize, display, or hide the labels for group-by, size, and color fields
  - Choose colors or gradients.
  - Choose how many squares to display from the **Group By** field
  - Show or hide the “other” category

  Tree maps support sorting on **Size**, **Group By** and **Color**.

- Waterfall charts support the following formatting:

- Customize, display, or hide title or subtitle
- Customize the total label
- Specify x-axis label size and orientation and y-axis label range and orientation.
- Show or hide axis lines, axis labels, axis sort icons, and chart grid lines
- Show or hide the “other” category
- Customize the legend size and position.
- Customize and display or hide data labels.

Waterfall charts support sorting on **Category** and **Value**.

- Word clouds support the following formatting:
  - Customize, display, or hide title
  - Customize the word color, and the number of words to display from the Group by field
  - Show or hide the “other” category
  - Choose additional styling options: allow vertical words, emphasize scale, or work with fluid layout, lowercase, padding level, or maximum string length

  Word clouds support sorting on **Group By**.

Related topics

- Add visuals to Insights analyses
- Visual types in Insights
- Format a visual in Insights
- Customizing data presentation

Format tables and pivot tables in Insights

Prerequisites

- You have the Insights Author license.
- You have created a table or pivot table. See Use tables as visuals or Use pivot tables for instructions.

Page location

Insights > Analyses > Click an analysis > Click a table or pivot table

You can customize tables and pivot tables in Insights to meet your business needs. You can customize table headers, cells, and totals by specifying the color, size, wrap, and alignment of text in each. You can also specify the height of rows in a table, add borders and grid lines, and add custom background colors. In addition, you can customize how to display totals and subtotals.

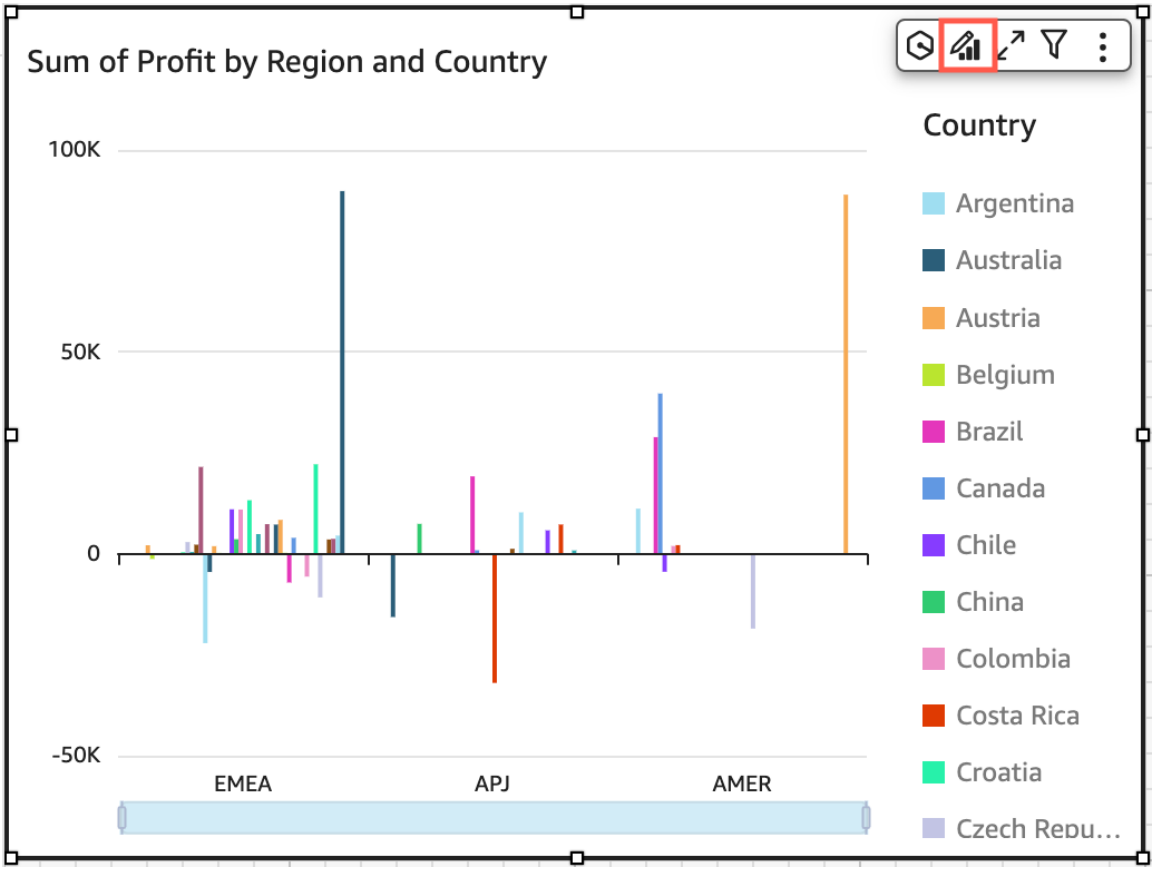
If you have applied conditional formatting to a table or pivot table, it takes precedence over any other styling you configure.

If you export table or pivot table visuals to Microsoft Excel, the downloaded Excel file does not include the formatting customizations that you applied to the visual.

Procedure

Format a table or pivot table

- Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.



Topics in this section

The pages in the list below describe the options in the **Properties** panel for customizing each area of your table or pivot table.

- Format headers in tables and pivot tables
- Customize cell formatting in tables and pivot tables
- Customize totals and subtotals in tables and pivot tables
- Resize rows and columns in tables and pivot tables
- Hide or show elements in pivot tables

Format headers in tables and pivot tables

Prerequisites

- You have the Insights Author license.
- You have created a table or pivot table. See Use tables as visuals or Use pivot tables for instructions.

Page location

Insights > Analyses > Click an analysis > Click a table

Procedures

Expand all headers in a pivot table

Expanding all the headers in a pivot table shows all child and grandchild rows of a header.

1. Click any header.
2. Select **Expand all below**.

Customize the height of headers

Height is measured in pixels.

1. Click the **Format visual** icon in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Headers**.
3. Enter the height in the **Row height (pixels)** field. You can enter a whole number from 8 through 500.

Customize the header text

1. Click the **Format visual** icon in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Headers**.
3. In the **Text** section, do one or more of the following. In pivot tables, you customize the header text for **Rows** and **Columns** separately.
    - To wrap text in headers that are too long to fit, select **Wrap text**. Wrapping text in a header doesn't automatically increase the height of the header. To increase the header height, see Customize the height of headers.

- To customize the size of the text, select a text size from the drop-down list. Size options range from **Extra small** to **Extra large**.
- To change the font color, click the black square next to **Text**, and then select a color. You can choose one of the provided colors, reset the header text color to the default color, or create a custom color.
- To change the horizontal alignment of text in the header, click a horizontal alignment icon. You can choose left alignment, center alignment, right alignment, or automatic alignment.
- To change the vertical alignment of text in the header, click a vertical alignment icon. You can choose top alignment, middle alignment, or bottom alignment.

Customize the header background color

1. Click the **Format visual** icon in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Headers**.
3. Click the white square next to **Background**, and then select a color. You can choose one of the provided colors, reset the header text color to the default color, or create a custom color. In pivot tables, you select a background color for **Rows** and **Columns** separately.

Customize the header borders

1. Click the **Format visual** icon in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Headers**.
3. In the **Borders** section, do one or more of the following. In pivot tables, you customize the header borders for **Rows** and **Columns** separately.
    - To customize the type of border that you want, click a border type icon. You can choose no borders, horizontal borders only, vertical borders only, or all borders.
    - To customize the border thickness, select a border thickness from the drop-down.
    - To customize the border color, click the gray square next to **Borders**, and then select a color. You can choose one of the provided colors, reset the border color to the default color, or create a custom color.

Show or rename the Rows label of a hierarchy pivot table

1. Click the **Format visual** icon in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Headers**.

3. Click **Show** (the eyeball icon).
4. (Optional) To rename the **Rows** label, enter the text in the **Rows label** field.

Related topics

- Customize cell formatting in tables and pivot tables
- Customize totals and subtotals in tables and pivot tables
- Resize rows and columns in tables and pivot tables
- Hide or show elements in pivot tables

Customize cell formatting in tables and pivot tables

Prerequisites

- You have the Insights Author license.
- You have created a table or pivot table. See Use tables as visuals or Use pivot tables for instructions.

Page location

Insights > Analyses > Click an analysis > Click a table

Procedures

Customize the row height

Row height is measured in pixels.

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Cells**.
3. Enter the height in the **Row height (pixels)** field. You can enter a whole number from 8 through 500.

Format the cell text

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Cells**.

3. In the **Text** section, do one or more of the following:
    - To wrap text in headers that are too long to fit, select **Wrap text**. Wrapping text in cells doesn't automatically increase the row height. To increase the row height, see Customize the row height.
    - To customize the size of the text, select a text size from the drop-down list. Size options range from **Extra small** to **Extra large**.
    - To change the font color, click the black square next to **Text**, and then select a color. You can choose one of the provided colors, reset the header text color to the default color, or create a custom color.
    - To change the horizontal alignment of text in the cells, click a horizontal alignment icon. You can choose left alignment, center alignment, right alignment, or automatic alignment. In pivot tables, horizontal alignment is available only for the **Rows** fields of a hierarchy pivot table.
    - To change the vertical alignment of text in the header, click a vertical alignment icon. You can choose top alignment, middle alignment, or bottom alignment.

Customize the cell background color

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Cells**.
3. In the **Background** section, do one or more of the following:
    - To alternate background colors between rows, select **Alternate row colors**. To give all cells the same background color, clear this option.
    - Click the white square next to **Odd rows**, **Even rows**, or **Background**, and then select a color. You can choose one of the provided colors, reset the background color to the default color, or create a custom color.

Customize the cell borders

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Cells**.
3. In the **Borders** section, do one or more of the following:
    - To customize the type of border that you want, click a border type icon. You can choose no borders, horizontal borders only, vertical borders only, or all borders.

- To customize the border thickness, select a border thickness from the drop-down.
- To customize the border color, click the gray square next to **Borders**, and then select a color. You can choose one of the provided colors, reset the border color to the default color, or create a custom color.

Related topics

- Format headers in tables and pivot tables
- Customize totals and subtotals in tables and pivot tables
- Resize rows and columns in tables and pivot tables
- Hide or show elements in pivot tables

Customize totals and subtotals in tables and pivot tables

On tables and pivot tables, you can configure how totals or subtotals appear.

Prerequisites

- You have the Insights Author license.
- You have created a table or pivot table. See Use tables as visuals or Use pivot tables for instructions.

Page location

Insights > Analyses > Click an analysis > Click a table or pivot table

Procedures

Display totals in a table

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Totals**.
3. Toggle on **Totals**.
4. (Optional) To move the totals, select a different location in the **Position** section.

Display totals in a pivot table

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Total**.
3. Toggle on **Rows**, **Columns**, or both.
4. (Optional) To move the totals, select a different location from the **Position** drop-down list.

Display subtotals in a pivot table

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Subtotal** and do one or more of the following:
    - To show subtitles on rows, toggle **Rows** on.
    - To show subtotals on columns, toggle **Columns** on.
    - In the **Level** section, choose one of the following:
        - To show only the subtotal of the last field in the chart's hierarchy, select **Last**. This is the default option.
        - To show subtotals for every field, select **All**.
        - To customize which fields show subtotals, select **Custom**.

You can't change the position of the subtotals of a pivot table. If your pivot table uses a hierarchy layout, the subtotal rows appear at the top of the table. Tabular pivot table subtotals appear at the bottom of the table.

Rename totals or subtotals

Renaming the totals in tables and pivot tables can provide better context for readers.

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Total** or **Subtotal**. (Subtotals appear in pivot tables only.)
3. Enter the new name in the **Label** field.
4. (Optional) For tabular pivot tables, you can also add group names to subtotals. To add a group name to row subtotals, click the plus (+) icon next to the **Label** field to add the group name parameter that you want. You can also enter a word or short phrase in this field.

Format the text of totals and subtotals

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Total** or **Subtotal**. (Subtotals appear in pivot tables only.)

3. In the **Text** section, do one or more of the following.
    - To customize the size of the text, select a text size from the drop-down list. Size options range from 10 to 64.
    - To change the font color, click the black square next to **Text**, and then select a color. You can choose one of the provided colors, reset the text color to the default color, or create a custom color.

Customize the background color for totals and subtotals

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Total** or **Subtotal**.
3. Click the white square next to **Background** and then select a color. You can choose one of the provided colors, reset the background color to the default color, or create a custom color.

Customize the borders for totals and subtotals

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Total** or **Subtotal**.
3. In the **Borders** section, do one or more of the following:
    - To customize the type of border that you want, click a border type icon. You can choose no borders, horizontal borders only, vertical borders only, or all borders.
    - To customize the border thickness, select a border thickness from the drop-down.
    - To customize the border color, click the gray square next to **Borders**, and then select a color. You can choose one of the provided colors, reset the border color to the default color, or create a custom color.

Apply subtotals' styling to cells in a pivot table

In pivot tables, you can apply any text, background color, and border styling you apply to subtotals to cells in that same column or row. Row subtotals appear differently depending on the layout that your pivot table uses. For tabular pivot tables, explicit subtotal headers appear on the visual. Hierarchy pivot tables do not have explicit subtotal headers. Instead, you can apply subtotal styling to individual fields from the **Format visual** menu. Collapsed headers cannot be styled as subtotals.

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Subtotal**.
3. Select one of the following options from the **Apply styling to** drop-down list:

- **None**—Removes styling options from all cells.
- **Headers only**—Applies styling options to all headers in the pivot table.
- **Cells only**—Applies styling options to all cells that aren't headers in the pivot table.
- **Headers and cells**—Applies styling options to all cells in the pivot table.

Related topics

- Format headers in tables and pivot tables
- Customize cell formatting in tables and pivot tables
- Resize rows and columns in tables and pivot tables
- Hide or show elements in pivot tables

Resize rows and columns in tables and pivot tables

Prerequisites

- You have the Insights Author license or the Insights Reader license.
- You have created a table or pivot table. See Use tables as visuals or Use pivot tables for instructions.

Page location

Insights > Analyses > Click an analysis > Click a table or pivot table.

Procedures

Resize a row

You can adjust the row height by selecting the horizontal lines on cells and row headers.

- Hover your cursor over the line that you want to resize until you see the horizontal cursor appear. When it appears, click the line and drag it to a new height.

Resize a column width

You can adjust the column width by selecting the vertical lines on cells, column headers, and row headers.

- Hover your cursor over the line that you want to resize until you see the vertical cursor appear. When it appears, click the line and drag it to a new width.

Set the default width for columns in a pivot table

You need the Insights Author license to do this. Column width is measured in pixels.

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Cells**.
3. Enter the width in the **Column width (pixels)** field.

Related topics

- Format headers in tables and pivot tables
- Customize cell formatting in tables and pivot tables
- Customize totals and subtotals in tables and pivot tables
- Hide or show elements in pivot tables

Hide or show elements in pivot tables

You can customize how Insights readers view pivot tables so that they are easier to read and understand at a glance. These options remove clutter from pivot tables and provide an easier reader experience for Insights users.

> **NOTE** This is not the same as choosing a pivot table layout. For more information on pivot table layout options, see the "Choose a layout" procedure in Create a pivot table.

Prerequisites

- You have the Insights Author license.
- You have created a pivot table. See Use pivot tables for instructions.

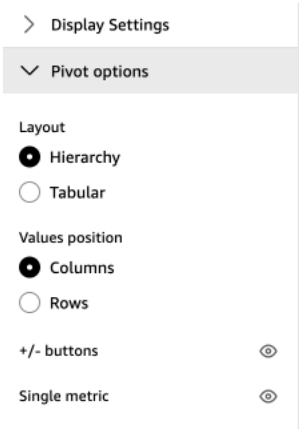
Page location

Insights > Analyses > Click an analysis > Click a pivot table

Procedure

Hide or show elements in pivot tables

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Pivot options**.
3. Do one or more of the following:
    - To hide the + or - icons, click **Hide +/- buttons** (the eyeball icon) next to **+/- buttons**.
    - To hide columns that have only a single metric value, click **Hide single metric** (the eyeball icon) next to **Single metric**.
    - (For tabular pivot tables only) To hide all collapsed columns, click **Hide collapsed column**s (the eyeball icon) next to **Collapsed columns**.



Related topics

- Format headers in tables and pivot tables
- Customize cell formatting in tables and pivot tables
- Customize totals and subtotals in tables and pivot tables
- Resize rows and columns in tables and pivot tables

Link contact IDs to media player recordings in Insights

You can insert hyperlinks to Contact IDs when you use the Contacts dataset in your Insights Analyses, allowing you to open a contact directly from Insights by clicking on its ID.

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.
- You have the View Content permission.
- You have the View QM Data permission.
- You have created a new analysis using the Contacts dataset with the following fields and filters:
    - Fields: Contact Start Time (under the Contact Date folder), Contact ID (under the Contact Properties folder), Contact URL Path(under the Contact Properties folder)
    - Filters: Contact Start Time, Contact URL Path. For more information on creating an analysis, see Create an analysis in Insights

Page location

Insights > Analyses > Click the Contacts analysis

Procedures

Step 1: Change the visual type

1. Click **Visualize** (the graph icon in the upper-left corner). The **Visuals** pane opens.
2. Click **Change Visual Type** and click **Table**  .

Step 2: Add a control to the Contact Start Time filter

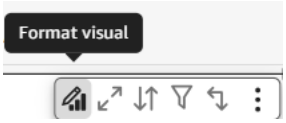
1. Click **Filter** (the funnel icon, upper-left corner of the page). The **Filters** pane opens showing any filters applied to the analysis.
2. Click the three dots next to **Contact Start Time**, select **Add control**, and click **Top of this sheet**.
3. Click **Controls** tile in the sheet and add the **Contact Start Time between** within the date range you want to view data for.

Step 3: Hide Contact Start Time filter

1. Click **Visualize** (the graph icon in the upper-left corner). The **Visuals** pane opens.
2. Click the three dots next to **Contact Start Time**, and select **Hide**.

Step 4: Add an action to the visual

1. Click **Format visual**. The **Properties** pane opens.

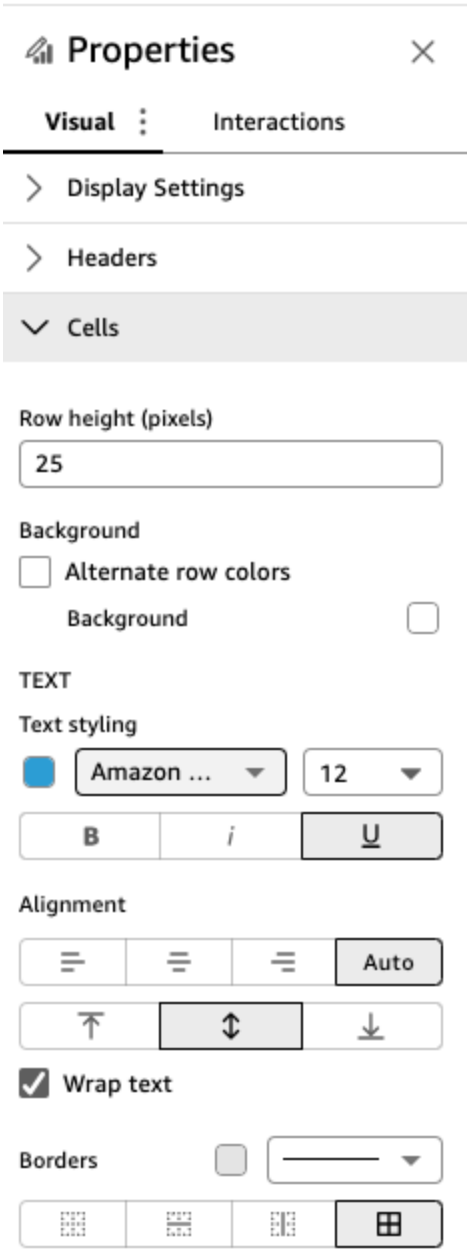


2. Click **Interactions**.
3. Expand **Actions** section and click **Add Action**. The **New action** pane opens.
4. Configure the new action with the following details:
    - Enter a name in the **Action name** field.
    - For **Activation**, select **Select** as the activation type.
    - From the **Action type** drop-down, select **URL action**.
    - In the **URL** field enter: `https://<<{Contact URL Path}>>`.
    - For the **Open in** option, select **New browser tab**.
    - Click **Save**.

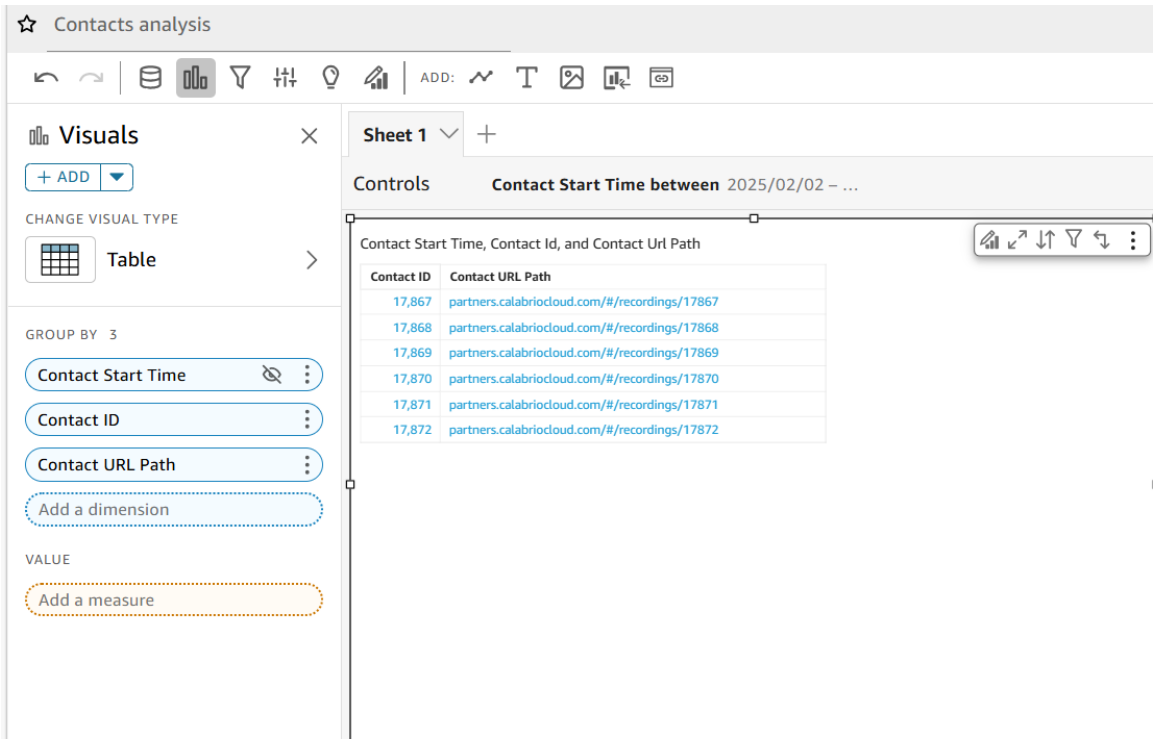
Step 5: Format field and cell sections

1. In the **Properties** panel, select the **Visual** tab.
2. Expand **Field styling** and configure it with the following selections:
    - **Select field to style:** Contact Start Time
    - **URL options:** Make URLs hyperlinks
    - **Open in:** New tab
    - **Style as:** Link

3. Expand **Cells** and change **Text styling** to **Amazon Ember** from the drop-down menu. The other settings are already configured. Refer to the image below for the final selection.



4. The final visual displays **Contact ID** and **Contact URL Path** in a table format. Click a link in the **Contact ID** or **Contact URL Path** column to open the corresponding recording in the QM Media Player.

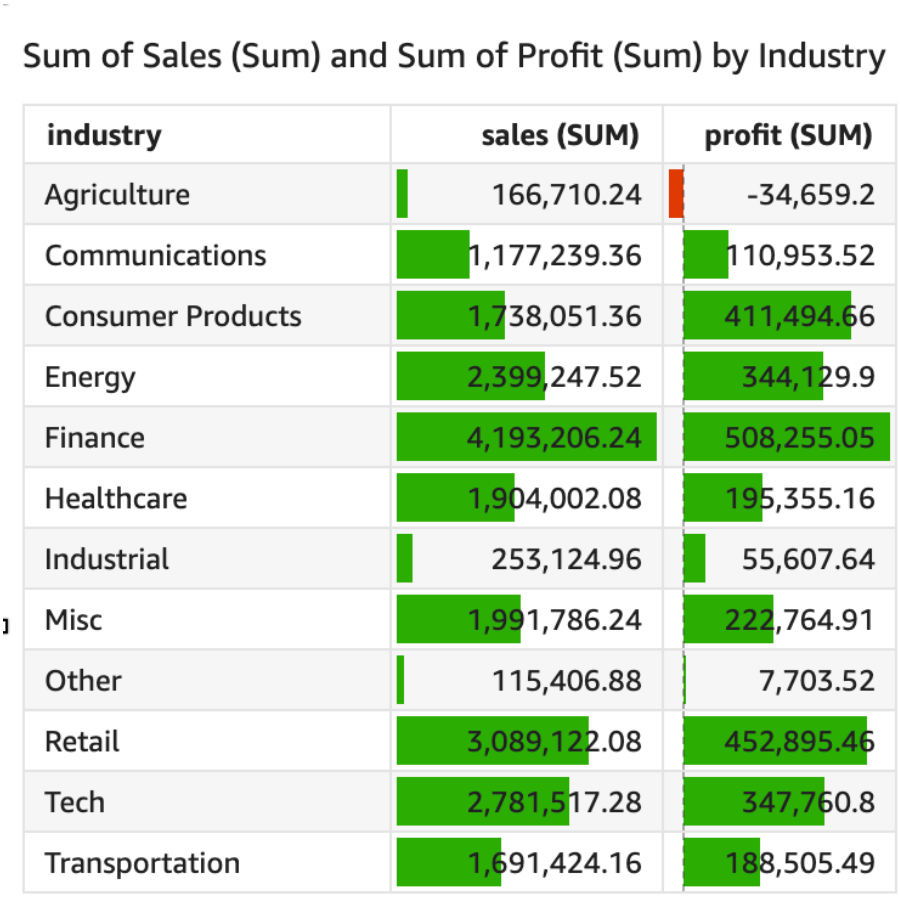


Related topics

- Add filters to an analysis
- Format a visual in Insights
- Style URL fields in tables

Add colored data bars to tables in Insights

You can use data bars to add visual context to your tables in Insights. By injecting color into your tables, data bars can make it easier to visualize and compare data in a range of fields. Data bars are bars of different colors or shades that you add to the cells of a table. The bars are measured relative to the range of all cells in a single column, which is similar to a bar chart. You can use data bars to highlight a fluctuating trend, such as profit per quarter during the year.



Prerequisites

- You have the Insights Author license.
- You have created a table. See Use tables as visuals for instructions.

Page location

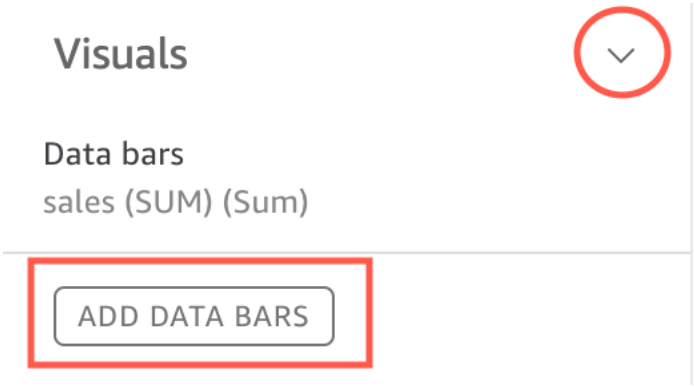
Insights > Analyses > Click an analysis > Click a table

Procedures

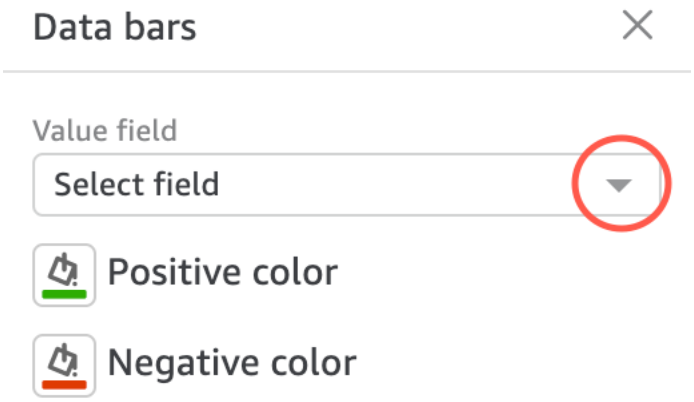
Add data bars to a table

You can create up to 200 different data bar configurations for a single table.

1. Click the **Format visual** icon in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Visuals**.
3. Click **Add Data Bars**. The **Data bars** window opens.



4. Select the field that you want data bars to represent from the **Value field** drop-down list. The options in this list come from the **Value** field well. You cannot add colored data bars to fields in the **Group By** field wells.

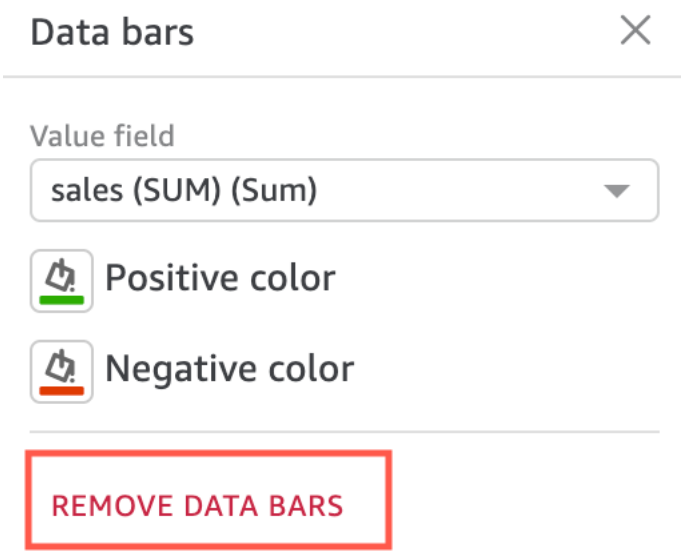


5. (Optional) To add colored data bars for more fields, repeat steps 3 and 4. The **Visuals** section lists data bars in the order that you add them.
6. (Optional) To change the color that represents positive-value data bars, click the paint bucket icon next to **Positive color** and select a color. The default color is green.
7. (Optional) To change the color that represents negative-value data bars, click the paint bucket icon next to **Negative color** and select a color. The default color is red.



Remove data bars from a table

1. Click the **Format visual** menu in the upper-right corner of the table. The **Properties** panel opens.
2. Expand **Visuals**.
3. Click the pencil icon next to the field that you want to remove the data bars from. The **Data bars** window opens.
4. Click **Remove Data Bars**.



Related topics

- Use tables as visuals
- Format tables and pivot tables in Insights
- Customizing data presentation

Customize maps in Insights

In Insights, you can choose from multiple formatting options for your maps.

Prerequisites

- You have the Insights Author license.
- You have created a map.

Page location

Insights > Analyses > Click an analysis > Click a map

Procedures

View the formatting options for maps

- Click the **Format visual** icon in the upper-right corner of the map. The **Properties** panel opens.

Topics in this section

- Use heat maps

Customize backgrounds on maps in Insights

When you create a map visual in Insights, you can change the background, or base, of the map. A *base map* is the style of map that appears beneath your data on a map.

EXAMPLE A satellite view versus a street view.

Prerequisites

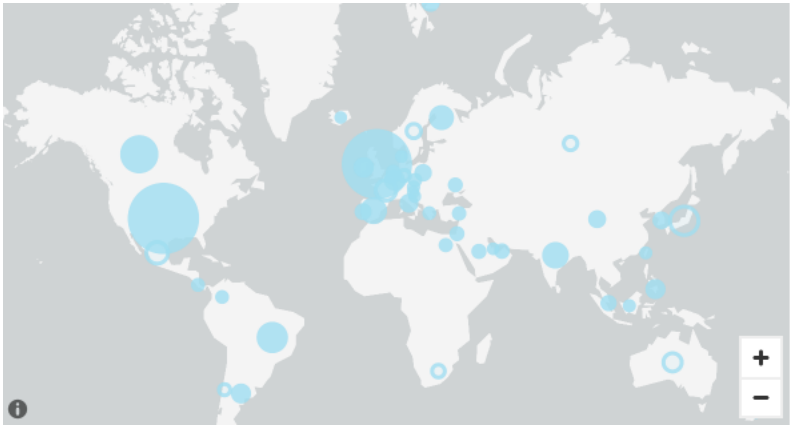
- You have the Insights Author license.
- You have created a map.

Page location

Insights > Analyses > Click an analysis > Click a map

In Insights, there are four options for base maps: light gray canvas, dark gray canvas, streets, and imagery. An example of each appears following:

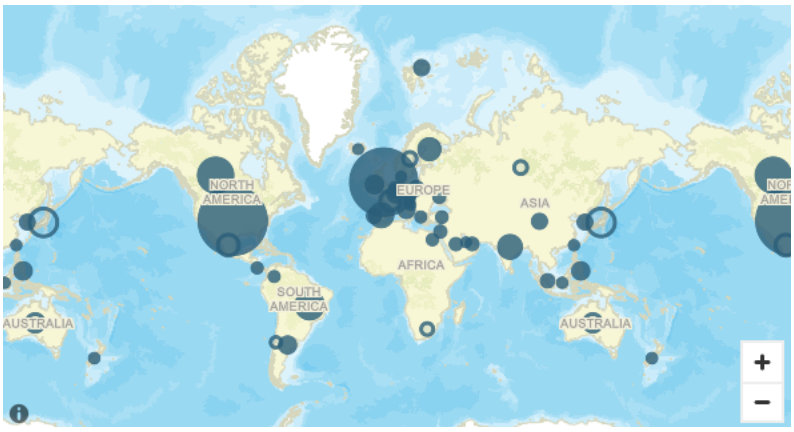
- Light gray canvas



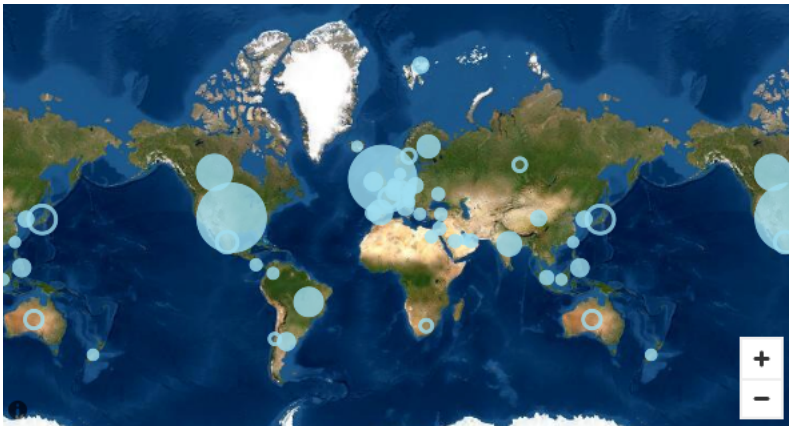
- Dark gray canvas



- Streets



- Imagery



Procedure

Change a base map

1. Click the **Format visual** icon in the upper-right corner of the map. The **Properties** panel opens.
2. Expand **Base map**.
3. Select a base map style.

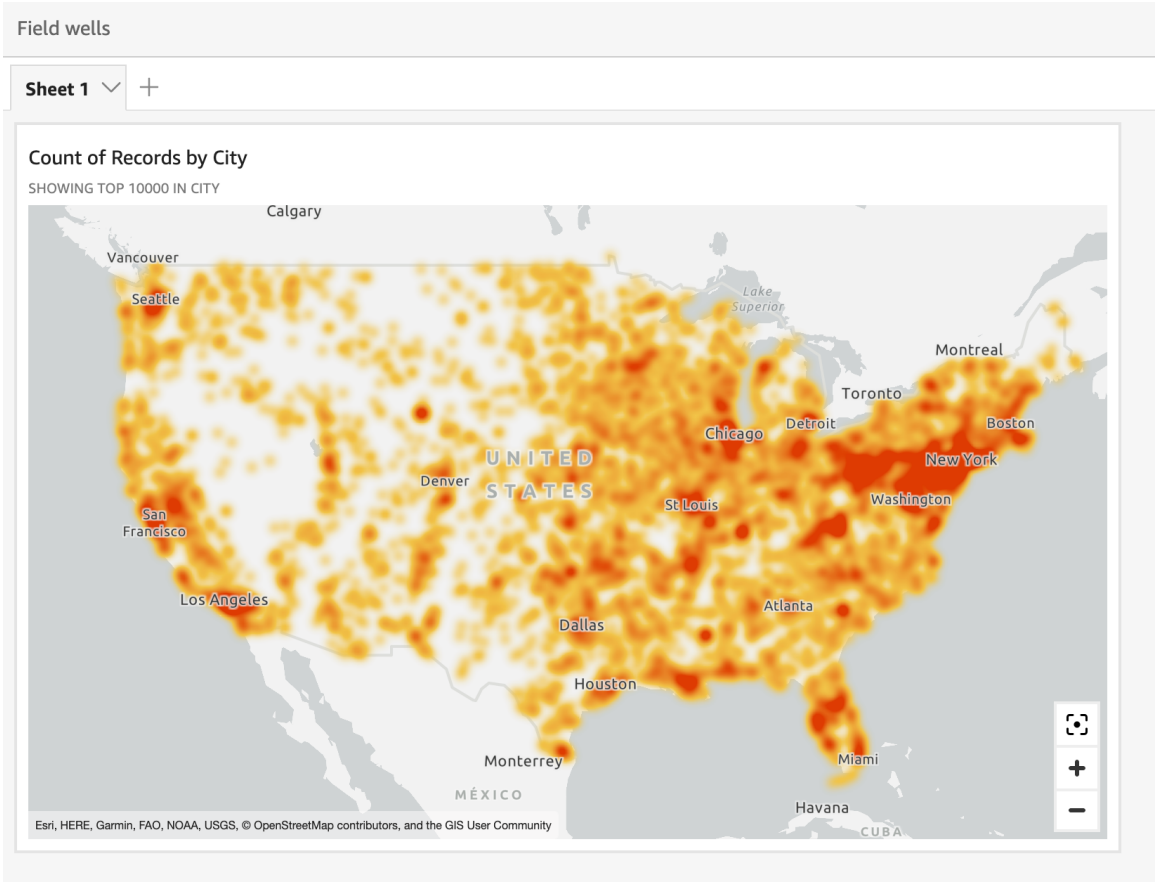
Related topics

- Customize maps in Insights
- Create maps in Insights

- Create a heatmap in Insights

Create a heatmap in Insights

Use heatmaps to reveal patterns of marker concentration in your point maps. Heat maps display concentrations of data points using a colored overlay that highlights the intensity or concentration of the visual's markers.



Prerequisites

- You have the Insights Author license.
- You have created a point map. See Create point maps for instructions.

Page location

Insights > Analyses > Click an analysis > Click a map

Procedure

Turn a point map into a heat map

1. Click the **Format visual** icon on the upper-right corner of the map. The **Properties** panel opens.
2. Expand **Points**.
3. Select **Heatmap**.
4. (Optional) To change the colors, click the blue squares next to **High density** and **Low density** and select a color.

Related topics

- Create point maps
- Customize backgrounds on maps in Insights

Format axes and grid lines on visual types in Insights

When you create a chart in Insights, axis lines, axis labels, axis sort icons, and grid lines are added to the chart automatically. You can format your visuals to show or hide these if you want, and also customize the axis label size and orientation.

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.
- You have added these visuals to your analysis:
  - Bar charts
  - Box plot charts
  - Combo charts
  - Histograms
  - Line charts

- Scatter plots
- Waterfall charts

Page location

Insights > Analyses > Click an analysis > Click a visual > Properties panel > Expand the axis that you want to format

Procedures

Show or hide the axis line

- Click the eye icon next to **Axis line** to show or hide the axis line.

Show or hide axis titles

- Click the eye icon next to **TITLE** to show or hide the axis title.

Customize axis titles

- To change the title from the default field name, enter a title in the text box.

> **NOTE** In addition to the chart types listed previously in this topic, you can also customize the axis titles in pie charts, donut charts, funnel charts, heat maps, and tree maps.

Show or hide the sort icon

When you choose to remove the sort icon, the sort icon is removed from the axis. Any sorts that were applied to the visual before removing the icon are not removed from the visual.

- Click the eye icon next to **Sort** to show or hide quick sort icon.

> **NOTE** In addition to the chart types listed previously in this topic, you can also show or hide the sort icon in pie charts, donut charts, funnel charts, heat maps, and tree maps.

Show or hide the data zoom

- Click the eye icon next to **Data zoom** to show or hide data zoom.

The data zoom bar appears automatically on charts with an X-axis that contain more than one data point. Adjust the bar from the left and right to zoom to specific data points in the chart.

> **NOTE** Zoom in or out using the data zoom bar. If you then hide the data zoom bar, the zoom position isn't maintained. The visual zooms completely out to include all data points. Show the data zoom bar again to return the visual to its previous state.

Show or hide labels

- Click the **Labels** toggle to enable or disable labels on the visual.

Specify number of data points

- Enter a value to specify the **Number of data points to show**.

Show or hide grid lines

- Click the eye icon next to **Grid lines** to show or hide the grid lines.

Change the label size

- Click the **Label size** drop-down, and select a size.

Change the label orientation

- For **Label orientation**, click an option to select the orientation.

Related topics

- Visual types in Insights
- Format a visual in Insights
- Use bar charts
- Use box plots
- Use combo charts
- Use histograms
- Use line charts
- Use scatter plots
- Use waterfall charts

Colors in visual types in Insights

You can change the color of one, some, or all elements on the following types of charts:

- Bar charts
- Donut charts
- Gauge charts
- Heat maps
- Line charts
- Scatter plots
- Tree maps

To change colors on bar charts, donut charts, gauge charts, line charts, and scatter plots, see Changing colors on charts.

To change colors on heat maps and tree maps, see Changing colors on heat maps and tree maps.

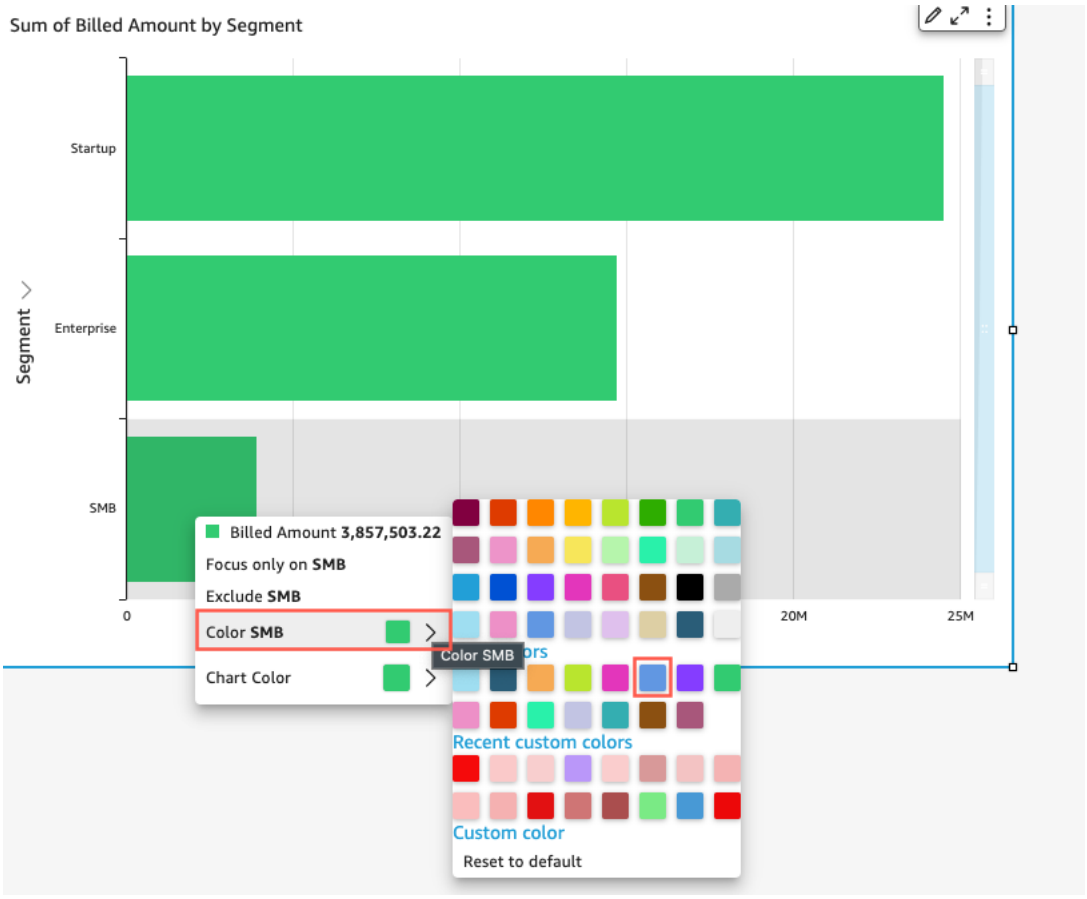
Changing colors on charts

You can change the chart color used by all elements on the chart, and also change the color of individual elements. When you set the color for an individual element, it overrides the chart color.

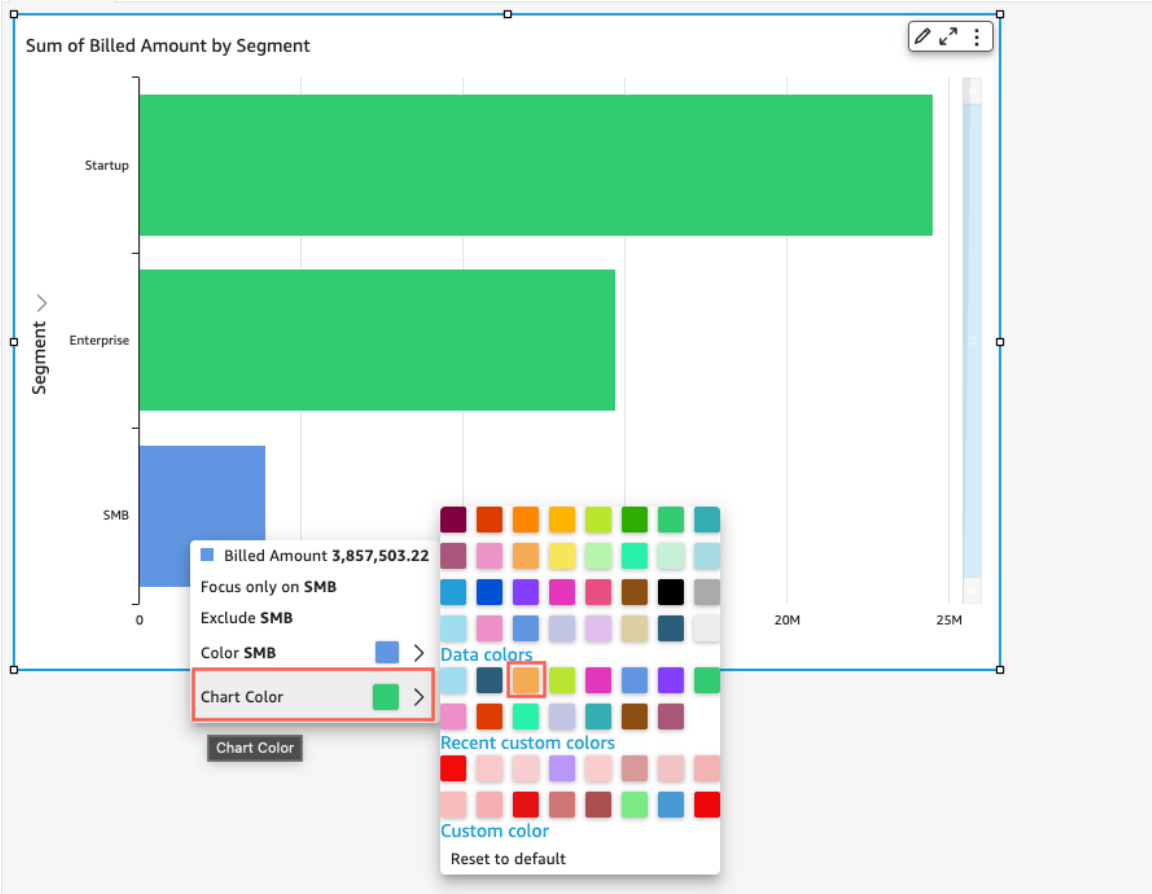
For example, suppose that you set the chart color to green.



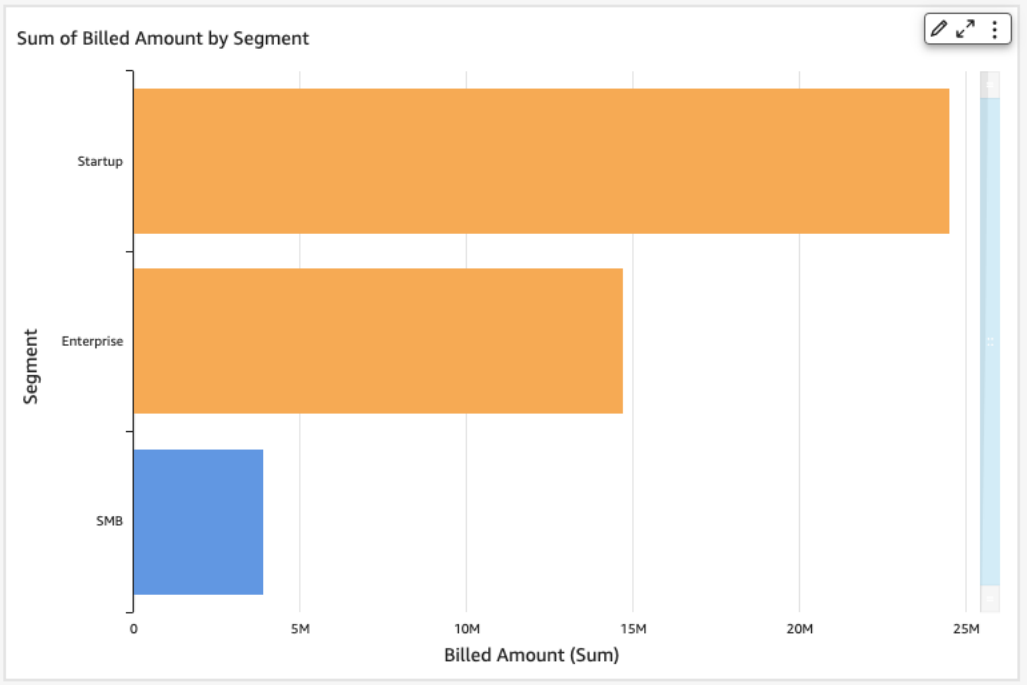
All of the bars turn green. Even though you choose the first bar, the chart color applies to all the bars. Then you set the color for the SMB bar to blue.



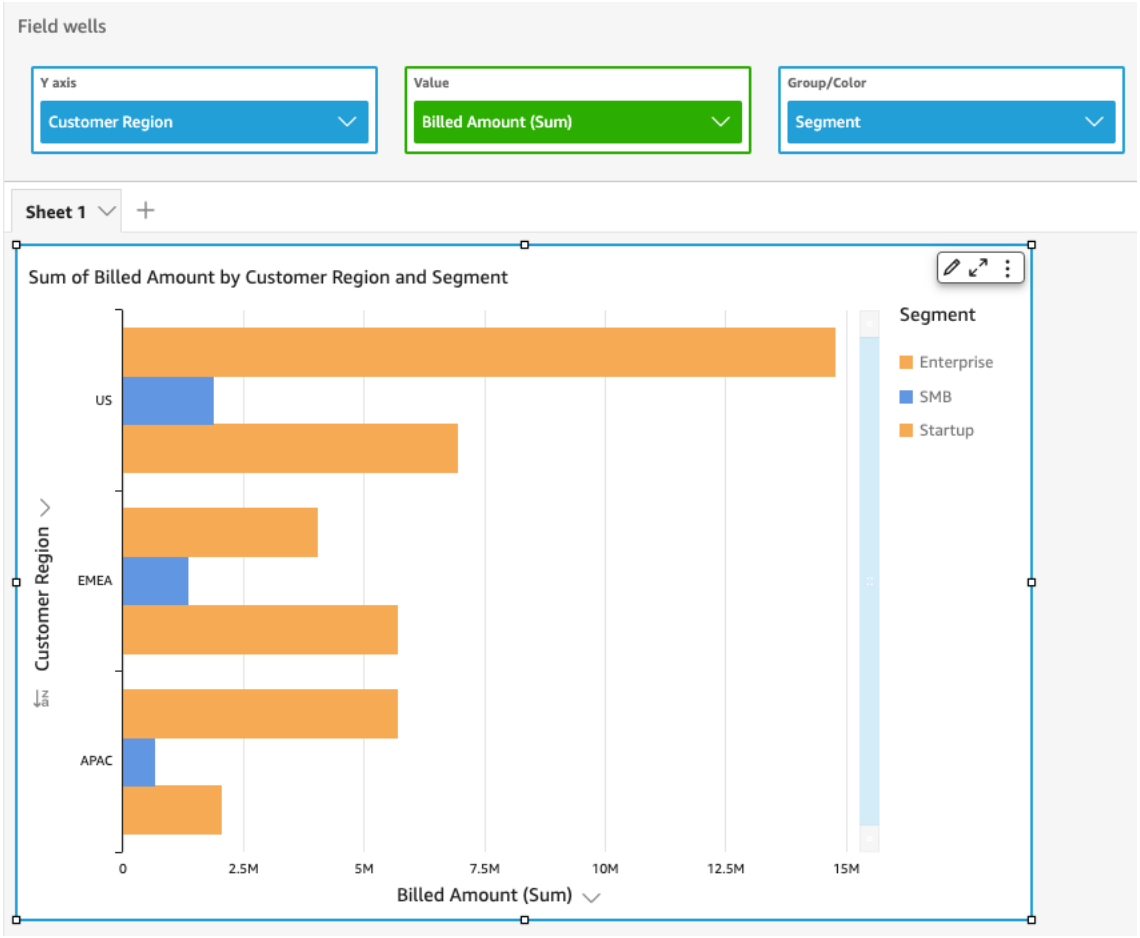
Looking at the result, you decide that you need more contrast between the green and blue bars, so you change the chart color to orange. If you are changing the chart color, it doesn't matter which bar you choose to open the context menu from.



The SMB bar remains blue. This is because it was directly configured. The remaining bars turn orange.



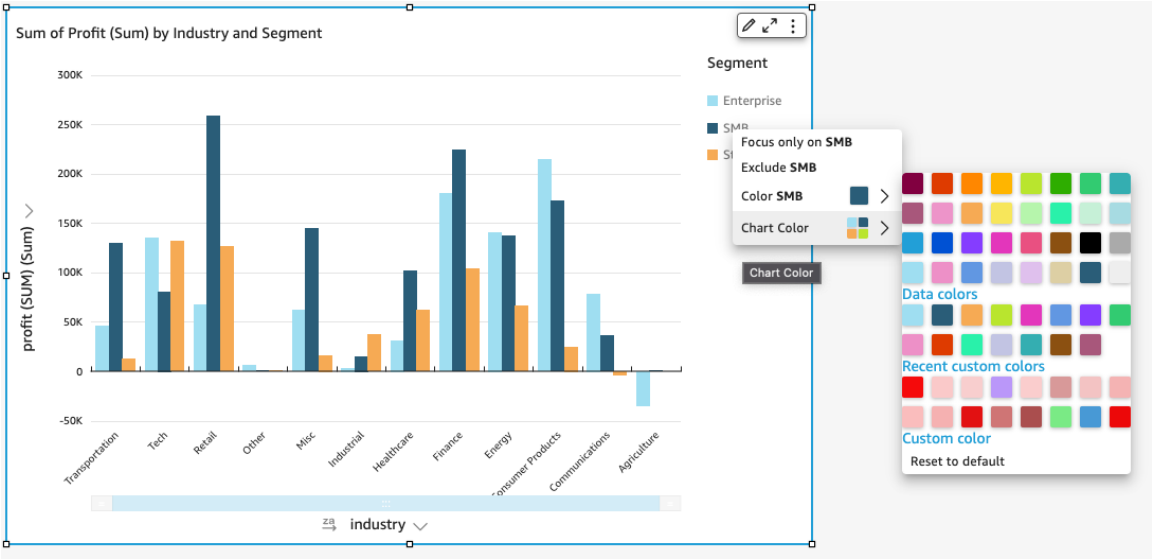
When you change the color of an element that is grouped, the color for that element is changed in all of the groups. An example is a bar in a clustered bar chart. In the following example, Customer Segment is moved out of the Y-axis and into the Group/Color field well. Customer Region is added as the Y-axis. The chart color stays orange, and SMB stays blue for all Customer Regions.



If your visual has a legend that shows categories (dimensions), you can click on the values in the legend to see a menu of available actions. For example, suppose that your bar chart has a field in the Color or Group/Color field well. The bar chart menu displays the actions that you can choose by clicking or right-clicking on a bar, such as the following:

- Focusing on, or excluding, visual elements
- Changing colors of visual elements
- Drilling down into a hierarchy
- Custom actions activated from the menu, including filtering or URL actions

Following is an example of using the legend to change the color for a dimension.



Setting new colors for a visual

Use the following procedure to change the colors for a visual.

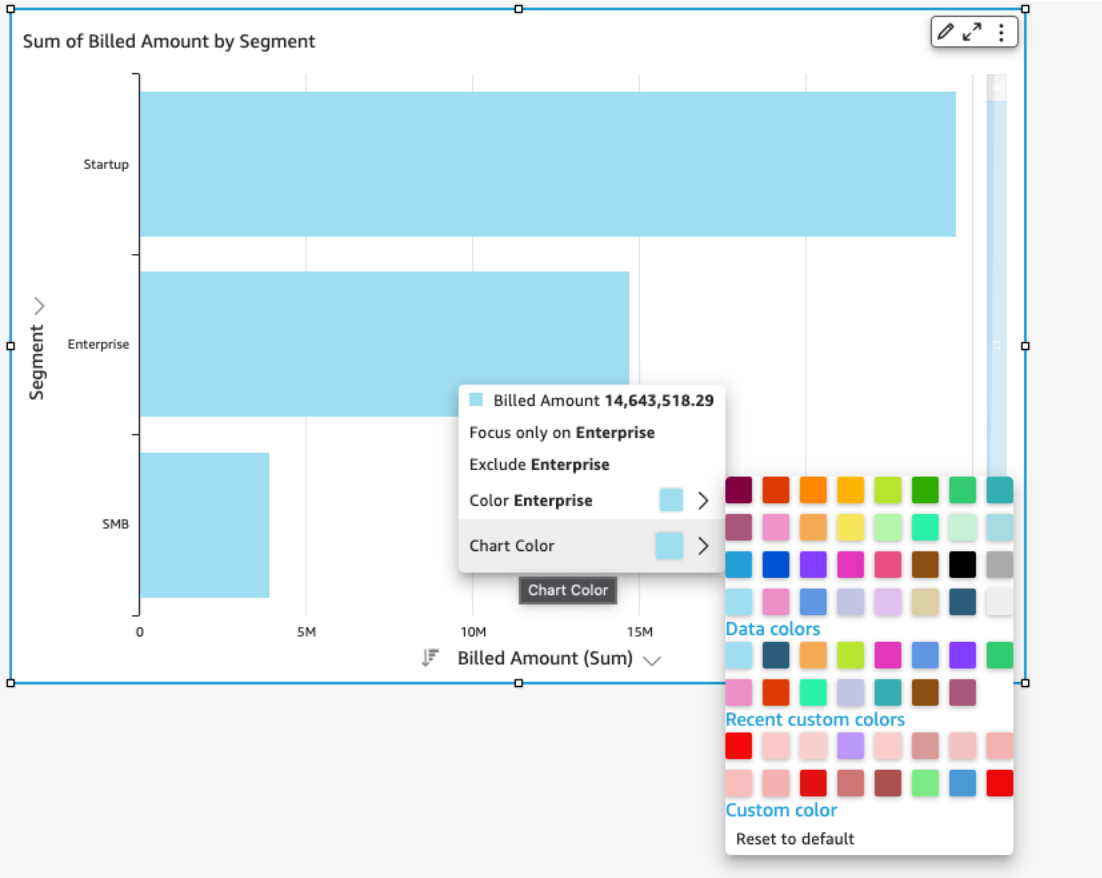
To change the colors for a visual

1. On the analysis page, choose the visual that you want to modify.
2. To change the chart color, choose any element on the visual, and then choose Chart Color.

   To select elements, do the following:

   - On a bar chart, choose any bar.
   - On a line chart, choose the end of a line.
   - On a scatter plot, choose an element. The field must be in the Group/Color section of Field wells.
3. Choose the color that you want to use. You can choose a color from the existing palette, or you can choose a custom color. To use a custom color, enter the hexadecimal code for that color.

   All elements on the visual are changed to use this color, except for any that have previously had their color individually set. In that case, the element color overrides the chart color.



4. To change the color for a single element on the visual, choose that element, choose Color <field name>, and then choose the color that you want to use. You can choose a color from the existing palette, or you can choose a custom color. To use a custom color, enter the hexadecimal code for that color.

   Repeat this step until you have set the color on all elements that you want to modify. To change the color back to the color it was originally, choose Reset to default.

Setting visual colors back to defaults

Use the following procedure to return to using the default colors on a visual.

To return to default colors on a visual

1. On the analysis page, choose the visual that you want to modify.
2. Choose Chart Color, choose any element on the visual, and then choose Reset to Default. Doing this changes the chart color back to the default color for that visual type.

All elements on the visual are changed to the default color for the visual type, except for any that have previously had their color individually set. In that case, the element color setting overrides the chart color setting.

3. To change the color for a single element back to the default, choose that element, choose Color <field name>, and then choose Reset to Default.

   The default color for individual elements is the chart color if you have specified one, or the default color for the visual type otherwise.

Changing colors on heat maps and tree maps

To change the colors that display on a heat map or a tree map

1. Choose the heat map or tree map that you want to edit.
2. Choose Expand for the settings menu, and choose the cog icon to open the Format visual panel.
3. For Color, choose the settings that you want to use:
4. For Gradient color or Discrete color, choose the color square next to the color bar, and then choose the color that you want to use. Repeat for each color square. The bar holds two colors by default.
5. Select the Enable 3 colors check box if you want to add a third color. A new square appears in the middle of the color bar.

   You can enter a number that defines the midpoint between the two main gradient colors. If you add a value, the middle color represents the number you entered. If you leave this blank, the middle color acts like the other colors in the gradient.
6. Select the Enable steps check box if you want to limit the chart to the colors that you chose. Doing this changes the label on the color bar from Gradient color to Discrete color.
7. For Color for Null Value, choose a color to depict NULL values. This option is only available on heat maps.

Working with field-level coloring in Insights

With field level coloring, you can assign specific colors to specific field values across all visuals in an Insights analysis or dashboard. Colors are assigned on a per-field basis to simplify the process of setting colors and ensure consistency across all visuals that use the same field. For example, let's say you're a shipping company that wants to create a set of visuals that track shipping rates in different regions. With

field level coloring, you can assign each region a different color to represent the field across all visuals in an analysis or dashboard. This way, account readers quickly learn what field colors they're looking for and have an easier time finding the information that they need.

Insights authors can configure up to 50 field based colors per field. Colors that are defined at the visual level take precedence over field based colors. This means that if the author sets a color for a value on the visual, that color will override the field based colors configuration for that individual visual.

To apply field level coloring to a legacy account

1. In the Fields pane of the analysis, choose the ellipsis (three dots) next to the field that you want to assign a color to, and then choose Edit field colors.
2. In the Edit field colors pane that appears, choose the value that you want to assign a color to and choose the color that you want. You can apply colors to every value that appears in the Field values pane.
3. When you are finished assigning colors to the fields that you want, choose Apply.

If you want to reset the color value of a field, open the Edit field colors pane and choose the refresh icon next to the field that you want to reset. You can reset all color values in an analysis by choosing RESET COLORS.

You can view a list of unused colors that can be configured to new fields by choosing Show unused colors in the Edit field colors pane. When you reset a field's color, the discarded color is added to the Unused colors list and can be assigned to a new field.

Conditional formatting on visual types in Insights

In some visual types, you can add conditional formatting to highlight some of your data. The conditional formatting options currently supported include changing text or background color and using symbolic icons. You can use icons from the provided set, or you can use Unicode icons instead.

Conditional formatting is available on the following visuals:

- Gauge charts
- Key performance indicators (KPIs)
- Pivot tables
- Tables

For tables and pivot tables, you can set multiple conditions for fields or supported aggregations, along with format options to apply to a target cell. For KPIs and gauge charts, you can format the primary value based on conditions that are applied to any dimension in the dataset. For gauge charts, you can also format the foreground color of the arc based on conditions.

To use conditional formatting on a visual

1. On the analysis page, choose the visual that you want to format.
2. On the visual, open the context menu on the down icon at the upper-right. Then choose Conditional formatting.

   Options for formatting display on the left. Choose one of the following:

   - For pivot tables – Begin by choosing a measure that you want to use. You can set conditional formatting on one or more fields. The selection is limited to the measures that are in the Values field well.
   - For tables – Begin by choosing a field that you want to use. You can set conditional formatting on one or more fields. You can also choose to apply formatting to the entire row. Formatting the entire row adds an option to Apply on top, which applies the row formatting in addition to formatting added by other conditions.
   - For KPIs – Apply formatting to the primary value or the progress bar or both.
3. For the remaining steps in this procedure, choose the features that you want to use. Not all options are available for all visuals.
4. (Optional) Choose Add background color to set a background color. If a background color is already added, choose Background.

   - Fill type – The background color can be Solid or Gradient. If you choose to use a gradient, additional color options display, enabling you to choose a minimum and maximum value for the gradient scale. The minimum value defaults to the lowest value, and the maximum value defaults to the highest value.
   - Format field based on – The field to use when applying the format.
   - Aggregation – The aggregation to use (displays only the available aggregations).
   - Condition – The comparison operator to use, for example "greater than".
   - Value – The value to use.

- Color – The color to use.
- Additional options: In pivot tables, you can set what you want to format by choosing options from the context menu (…): Values, Subtotals, and Totals.

5. (Optional) Choose Add text color to set a text color. If a text color is already added, choose Text.
    - Format field based on – The field or item to use when applying the format.
    - Aggregation – The aggregation to use (displays only the available aggregations). This option applies to tables and pivot tables.
    - Condition – The comparison operator to use, for example "greater than".
    - Value – The value to use.
    - Color – The color to use.
    - Additional options: In tables and pivot tables, you can set what you want to format by choosing options from the context menu (…): Values, Subtotals, and Totals.
6. (Optional) Choose Add icons to set an icon or icon set. If an icon is already added, choose Icon.
    - Format field based on – The field or item to use when applying the format.
    - Aggregation – The aggregation to use (displays only the available aggregations). This option applies to tables and pivot tables.
    - Icon set – The icon set to apply to field in Format field based on. This option applies to tables and pivot tables.
    - Reverse colors – Reverses the colors of the icons for tables and pivot tables.
    - Custom conditions – Provides more icon options for tables and pivot tables.
    - Condition – The comparison operator to use.
    - Value – The value to use.
    - Icon – The icon to use. To choose an icon set, use the Icon symbol to choose the icons to use. Choose from the provided icon sets. In some cases, you can add your own. To use your own icon, choose Use custom Unicode icon. Paste in the Unicode glyph that you want to use as an icon. Choose Apply to save or choose Cancel to exit icon setup.
    - Color – The color to use.

- Show icon only – Replaces the value with the icon for tables and pivot tables.
- Additional options:
  - In tables and pivot tables, you can set what you want to format by choosing options from the context menu (…): Values, Subtotals, and Totals.
  - In pivot tables, enabling Custom conditions activates preset conditional formatting that you can keep, add to, or overwrite with your own settings.

7. (Optional) Choose Add foreground color to set the foreground color of a KPI progress bar. If a foreground color is already added, choose Foreground.
   - Format field based on – The field to use when applying the format.
   - Condition – The comparison operator to use.
   - Value – The value to use.
   - Color – The color to use.
8. When you are finished configuring conditional formatting, choose one or more of the following:
   - To save your work, choose Apply.
   - To cancel selections and return to the previous panel, choose Cancel.
   - To close the settings panel, choose Close.
   - To reset all settings on this panel, choose Clear.

Font and style on visual types in Insights

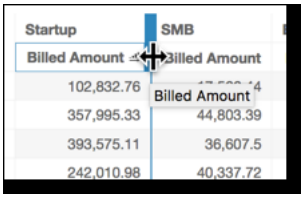
You can choose from several options for styling, including fitting the table to your current view, hiding column field names, changing font sizes. You can also choose to hide the metric label when you use a single metric, to avoid seeing the same metric label repeated on the pivot table.

To customize the styling for a visualization

1. On the analysis page, choose the chart that you want to format.
2. Choose the menu on the visualization ( ), and then choose Format visual ( ).
3. Choose Styling.
4. To prevent displaying a single metric label repeatedly, enable Hide single metric.

5. To hide labels for fields in the Columns field well, enable Hide column field names.
6. To hide collapse ( ) and expand icons ( ), enable Hide +/- buttons.
7. To expand the table to fill your current view, choose Fit table to view. You can't undo this action.

   To shrink the table to fit your current view, you can adjust the width of each column. To do this, grab the right edge of the column, near the column title. Drag the edge in either direction.



8. Choose your preferred font size for each of the following chart types:
   - For KPIs, choose the font sizes for the primary and secondary values.
   - For pivot tables and tables, choose the font sizes for table headers, cells, totals, and subtotals.
   - For other visuals, you can choose font sizes depending on which chart type you are using.

KPI options

You can customize KPIs in Insights to meet your business needs. You can add contextual sparklines or progress bars, assign primary and secondary values, and add conditional formatting to your KPIs.

To format a KPI in Insights, navigate to the KPI that you want to change and choose Format visual to open the Format visual. The icon for the Format visual menu is as follows.



Use the following procedures to perform formatting tasks for KPIs.

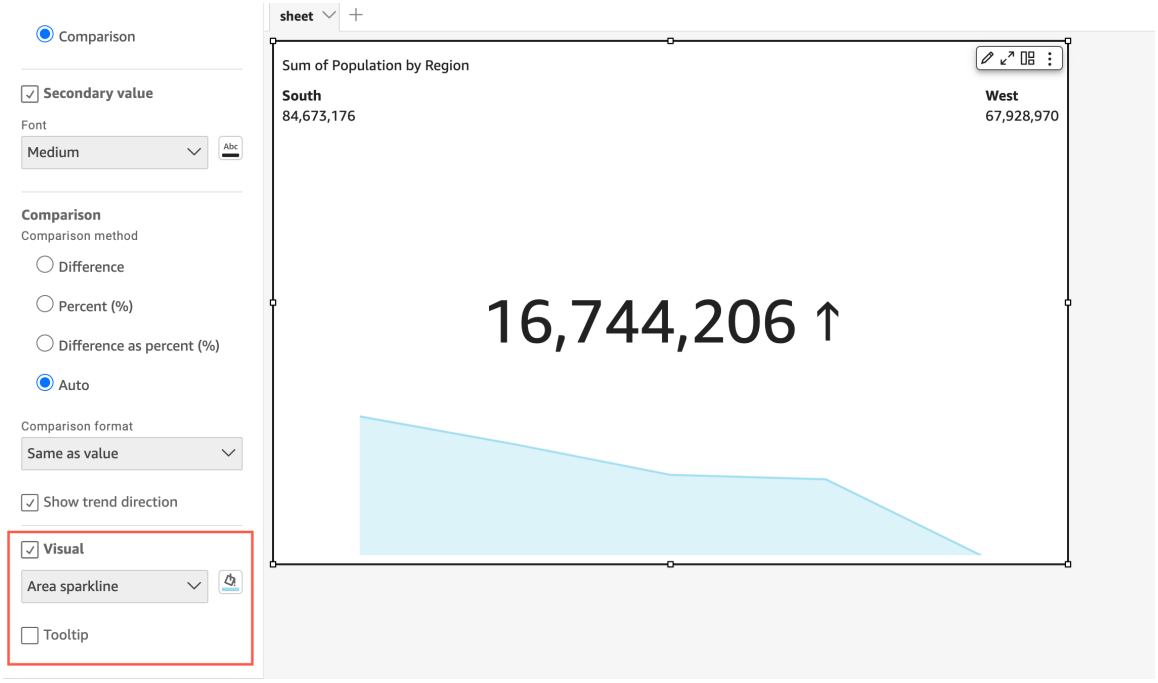
Add a visual to a KPI

You can choose to add an area sparkline, a sparkline, or a progress bar to any KPI in Insights. Adding visuals to KPIs provides visual context to readers who are viewing KPI data. Use the following procedure to add a visual to a KPI.

To add a visual to a KPI

1. Navigate to the KPI that you want to change and open the format visual menu.
2. In the Format visual menu, choose the Visual box to display a visual on your KPI chart.
3. (Optional) Open the Visual dropdown and choose the type of visual that you want to display on your KPI. You can choose to display an area sparkline, a sparkline, or a progress bar. To display a sparkline, make sure that your KPI has a value in the Trend field well. Area sparkline is the default value.
4. (Optional) To change the color of the sparkline, choose the color icon to the left of the Visual dropdown and choose the color that you want. Color formatting isn't supported for the progress bar.
5. (Optional) Choose Add tooltip to add a tooltip to the KPI visual.

The following image shows the Visual section of the Format visual menu.



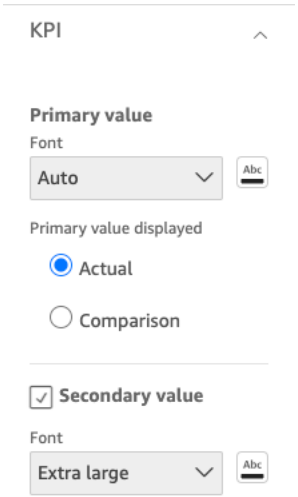
Customizing primary and secondary values

Use the Format visual menu to customize the font, color, and to choose which primary value is displayed. You can also choose to display a secondary value.

To customize the primary and secondary values of a KPI

1. Navigate to the KPI that you want to change, open the Format visual menu, and navigate to the KPI section.
2. For Primary value, use the Font dropdown to choose the font size that you want. The default value is Auto.
3. (Optional) To change the color of the primary value's font, choose the color icon next to the Font dropdown, and then choose the color that you want.
4. For Primary value displayed, you can choose to display the actual value or the comparison value of the primary value.
5. To add a secondary value, choose Secondary value.
    a. (Optional) Use the Font dropdown to choose the font size that you want. The default value is Extra large.
    b. (Optional) To change the color of the secondary value's font, choose the color icon next to the Font dropdown, and then choose the color that you want.

The following images shows the KPI menu.



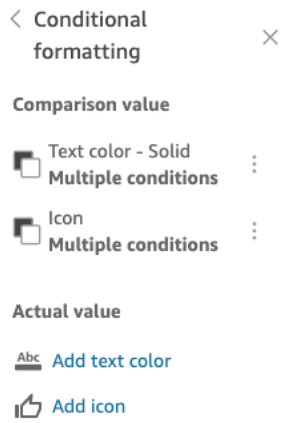
Conditional formatting options for KPIs

Conditional formatting for KPIs is automatically set for comparison values. By default, positive values are represented in green and negative values are represented in red. You can customize the color values of these color values from the Format visual menu.

To change the color of positive and negative values

1. In the Format visual menu, open the Conditional formatting section and choose the comparison value that you want to change.
2. To change the color of the positive value, navigate to Condition #1, choose the Color icon, and then choose the color tht you want.
3. To change the color of the negative value, navigate to Condition #2, choose the Color icon, and then choose the color tht you want.
4. When you are finished making the changes that you want, choose Apply.

You can also add text colors and icons for the Actual value in thee Conditional formatting menu. To add a text color or icon to the actual value, choose Add text color or Add icon to set the new values. The following image shows the Conditional formatting menu of a KPI.

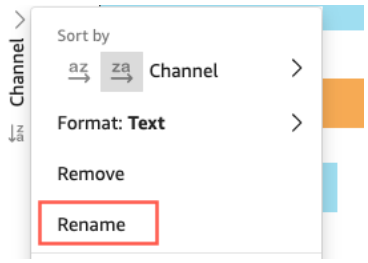


Labels on visual types in Insights

Use the following procedure to customize, display, or hide the labels for a visual.

To customize, display, or hide the labels for a visual

1. On the analysis page, choose the visual that you want to format. You can change the labels by choosing the label directly on the visual, and choosing Rename. To revert to the default name, delete your entry.



2. To see more options, choose the on-visual menu from the down icon at the upper-right corner of the visual, and then choose Format visual.

   For pivot tables, you can relabel row names, column names, and value names. Additionally, under Styling, you can choose to hide columns labels or metric labels (for single metrics only).

   You can add the same value to the same visual multiple times. You can do so to show the same value with different aggregations or table calculations applied. By default, the fields all display the same label. You can edit the names by using the Format Visual panel, which you open by choosing the V-shaped icon at top right.

3. On the Format Visual pane, enable or disable Show title. This option removes the axis title.

4. Close the Format Visual pane by choosing the X icon in the upper-right corner of the pane.

Data labels on visual types in Insights

To customize data labels on a visual, you can use the Format Visual pane to show data labels, and then use the settings to configure them. Data label customization is supported on bar, line, combo, scatter, and pie charts.

You can customize the following options:

- Position, which determines where the label appears in relation to the data point (for bar, combo, and line charts):
  - For vertical bar charts, you can customize to set position:
    - Above bars
    - Inside of bars
    - Bottom of bars
    - Top of bars

        - For horizontal bar charts, you can customize to set position:
            - Right of bars
            - Inside of bars
        - For line charts, you can customize to set position:
            - Above lines
            - Left or right of points on lines
            - Below lines
        - For scatter charts, you can customize to set position:
            - Above points
            - Left or right of points
            - Below points
- Font size and color (for bar, combo, line, scatter, and pie charts)
- Label pattern, which determines how data is labeled (for bar, combo, line, and scatter charts):
    - For bar, combo, and scatter charts, you can label:
        - All
        - By group or color
    - For line charts, the following label options are available:
        - All
        - By group or color
        - Line ends
        - Minimum or maximum value only
        - Minimum and maximum values
    - For pie charts, the following label options are available:

    - Show category
    - Show metric
    - Choose to show the metric label as value, percent, or both
- Group selection (for bars and lines, when the label pattern is "by group/color")
- Allow labels to overlap (for bars and lines), for use with fewer data points
- For vertical bar, combo, and line charts, labels that are too long are angled by default. You can configure the degree of angle under the X-axis settings.

NOTE If you add more than one measure to an axis, the data label displays the formatting for the first measure only.

To configure data labels

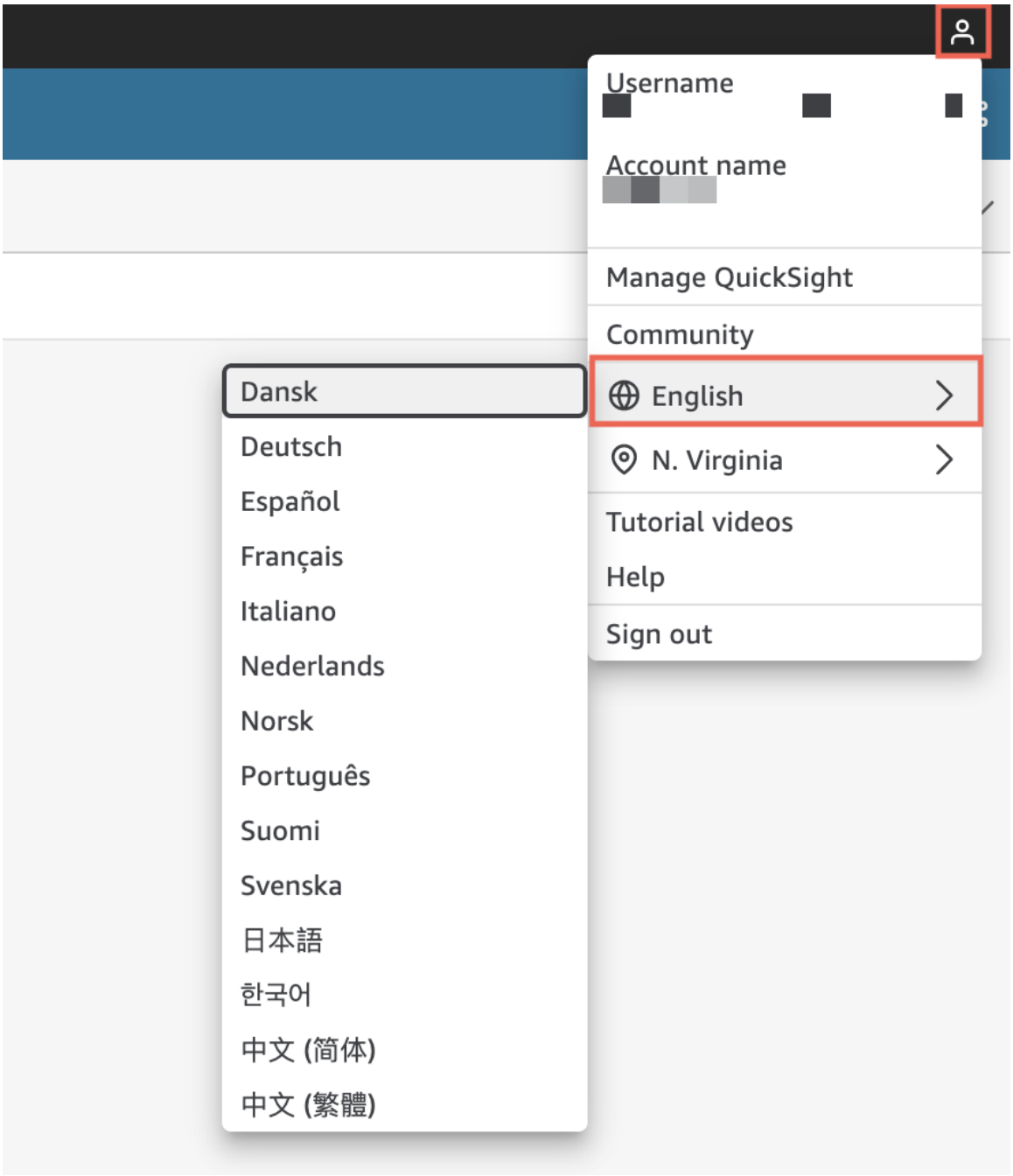
1. On the analysis page, choose the visual that you want to format.
2. Choose the on-visual menu from the down icon at the upper-right corner of the visual, and then choose Format visual.
3. On the Format Visual pane, choose Data Labels.
4. Enable Show data labels to show and customize labels. Disable this option to hide data labels.
5. Choose the settings that you want to use. The settings offered are slightly different for each chart type. To see all available options, see the list before this procedure.

   You can immediately view the effect of each change on the visual.
6. Close the Format Visual pane by choosing the X icon in the upper-right corner of the pane.

Formatting visual numeric data based on language settings in Insights

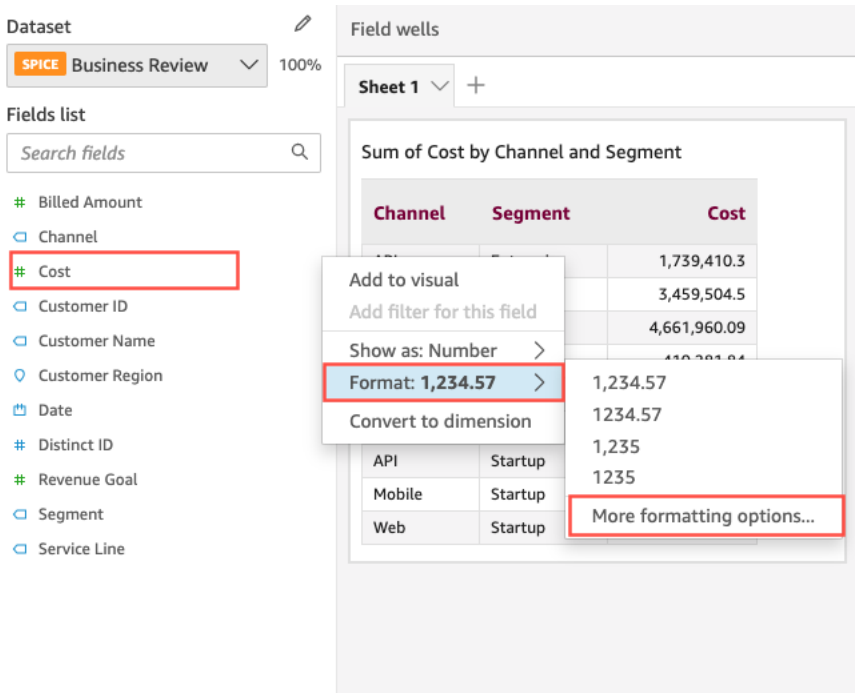
In Insights, you can choose how your numeric data values appear in visuals so that they align with the regional language that you have chosen.

As an Insights author, you can choose the language formatting that best fits your audience. Insights configures numeric data languages at the analysis level based on the language that you have chosen to view Insights in. You can change the format of numbers, currencies, and dates. You can change your Insights language settings in the Language dropdown list of the Insights User menu in the top-right corner. You can change the language formatting for a field across every visual in a sheet, or you can change the language formatting at the individual visual level.



To change the numeric language formatting of all visuals in an analysis

1. On the Visualize pane of the analysis that you want to change, choose the more actions (three dots) icon next to the field that you want to change. From the menu that appears, open the Format dropdown list, and then choose More formatting options.



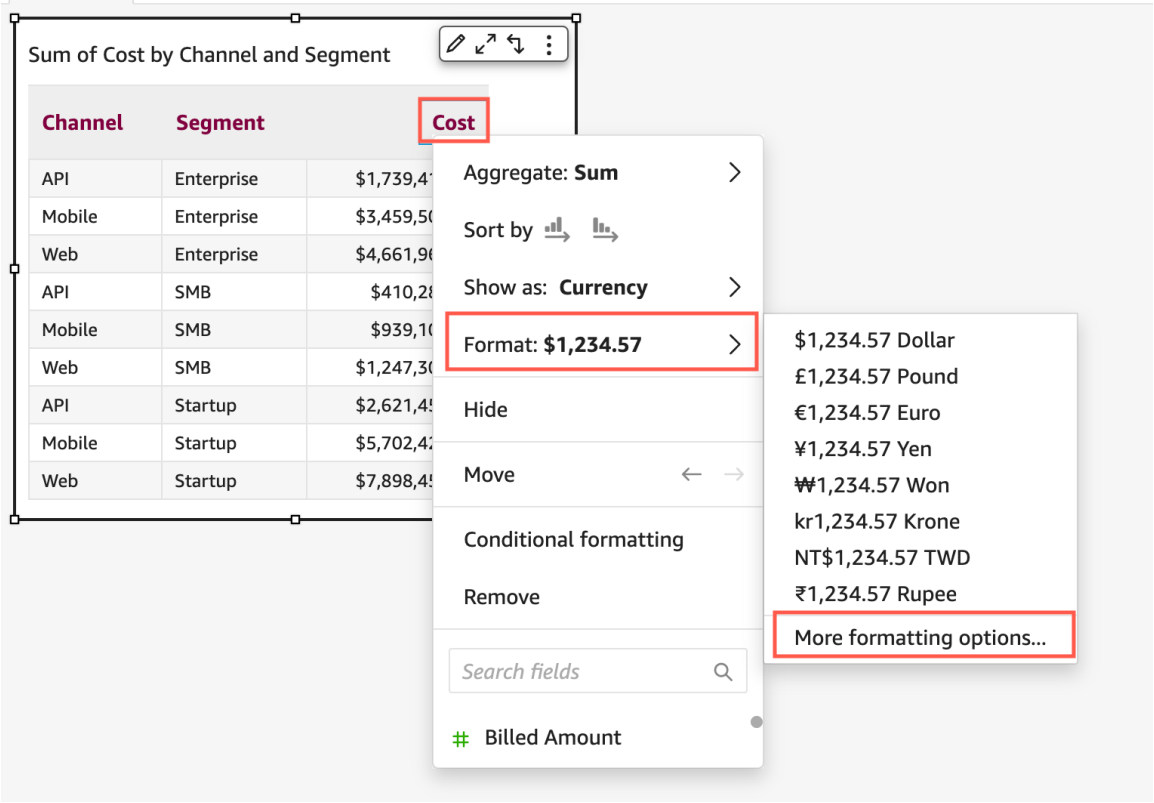
2. In the Format data pane that appears on the left, choose Apply language format.

   You can reset the default language format of the field by reopening the Format data menu and choosing Reset to defaults. The default language format is American English.

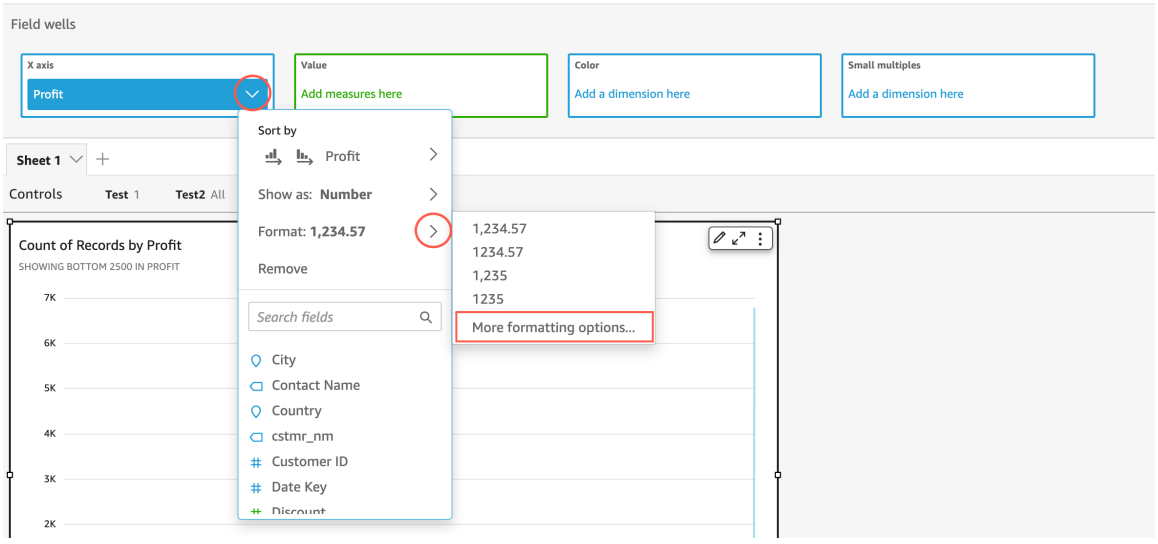


To change the numeric language formatting of a single visual in an analysis

1. On the analysis page, choose the visual that you want to modify.
2. Navigate to the Format data pane using one of the following options:
   - On the visual that contains the data that you want to change, select the field that you want to change, open the Format dropdown list, and then choose More formatting options.



- In the Field wells section of the analysis, open the dropdown next to the field that you want to change. Open the Format menu, and choose More formatting options.



3. In the Format data pane that appears, choose Apply language format.

You can reset the default language format of the visual by reopening the Format data menu and choosing Reset to defaults. The default language format is American English.



Legends on visual types in Insights

The visual legend helps you identify what a visual element represents by mapping its value to a color. By default, the visual legend displays to the right of the visual. You can choose to hide or display the visual legend, and format the legend title and position.

To display or hide a visual legend

1. On the analysis page, choose the visual that you want to format.
2. At the visual's right, for Menu options ( ), choose Hide legend or Show legend to hide or show the visual legend.

   When shown, the legend displays the values in alphabetical order.

To customize a visual legend

1. At the visual's right, choose Format Visual ( ).
2. In the Format Visual pane, expand the Legend section. In this section, you can format the legend title and position.
3. Choose the X icon at upper right to close the Format Visual pane.

Line and marker styling on line charts in Insights

In Insights line charts, you have multiple options to emphasize what you want readers to focus on: color, line style, and markers. You can use these options together or separately to help readers understand your line charts more quickly under different circumstances. For example, if some of your readers won't see color differences—perhaps because of color blindness or because of monochrome printing—you can use line patterns to distinguish one ore more lines in a chart.

In other cases, you could use step lines to call attention to abrupt changes or intervals between changes in data. For example, let's say you build a chart showing the changing price of postage stamps in the US, and you want to emphasize the amount of increase in price over time. You can use a step line, which remains flat between data points until the next price change occurs. The data story about abrupt increases in price is more clear to the reader with a step line. If you wanted to show a story of gradual change over time, you'd be more likely to style the line with a smooth slope instead.

To customize the styling for a visualization

1. Open your analysis, and choose the chart that you want to format.
2. On the top right of the visual you want to format, select Format visual, which is represented by a pencil icon.
3. At left, choose Data series.
4. Choose one of the following options:
    - Base style – to edit the styling of all lines and markers on the chart
    - Select series to style – to edit the styling of the field that you choose from the list

    Different options display depending on how many compatible fields are in the visual.
5. Toggle Line to turn line styling on or off.

    You can customize the following line options:
    - The weight or thickness of the line.
    - The style of the line: solid, dashed, or dotted.
    - The color of the line.
    - The type of line that it is: Linear, Smooth, or Stepped.
6. Toggle Marker to turn marker styling on or off.

    You can customize the following marker options:
    - The weight or thickness of the marker.
    - The style of the marker: circle, triangle, square, diamond, and so on.
    - The color of the marker.

7. For Axis, choose whether to display the axis on the left or the right.
8. Your changes are saved automatically.
9. (Optional) To undo customizations, choose one or more of the following options:
    - To undo one change, click the undo arrow at top left. Repeat as needed. There is also a redo arrow.
    - To reset the base style for a data series, select Base style and then click Reset to default.
    - To remove all styling from a data series, listed in Styled series, select a field and then click Remove styling.

Missing data on visual types in Insights

You can customize how missing data points are visualized in your line charts and area charts. You can choose to have your missing data points appear in the following formats:

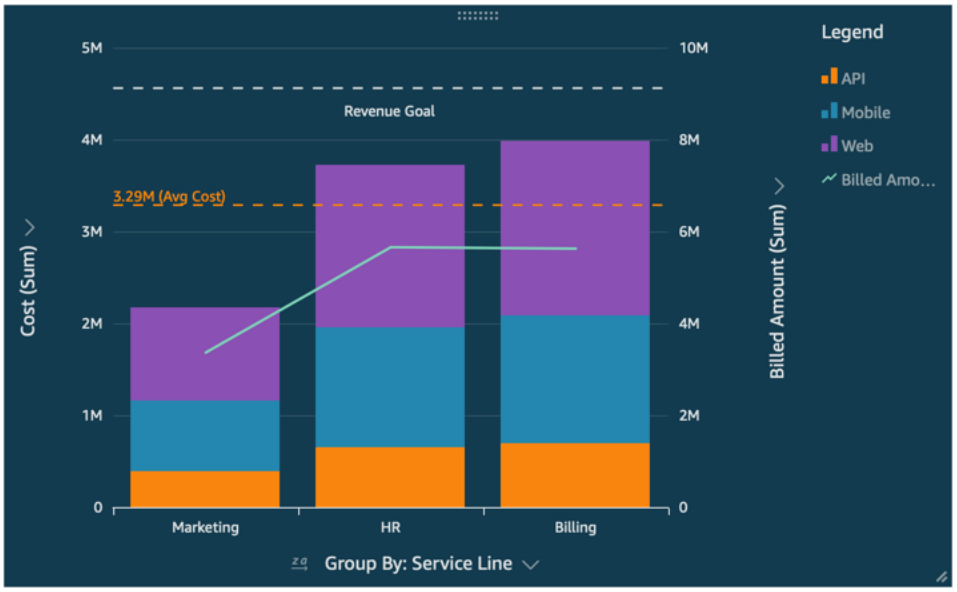
- Broken line: A disjointed line that breaks when a data point is missing. This is the default missing data format.
- Continuous line: Displays a continuous line by skipping over the missing data point and connecting the line to the next available data point in the series.
- Show as zero: Sets the value of the missing data point to zero.

To customize a visual's missing data settings

1. On the analysis page, choose the visual that you want to format.
2. Choose the Format visual icon in the upper right corner of the visual to access the Format visual menu.
3. Open the Y axis pane of the format visual menu and navigate to the Missing data section.
4. Select the missing data format that you want.

Reference lines on visual types in Insights

Reference lines are visual markings in a visual, similar to ruler lines. You typically use a reference line for a value that needs to be displayed with the data. You use the reference line to communicate thresholds or limits in values. The reference line isn't part of the data that's used to build a chart. Instead, it's based on a value that you enter or a field that you identify in the dataset used by a chart.



Insights supports reference lines in the following:

- Bar charts
- Line charts
- Combo charts

You can create, change, and delete reference lines while designing an analysis. You can customize the line pattern, the label font, and the colors for each of those separately. You can show numeric values as numbers, currency, or percent. You can also customize a value's numerical format in the same way that you can customize a field in the field well.

There are two types of reference lines:

- A constant line displays at a position that's based on a value that you specify in the format settings. This value doesn't need to relate to any field. You can customize the formatting of the line.
- A calculated line displays at a position that's based on a value that is the result of a function. During configuration, you specify which measure (metric) you want to use and which aggregation to apply. These are the same aggregations you can apply to in the field wells. Then, you need to provide an aggregation to apply to the field calculation for the reference line, for example average, minimum, maximum, or percentile. The field needs to be in the dataset used by the chart, although it doesn't need to be displayed in the chart's field wells.

Calculated reference lines aren't supported in 100% stacked charts.

To add or edit a reference line (console)

1. Choose your visualization so that it's highlighted and its menu appears. To open the formatting options, choose the cog icon ( ) icon on the visualization menu ( ).
2. Open the Reference lines section.
3. Add or edit a reference line. To add a reference line, choose Add new line. To edit a reference line, choose the line to edit.
4. With the reference line settings open in the Format pane at left, you can modify its properties:
    - Data
        - Type – The type of reference line that you want to use. Choose one of the following options:
            - To create a constant line based on a single value that you enter, choose Constant line.
            - To create a calculated line based on a field, choose Calculated line.
        - Value – (For constant lines only) The value that you want to use. This becomes the location of the line on the visual. It appears immediately, so you can experiment with the setting.
        - Column – (For calculated lines only) The column that you want to use for the reference line.
        - Aggregated as (column) – (For calculated lines only) The aggregation that you want to apply to the selected column.
        - Calculate – (For calculated lines only) The calculation that you want to apply to the aggregation.
        - Percentile value – (Only if you set Calculate to Percentile) Enter a number from 1 through 100.
        - Chart type – (For combo charts) Choose Bars or Lines.
    - Line style
        - Pattern – The pattern used for the line. Valid options include Dashed, Dotted, and Solid.

        - Color – The color used for the line.
    - Label
        - Type – The type of label to display. Valid options include Value only, Custom text, Custom text and value, No label. If you choose an option that includes custom text, enter the label text that you want to appear on the line.
        - Enter custom text (text box) – (Only if you set Type to Custom text and value) Choose where to show the value in relation to the label. Valid options are Left or Right.
        - Position – The position of the label in relation to the line. Valid options include a combination of the following: left, middle, right, above, and below.
        - Value format – The format to use for the value. Choose one of the following:
            - Same as value – Uses the formatting that's already selected for this field in the visualization.
            - Show as – Choose from the available options, for example number, currency, or percent.
            - Format – Choose from the available formatting options.
        - Font size – The font size to use for the label text.
        - Color – The color to use for the label text.
5. Choose Done to save your selections.

To list existing reference lines

1. Choose your visualization so that it's highlighted and its menu appears. To open the formatting options, choose the cog icon ( ) icon on the visualization menu ( ).
2. Open the Reference lines section.

   Existing reference lines appear in a list, followed by an Add new line button.

To disable a reference line

1. Choose your visualization so that it's highlighted and its menu appears. To open the formatting options, choose the cog icon ( ) icon on the visualization menu ( ).

2. Open the Reference lines section.
3. Choose Disable from the context menu (…) for the reference line that you want to disable.

To delete a reference line

1. Choose your visualization so that it's highlighted and its menu appears. To open the formatting options, choose the cog icon ( ) icon on the visualization menu ( ).
2. Open the Reference lines section.
3. Choose Delete from the context menu (…) for the reference line that you want to delete.

Format radar charts in Insights

Customize radar charts in Insights to arrange your data as needed. Customize the series style, start angle, fill area, and grid shape of radar charts.

Prerequisite

- You have the Insights Author license.
- You have the Create Content permission.
- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data
- You have created a radar chart in Insights (see Use radar charts for instructions).

Page Location

Insights > Analyses > Click an analysis > Click a radar chart

Procedures

Set the series style of a radar chart

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Radar Chart** drop-down list.
3. Under **Series style**, select the desired style.
    - Line: When selected, the polygons that are created by the data are outlined.
    - Area: When selected, the polygons that are created by the data are filled in.

Choose the start angle of a radar chart

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Radar Chart** drop-down list.
3. Under **Start angle**, enter the start angle value that you want.

Set the fill area of a radar chart

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Axis** drop-down list.
3. Toggle **Fill grid lines** on.
4. (Optional) Select colors for the even and odd numbered grid lines.
    - Select the **Even color** icon then choose a color for the even numbered grid lines.
    - Select the **Odd color** icon then choose a color for the odd numbered grid lines.

Choose the grid shape of a radar chart

1. Click the **Format visual** icon in the upper-right corner of the visual. The **Properties** panel opens.
2. Expand **Radar Chart** drop-down list.
3. Under **Grid shape**, select the desired shape. Choose between a POLYGON and a CIRCLE.

Related topics

- Use radar charts
- Add visuals to Insights analyses

- Visual types in Insights

Set the range and scale on visuals in Insights

To change the scale of the values shown on the visual, you can use the Format visual pane to set the range for one or both axes of the visual. By default, the axis range starts at 0 and ends with the highest value for the measure being displayed. For the group-by axis, you can use the data zoom tool on the visual to dynamically adjust the scale.

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.
- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View QM Data
  - View WFM Data
- You have added one of these visual to an analysis. See Add visuals to Insights analyses for instructions.
  - Bar charts
  - Combo charts
  - Line charts
  - Scatter plots

Page location

Insights > Analyses > Click an analysis > Format visual (upper-right corner of the visual)

Procedures

Expand **X-axis** or **Y-axis**, depending on the visual type.

NOTE Use the **X-axis** for horizontal bar charts, the **Y-axis** for vertical bar charts and line charts, and both axes for scatter plots. For combo charts, use the **Bars** and **Lines** sections, and select single **Y-axis** to synchronize the Y-axes for both bars and lines into a single axis.
The following steps use a horizontal bar chart as an example, so the procedures focus on the **X-axis**.

Show or hide labels

- Click the **Labels** toggle to enable or disable labels on the visual.

Change the label size

- Click the **Label size** drop-down, and select a size.

Show or hide grid lines

- Click the eye icon next to **Grid lines** to show or hide the grid lines.

  NOTE In some visuals like line charts, the option to show or hide grid lines may only appear under the **Y-axis**. This behavior can vary by visual type.

Set the axis range

- Set the range for the axis by selecting one of the following options:
  - Click **Auto (starting at 0)** to start the range at 0 and end it around the highest value of the displayed measure.
  - Click **Auto (based on data range)** to start the range at the lowest value of the displayed measure and end it around the highest value.
  - Click **Custom** to specify your own **Min** and **Max** values.

    NOTE If you select **Custom**, enter the **Min** and **Max** values in the fields provided. Use integers for whole number ranges, or decimal values for percentage-based charts (e.g., enter 0 and .3 to show a 0–30% range on a stacked 100% bar chart).

Set the axis scale

For Scale, the default is linear scale. To show logarithmic scale, also called log scale, select **Logarithmic Scale** option. [HW Change to: select **Logarithmic Scale**.] Insights chooses the axis labels to display based on the range of values in that axis.

BEST PRACTICE On a linear scale, axis labels appear evenly spaced to reflect consistent arithmetic differences. For example, labels display values like {1000, 2000, 3000} or {0, 50 million, 100 million}, but not {10 thousand, 1 million, 1 billion}. Use a linear scale when:

- All values on the chart are in the same order of magnitude.
- You want evenly spaced axis labels.
- Axis values have a similar number of digits (e.g., 100, 200, 300).
- The rate of change is relatively slow and steady (i.e., the trend line doesn't approach vertical).

EXAMPLE
Profits in different regions of the same country.
Costs incurred for manufacture of an item.

BEST PRACTICE Display axis values on a logarithmic scale to highlight differences in orders of magnitude or to represent exponential growth more clearly. This scale spaces the axis values based on their magnitude rather than a fixed interval. Use a logarithmic scale when:

- The numbers that display on the chart aren't in the same order of magnitude.
- You want the axis labels to be flexibly spaced to reflect the wide range of values in that axis. This might mean that the axis values have a different number of digits, for example 10, 100, 1000, and so on. It might also mean that the axis labels are unevenly spaced.
- The rate of change between numbers is growing exponentially or is too large to display in a meaningful way.
- The audience of your chart understands how to interpret data on a log scale.
- The chart displays values that are growing faster and faster. Moving a given distance on the scale means the number has been multiplied by another number.

EXAMPLE
High yield stock prices over a long range of time.
Growth of pandemic infection rates.

Configure axis step count

NOTE If you enable **Logarithmic Scale**, the **Axis step count** is automatically calculated. No further configuration is needed.

- Select **Step size** to specify the interval between axis values. The **Step size** is set to **Auto** by default.
- Select **Step count** to specify how many steps you want on the axis. The **Step count** is set to **Auto** by default.

Related topics

- Visual types in Insights
- Format a visual in Insights
- Use bar charts
- Use combo charts
- Use line charts
- Use scatter plots

Small multiples axis options

You can configure the x and y axes for each individual panel of a small multiples visual. You can group your data along an independent x-axis or an independent y-axis. You can also position the x and y axes inside or outside the chart to improve the readability of your data.

For small multiples visuals that use an independent x-axis, only the values that are relevant to each panel are shown on the axis. For example, say you have a small multiples visual that uses one panel to represent each region of the United States. With an independent x-axis, each panel only shows states in the region that the panel represents and hides states that are outside of the panel's region.

For small multiples visuals that use an independent y-axis, each panel uses its own y-axis scale that is determined by the rage of the data it contains. By default, data labels appear on the inside of the panel.

To configure independent axes for small multiples visuals

1. Select the small multiples visual that you want to change and open the Format visual menu.
2. In the Format visual pane that appears, open the Multiples options menu.
3. For X-axis, choose Independent from the dropdown.

   Or, for Y-axis, choose Independent from the dropdown.

You can revert your changes by choosing Shared from the X-axis or Y-axis dropdown menus.

You can also configure the label positions of the x and y axes of all panels in a small multiples visual. You can choose to display axis labels inside or outside the panel.

To configure the axis label position for small multiples visuals

1. Select the small multiples visual that you want to change and open the Format visual menu.
2. In the Format visual pane that appears, open the Multiples options menu.
3. For X-axis labels, choose Inside or Outside from the dropdown.

   Or, for Y-axis labels, choose Inside or Outside from the dropdown.

Format visual titles and subtitles in Insights

In Insights, you can format visual titles and subtitles to meet your business needs. Use rich text formatting, and insert hyperlinks to customize titles. Edit titles or subtitles in the **Format visual** pane, or double-click the title or subtitle directly in the visual to make changes.

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.
- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data
- You have added a visual to an analysis. See Add visuals to Insights analyses for instructions.

Page location

Insights > Analyses > Click an analysis > Format visual (upper-right corner of the visual)> Display Settings drop-down list

Procedures

Show or hide visual titles and subtitles

Use the following steps to show or hide the title or subtitle for a visual. Visual titles appear by default. Subtitles appear automatically once added.

1. To show or hide the title or subtitle, click the eye icon next to **Edit title** or **Edit subtitle**.

Add alt text to a visual

1. (Optional) Enter **Alt text** to describe the visual.

Edit visual titles or subtitles

1. In the Display Settings drop-down, under **Card title** click the pencil icon next to **Edit title** or **Edit subtitle**.
2. In the **Edit title** or **Edit subtitle** window:
    - Enter your custom title or subtitle text. Titles can be up to 120 characters long, and subtitles can be up to 500 characters long.
    - From the left drop-down list, select a font type.
    - From the right drop-down list, select a font size.
    - Use the formatting icons to:
        - Make text bold, italic, underline, or strikethrough icons.
    - Change the text color using the **Abc** icon. Select from the palette, or enter a **HEX** or **RGB** value.
    - Create a bulleted list using the unordered list icon.
    - Align your text using the left, center, or right alignment icons.
    - Use the link icon to insert a hyperlink.
        1. Highlight the text you want to hyperlink. Click the link icon.
        2. In the **Enter link** field, type or paste the URL you want to link to.
        3. (Optional) In the **Display text** field, update the visible text for the hyperlink.

4. Select how the hyperlink opens:
    - Select **New tab** to open the link in a new tab.
    - Select **Same tab** to open the link in the current Insights tab.
5. To remove the hyperlink, click the delete icon in the bottom-left corner.
6. Click **Save**.

3. Click **Save**. Your title or subtitle is now formatted and updated in the visual.

Related topics

- Font and style on visual types in Insights
- Exclude visual elements
- Customizing a field format
- Format radar charts in Insights

Tooltips on visual types in Insights

When you hover your cursor over any graphical element in an Insights visual, a tooltip appears with information about that specific element. For example, when you hover your cursor over dates in a line chart, a tooltip appears with information about those dates. By default, the fields in the Fields well determine what information displays in tooltips. Tooltips can display up to 10 fields.

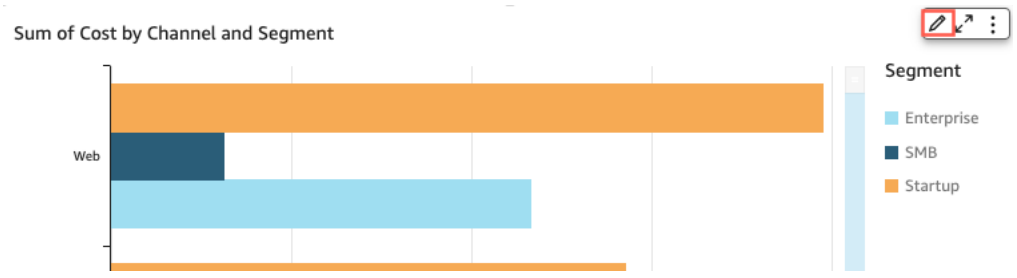
You can provide your viewers with additional information about data in your visual, customizing what viewers can see. You can even prevent tooltips from appearing when viewers hover a cursor over an element. To do this, you can customize the tooltips for that visual. Use the following procedures to learn how.

Customizing tooltips in a visual

Use the following procedure to customize tooltips in a visual.

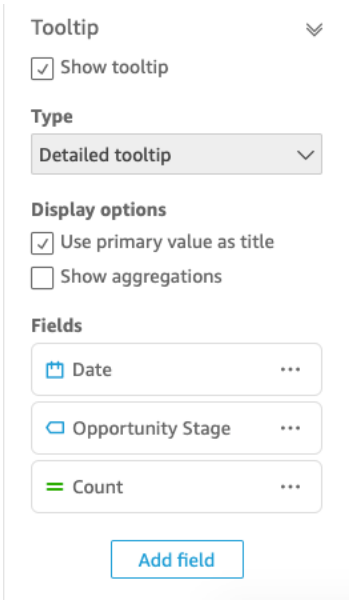
To customize tooltips in a visual

1. On the analysis page, choose the visual that you want to format.
2. On the menu in the upper-right corner of the visual, choose the Format visual icon.



3. In the Format visual pane that opens at left, choose Tooltip.
4. For Type, choose Detailed tooltip.

   A new set of options appear, as shown following.



To show or hide titles in a tooltip

- Choose Use primary value as title.

  Clearing the option hides titles in the tooltip. Selecting the option shows the primary field value as the title in the tooltip.

To show or hide aggregations for fields in the tooltip

- Choose Show aggregations.

  Clearing the option hides the aggregation for fields in the tooltip. Selecting the option shows the aggregation for fields in the tooltip.

To add a field to the tooltip

1. Choose Add field.
2. In the Add field to tooltip page that opens, choose Select field and then select a field from the list.

   You can add up to 10 fields to tooltips.
3. (Optional) For Label, enter a label for the field. This option creates a custom label for the field in the tooltip.
4. (Optional) Depending on whether you add a dimension or a measure, choose how you want the aggregation to display in the tooltip. If you don't select an option, Insights uses the default aggregation.

   If you add a measure to the tooltip, you can select how you want the field to be aggregated. To do so, choose Select aggregation, and then select an aggregation from the list. For more information about the types of aggregations in Insights, see Changing field aggregation.
5. Choose Save.

   A new field is added to the list of fields in your tooltip.

To remove a field from the tooltip

- Under the Fields list, select the field menu for the field that you want to remove (the three dots) and choose Hide.

To rearrange the order of the fields in the tooltip

- Under the Fields list, select the field menu for a field (the three dots) and choose either Move up or Move down.

To customize the label for a field in the tooltip

1. Select the field menu for the field that you want to customize (the three dots) and choose Edit.
2. In the Edit tooltip field page that opens, for Label, enter the label that you want to appear in the tooltip.
3. Choose Save.

Hiding tooltips in a visual

If you don't want tooltips to appear when you hover your cursor over data in a visual, you can hide them.

To hide tooltips in a visual

1. On the analysis page, choose the visual that you want to format.
2. On the menu in the upper-right corner of the visual, choose the Format visual icon.
3. In the Format visual pane that opens at left, choose Tooltip.
4. Choose Show tooltip.

   Clearing the option hides tooltips for the visual. Selecting the option shows them.

Customizing data presentation

To gain further insight into your data when creating visuals (charts) in an Insights analysis, you can sort and filter data in a visual. You can also change the granularity of date fields, data type, role, and format of fields in a visual.

Topics

- Changing fields used by a visual in Insights
- Sorting visual data in Insights

Changing fields used by a visual in Insights

You can add or modify fields for a visual by using the Fields list pane, the field wells, or the on-visual editors or drop targets on the visual.

The field wells, on-visual editors, and drop targets available for a specific visual depends on the visual type selected. For details, see the appropriate visual type topic in the Visual types in Insights section.

IMPORTANT You can also change the data type and format of numeric fields by using field wells and on-visual editors. If you change a field in this way, it changes for the selected visual only.

Use the following topics to learn more about adding, removing, and modifying fields on a visual.

Topics

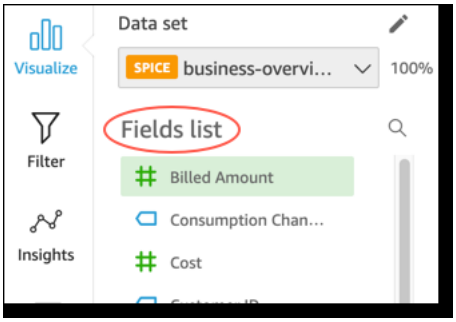
- Using visual field controls
- Adding or removing a field
- Changing the field associated with a visual element
- Changing field aggregation

- Changing date field granularity
- Customizing a field format

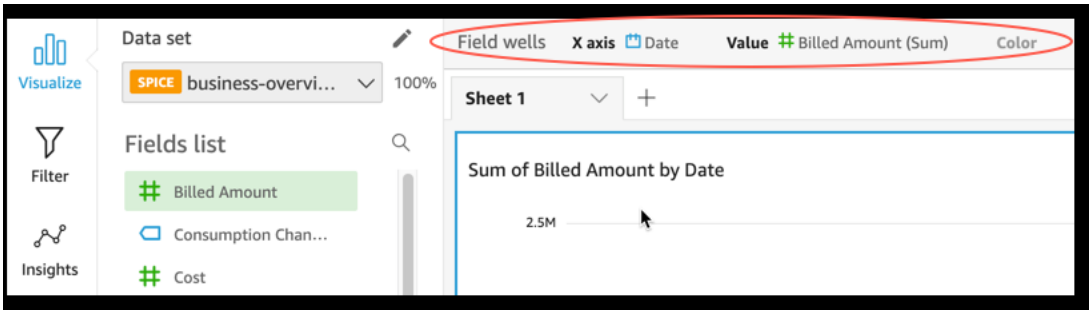
Using visual field controls

You can edit the fields used by a visual by using the following user interface (UI) controls:

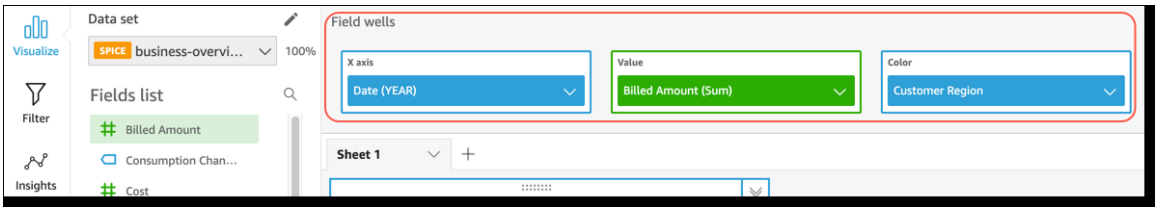
- The Fields list pane.



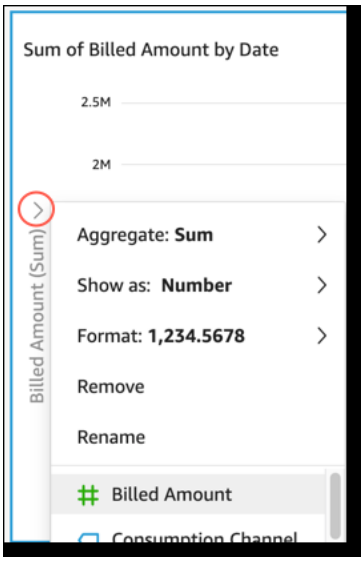
- The field wells. The following screenshot shows the field wells in the default closed state.



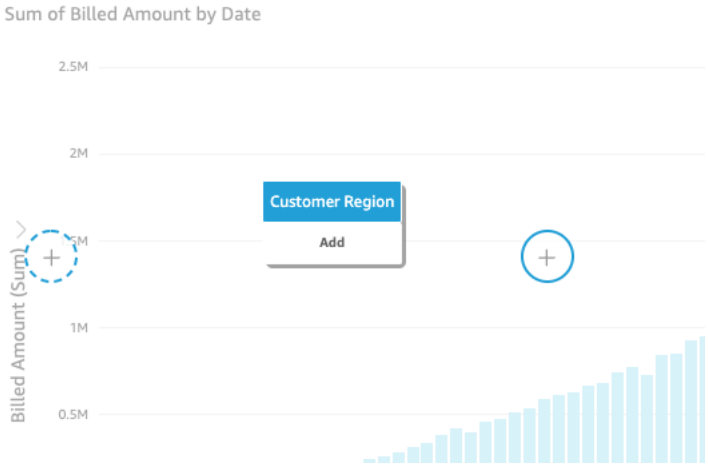
Click anywhere on the Field wells to open the field wells. The following screenshot shows the field wells in the open state.



- The on-visual editors.



- The drop targets on the visual.



You can use these controls as follows:

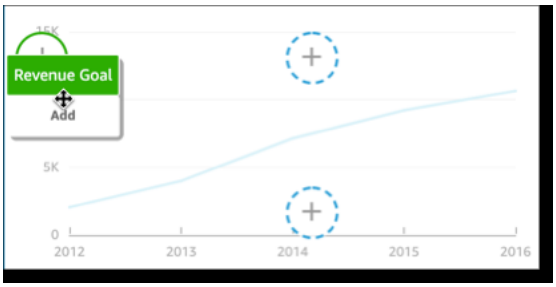
- You can create a visual and assign fields to different elements on it by selecting fields in the Fields list pane, or dragging fields to field wells or drop targets.
- You can change the field associated with a visual element by dragging a field to a drop target or field well, or selecting a different field in a field well or on-visual editor.
- You can change field aggregation or date granularity by using the field wells or the on-visual editors.

The field wells, on-visual editors, and drop targets available on a specific visual depends on the visual type selected.

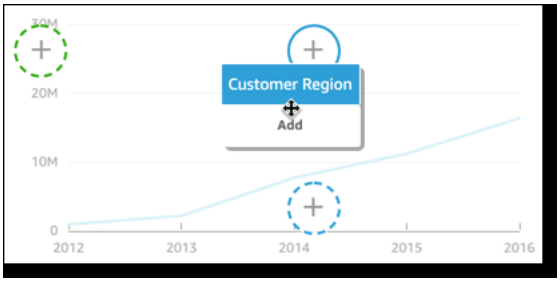
Dragging fields to drop targets or field wells

When you drag a field to either a drop target or field well, Insights provides you with information about whether the target element expects a measure or a dimension. Insights also provides you with information about whether that element is available for field assignment.

For example, when you drag a measure to the value drop target on a new single-measure line chart, you see the drop target color-coded green. That green color coding indicates that the drop target expects a measure. The drag label indicates that the target is available to add a field.



When you drag a dimension to the x-axis or color drop target on a new line chart, you see a label color-coded blue. That blue color coding indicates that the drop target expects a dimension. The drag label indicates that the target is available to add a field.

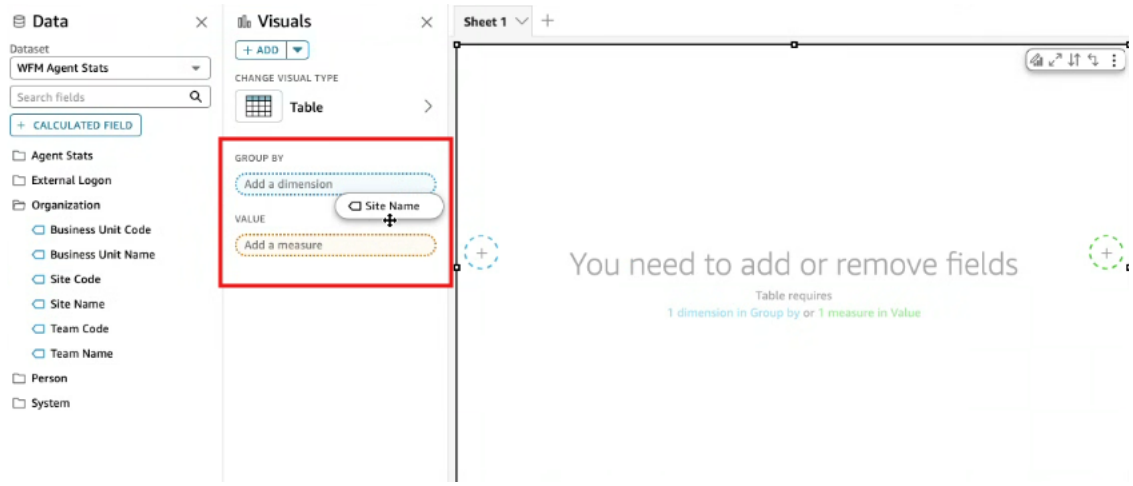


You can also drag a measure or dimension to a drop target on a line chart where the element is already associated with a field. In this case, the drag label indicates that you are replacing the field currently associated with the drop target.

Add or remove a field in a visual

You can add a field to a visual by choosing it from the **Datasets** pane. You can also drag the field either to a drop target directly on the visual or to a field well area in the **Visuals** pane. There is a 1:1 correspondence of drop targets to field wells for each visual type, so you can use either method.

NOTE While the field wells aren't labeled, they appear under the **Change visual type** in the **Visuals** pane.



The available field wells, such as **Group by**, **Value**, **Measure**, or **Dimension**, depend on the type of visual you add to the analysis. When you select a visual type, Insights automatically updates the layout to show the relevant field wells for that visual.

EXAMPLE The **Axis** field well only appears for visual types that use an axis, like bar charts or line charts. Visuals like pivot tables or KPI charts will show different field well options, such as **Value**, **Target Value**, or **Trend Group**.

The **Axis** title field may be hidden if there are two or more fields in the value field on either side of the chart. This applies to the following chart types:

- Bar charts
- Line charts
- Box plots
- Combo charts
- Waterfall charts

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.

- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View QM Data
  - View WFM Data

Page location

Insights > Analyses > Click an analysis

Procedures

Add a field from the datasets pane

1. Click **Datasets** from the upper-left corner of the visual.
2. Select a field from the available **Datasets** folder that you want to work with.

   NOTE Insights will place the field in the first available field well that matches its type. If all field wells are already filled, Insights will replace the most appropriate field in the visual with the one you selected.

3. Once selected, the fields are ready to use in the analysis.

Add a field using a drop target

- Drag the field from the available **Datasets** folder to your chosen drop target on the visual. Make sure the drop indicator appears to confirm that the field is being added.

NOTE You can add the same value to the same visual multiple times. You can do so to show the same value with different aggregations or table calculations applied. By default, the fields all display the same label. You can edit the names by using the **Format visual** panel.

Remove a field from a visual

- Click the selection for the field from the **Dataset** folder.
- Alternatively, click the three dots next to field in the field well and click **Remove**.

Related topics

- Using visual field controls
- Changing the field associated with a visual element
- Changing field aggregation
- Changing a field format

Changing the field associated with a visual element

You can change the field assigned to an element in a visual by using the field wells, drop targets, or the on-visual editors on the visual. For pivot tables, use field wells or drop targets because this visual type doesn't provide on-visual editors.

Change a field mapping by using an on-visual editor

Use the following procedure to modify the mapping of a field to a visual element.

To modify the mapping of a field by using an on-visual editor

1. On the visual, choose the on-visual editor for the visual element for which you want to change the field.
2. On the on-visual editor menu, choose the field that you want to associate with that visual element.

Changing a field mapping by using a drop target

To modify the mapping of a field to a visual element by using a drop target, choose a field in the Fields list pane. Then drag the field to a drop target on the visual, making sure that the drop indicator shows that the field is being replaced.

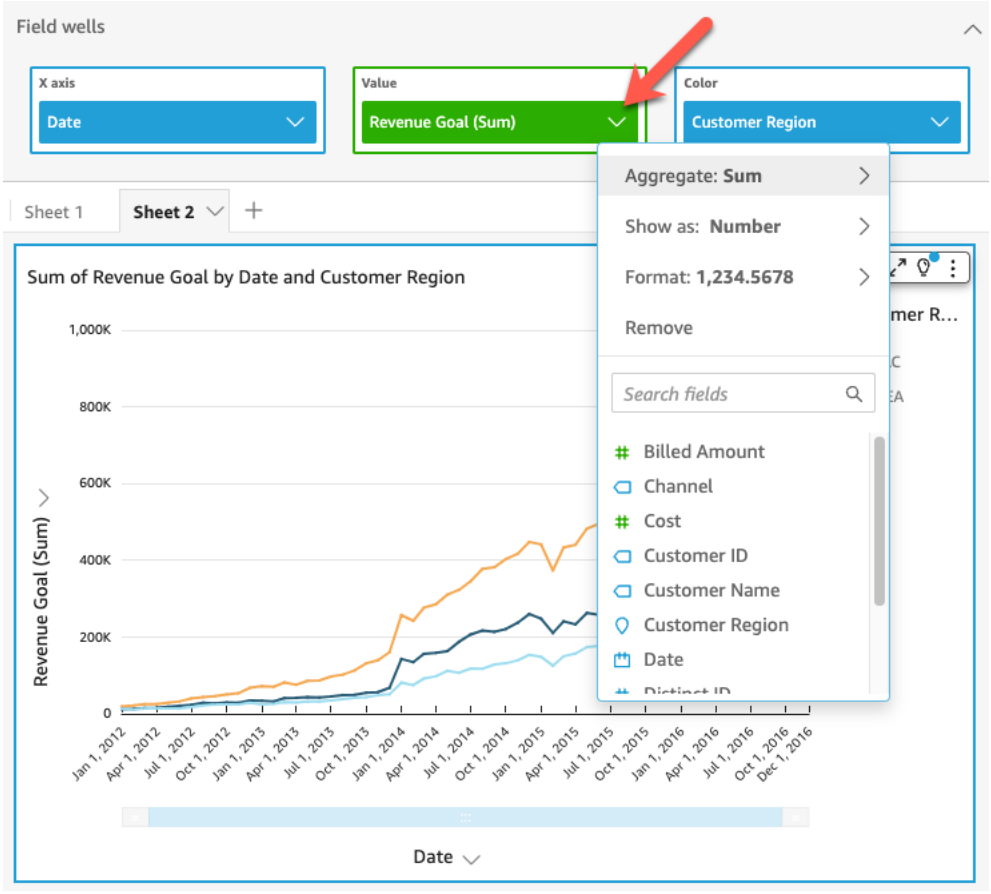
Changing a field mapping by using a field well

Use the following procedure to modify the mapping of a field to a visual element.

To modify the mapping of a field by using a field well

1. Click anywhere on the Field wells to expand them.
2. Choose the field well that represents the element that you want to remap, and then choose a new field

from the menu that appears.



Changing field aggregation

You can apply functions to fields to display aggregate information, like the sum of the sales for a given product. You can apply an aggregate function by using the options in either an on-visual editor or a field well. The following aggregate functions are available in Insights:

- Average – Calculates the average value for the selected field.
- Count – Provides a count of the number of records containing the selected measure for a given dimension. An example is a count of Order ID by State.
- Distinct Count – Provides a count of how many different values are in the selected measure, for the selected dimension or dimensions. An example is a count of Product by Region. A simple count can show how many products are sold for each region. A distinct count can show how many different products are sold for each region. You might have sold 2,000 items, but only two different types of items.

- Max – Calculates the maximum value for the selected field.
- Min – Calculates the minimum value for the selected field.
- Median – Calculates the median value of the specified measure, grouped by the chosen dimension or dimensions.
- Sum – Totals all of the values for the selected field.
- Standard Deviation – Calculates the standard deviation of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a sample or on a biased population.
- Variance – Calculates the variance of the set of numbers in the specified measure, grouped by the chosen dimension or dimensions, based on a sample or on a biased population.
- Percentile – Computes the nth percentile of the specified measure, grouped by the chosen dimension or dimensions.

All aggregate functions can be applied to numeric fields. Count is automatically applied to a dimension if you choose to use it in a field well that expects a measure. If you have used a dimension in that way, you can also change the aggregate function applied to it. You can't apply aggregate functions to fields in dimension field wells.

The visual elements that support aggregated fields varies by visual type.

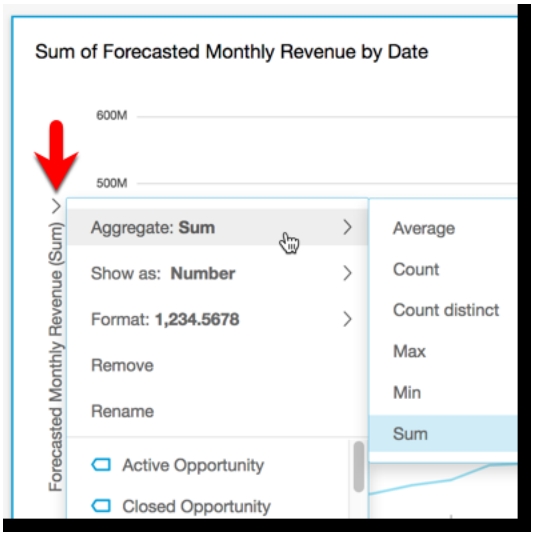
Changing or adding aggregation on a field by using an on-visual editor

Use the following procedure to change or add aggregation on a field.

To change or add aggregation on a field

1. On the visual, choose the on-visual editor for the field that you want to apply aggregation to.
2. On the on-visual editor menu, choose Aggregate, then choose the aggregate function that you want to

apply.



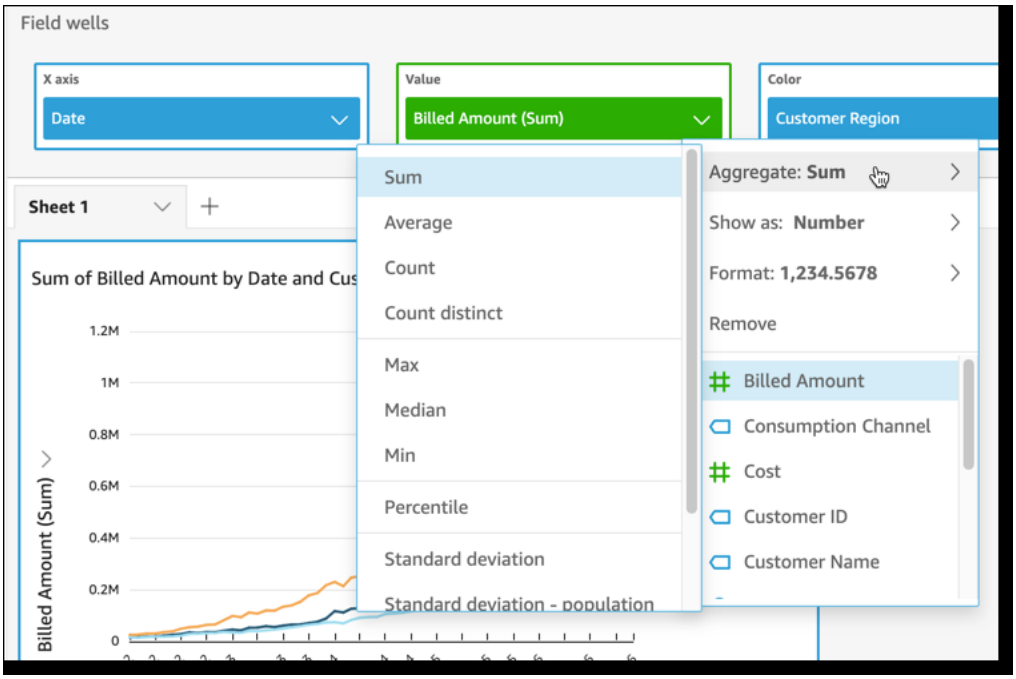
Changing or adding aggregation to a field by using a field well

Use the following procedure to add aggregation to a field for a pivot table visual.

To add aggregation to a field for a pivot table visual

1. Click anywhere on the Field wells to expand them.
2. Choose the field well containing the field that you want to apply an aggregate function to.

3. On the field well menu, choose Aggregate, then choose the aggregate function that you want to apply.



Changing date field granularity

You can change the granularity for a date field on a visual to determine the intervals for which item values are shown. You can set the date field granularity to one of the following values:

- Year
- Quarter
- Month
- Week
- Day (this is the default)
- Hour
- Minute
- Second

Hour and minute are available only if the field contains time data.

Changing date field granularity by using an on-visual editor

Use the following procedure to change date field granularity by using an on-visual editor.

To change date field granularity with an on-visual editor

1. On the visual, choose the field well for the date field whose granularity you want to change.
2. On the field well menu, choose Aggregate, then choose the time interval that you want to apply, as shown following:

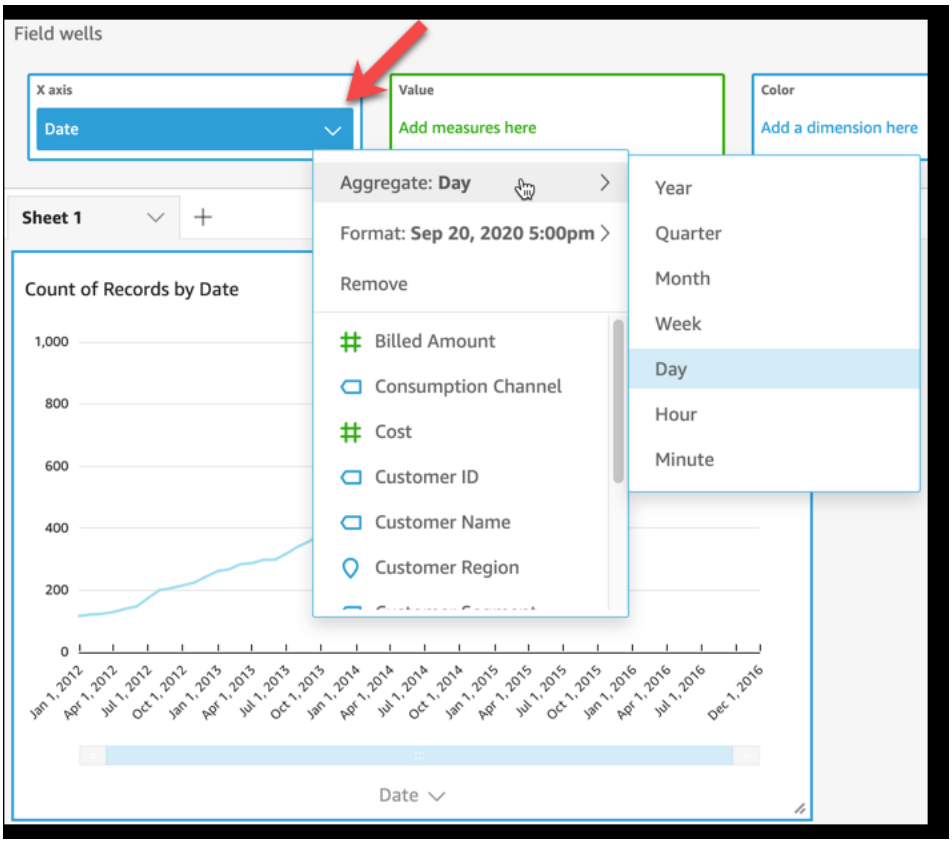
Changing date field granularity by using a field well

Use the following procedure to change date field granularity by using a field well.

To change date field granularity with a field well

1. Click anywhere on the Field wells to expand them.
2. Choose the field well containing the date field, and then choose Aggregate. Choose the date

granularity that you want to use.

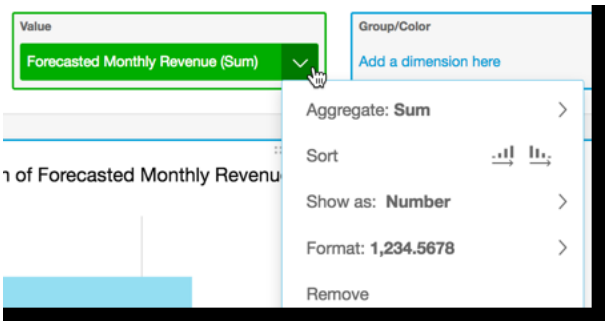


Customizing a field format

Use the following procedure to customize the appearance of fields in an analysis.

To customize the appearance of fields in an analysis

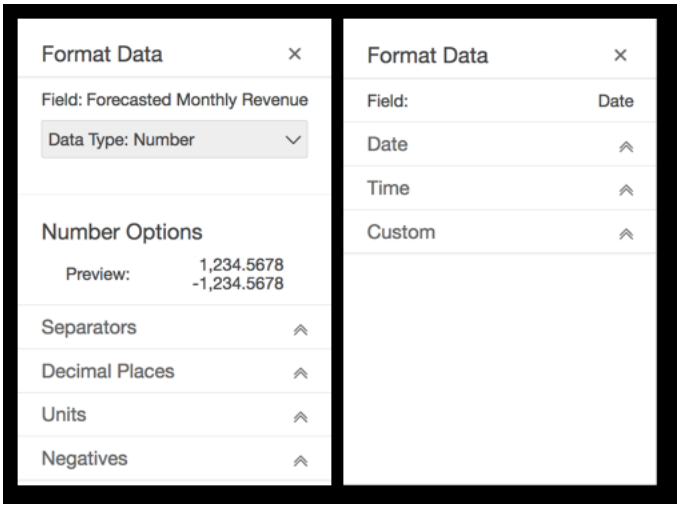
1. In an analysis, choose a field to format, either by choosing it in the field well or in the Fields list of the Visualize pane.



2. Choose Show as to change how the field shows in the analysis, and choose from the options on the context menu. The list of available options varies based on the field's data type. If you choose a non-numeric field from the fields list, you can change the count format, which is the formatting used when the field is counted.

3. Choose Format to change the format of the field, and choose from the options on the context menu. If you don't see an option that you want to use, choose More formatting options from the context menu.

   The Format Data pane opens, presenting options for the type of numeric or date field you chose. The following screenshots show the Format Data pane.



   The options for Show as from the context menu now appear in the drop-down list at the top of the Format Data pane. The rest of the options are specific to the data type and how you choose to show the field.

For date and time data, the default format pattern is YYYY-MM-DDTHH:mm:ssZZ, for example 2016-09-22T17:00:00-07:00.

For numbers, you can choose from the following units to display after the number:

- No unit suffix. This is the default.
- Thousands (K)
- Millions (M)
- Billions (B)

- Trillions (T)
- A custom unit prefix or suffix

For currency, you can choose from the following symbols:

- Dollars ($)
- Euros (€)
- Pounds (£)
- Yen (¥)

Changing a field format

You can change the format of a field within the context of an analysis. The formatting options available for fields vary based on the field's data type.

Use menu options in the Field list pane or the visual field wells to make simple format changes, or use the Format data pane to make more extensive formatting changes.

Topics

- Format a currency field
- Format a date field
- Format a number field
- Format a percent field
- Format a text field
- Return a field's format to default settings

Format a currency field

When you format a currency field, you can either choose the currency symbol from a list of common options, or open the Format data pane and manually format the field. Manually formatting the field allows you to choose which symbol to use, which separators to use, the number of decimal places to show, which units to use, and how to display negative numbers.

Changing a field format changes it for all visuals in the analysis, but does not change it in the underlying dataset.

If you want to choose the symbol for a currency field from a list of common options, you can access such a list in several ways. You can access it from the Field list pane, an on-visual editor, or a visual field well.

To select a currency field's symbol by choosing a list option

1. Choose one of the following options:
    - In the Field list pane, choose the selector icon to the right of the number field that you want to format.
    - On any visual that contains an on-visual editor associated with the currency field that you want to format, choose that on-visual editor. Expand the Field wells pane, and then choose the field well associated with the number field that you want to change.
2. Choose Format, and then choose the currency field that you want:
    - Display in dollars ($).
    - Display in pounds (£).
    - Display in euros (€).
    - Display in yen or yuan (¥).

To manually change a currency field's format

1. Choose one of the following options:
    - In the Field list pane, choose the selector icon to the right of the number field that you want to format.
    - On any visual that contains an on-visual editor associated with the number field that you want to format, choose that on-visual editor. Expand the Field wells pane, and then choose the field well associated with the number field that you want to change.
2. Choose Format, and then choose More Formatting Options.

   The Format data pane opens.
3. Expand the Symbol section and choose from the following options:
    - Display in dollars ($). This is the default.
    - Display in pounds (£).
    - Display in euros (€).
    - Display in yen or yuan (¥).
4. Expand the Separators section and choose from the following options:

- Under Decimal, choose a dot or a comma for the decimal separator. A dot is the default. If you choose a comma instead, use a dot or a space as the thousands separator.
- Under Thousands, select or clear Enabled to indicate whether you want to use a thousands separator. Enabled is selected by default.
- If you are using a thousands separator, choose whether to use a comma, dot, or space for the separator. A comma is the default. If you choose a dot instead, use a comma as the decimal separator.

5. Expand the Decimal Places section and choose the number of decimal places to use. The default is 2. Field values are rounded to the decimal places specified. For example, if you specify two decimal places, the value 6.728 is rounded to 6.73.
6. Expand the Units section and choose from the following options:
   - Choose the unit to use. Choosing a unit adds the appropriate suffix to the number value. For example, if you choose Thousands, a field value of 1234 displays as 1.234K.

     The unit options are as follows:

     - No unit suffix. This is the default.
     - Thousands (K)
     - Millions (M)
     - Billions (B)
     - Trillions (T)

   - If you want to use a custom prefix or suffix, specify it in the Prefix or Suffix box. Using a custom suffix is a good way to specify a currency suffix outside of those already offered by Insights. You can specify both. You can also specify a custom prefix in addition to the suffix added by selecting a unit.
7. Expand the Negatives section and choose whether to display a negative value by using a minus sign or by enclosing it in parentheses. Using a minus sign is the default.
8. Expand the Null values section and choose whether to display null values as null or as a custom value. Using null is the default.

> **NOTE** When using a table or pivot table, null values only display for fields that are placed in the Rows, Columns, or Group by field wells. Null values for fields in the Values field well appear empty in the table or pivot table.

Format a date field

When you format a date field, you can choose a list of common formatting options. Or you can open the Format data pane to choose from a list of common formats, or specify custom formatting for the date and time values.

Changing a field format changes it for all visuals in the analysis that use that dataset, but does not change it in the dataset itself.

If you want to format a date field by choosing from a list of common options, you can access such a list in several ways. You can access it from the Field list pane, a visual on-visual editor, or a visual field well.

To change a date field's format by choosing a list option

1. Choose one of the following options:
    - In the Field list pane, choose the selector icon to the right of the number field that you want to format.
    - On any visual that contains an on-visual editor associated with the number field that you want to format, choose that on-visual editor. Expand the Field wells pane, and then choose the field well associated with the number field that you want to change.
2. Choose Format, and then choose the format that you want. The following quick formatting options are offered for date fields:
    - Show the month, day, year, and time.
    - Show the month, day, and year.
    - Show the month and year.
    - Show the year.

To manually change a date field's format

1. Choose one of the following options:
    - In the Field list pane, choose the selector icon to the right of the number field that you want to format.

- On any visual that contains an on-visual editor associated with the number field that you want to format, choose that on-visual editor. Expand the Field wells pane, and then choose the field well associated with the number field that you want to change.

2. Choose Format, and then choose More Formatting Options.

   The Format data pane opens.

3. Expand the Date section. Choose an existing date format, or choose Custom and specify a format pattern in the Custom section lower down in the Format data pane. If you choose Custom for the Date section, you must also choose Custom for the following Time section. The pattern that you specify in the Custom section must include any date and time formatting that you want.

   The default selection is Custom, with a default format pattern of MMM D, YYYY h:mma, for example Sep 20, 2022 5:30pm.

4. Expand the Time section. Choose an existing time format, or choose Custom and specify a format pattern in the Custom section lower down in the Format data pane. If you choose Custom for the Time section, you must also choose Custom for the preceding Date section. The pattern that you specify in the Custom section must include any date and time formatting that you want.

   The default selection is Custom, with a default format pattern of MMM D, YYYY h:mma, for example Sep 20, 2022 5:30pm.

5. If you chose Custom in the Date and Time sections, expand the Custom section and specify the format pattern that you want, using the format pattern syntax specified in Moment.js Display Format in the Moment.js JavaScript documentation.

   NOTE Time zone related display tokens (Z and z) from the Moment.js library are not supported in Insights.

   If you chose something other than Custom in the Date and Time sections, Custom is populated with the format pattern that reflects your selections. For example, if you chose Jun 21, 2016 in the Date section and 17:00:00pm in the Time section, the Custom section shows the format pattern MMM D, YYYY H:mm:ssa.

6. (Optional) Expand the Custom section and use Preview to verify your specified format.

7. Expand the Null values section and choose whether to display null values as null or as a custom value. Using null is the default.

Customizing date formats in Insights

In Insights, you can customize how dates are formatted in your filter and parameter controls. For example, you can specify to format the date in a control as 20-09-2021, or, if you'd rather, as 09-20-2021. You can also specify to shorten the month in your dates (such as September) to three letters (Sep), among other customizations.

Following is a list of tokens you can use to create custom date formats. You can use them in combination with one another to control how dates appear in your controls.

List of supported tokens for formatting dates

Use the following tokens to customize the format of dates in Insights.

Example	Description	Token
0–6	Numeric representation of a particular day of the week. 0 is Sunday and 6 is Saturday.	d
Mo–Su	A 2-character textual representation of a particular day of the week.	dd
Mon–Sun	A 3-character textual representation of a particular day of the week.	ddd
Monday–Sunday	A textual representation of a particular day of the week.	dddd
99 or 21	A 2-digit representation of a year.	YY
1999 or 2021	A full, 4-digit numeric representation of a year.	YYYY
1–12	Number of a month, without leading zeros.	M
1st, 2nd, to 12th	Number of a month without leading zeros and with an ordinal suffix.	Mo
01–12	Number of a month with leading zeros.	MM
Jan–Dec	A 3-digit textual representation of a month.	MMM
January–December	A full textual representation of a month.	MMMM
1–4	A numeric representation of a quarter.	Q
1st–4th	A numeric representation of a quarter with an ordinal suffix.	Qo
1–31	Day of the month without leading zeros.	D

Example	Description	Token
1st, 2nd, to 31st	Day of the month without leading zeros and an ordinal suffix.	Do
01–31	A 2-digit day of the month with leading zeros.	DD
1–365	Day of the year without leading zeros.	DDD
001–365	Day of the year with leading zeros.	DDDD
1–53	Week of the year without leading zeros.	w
1st–53rd	The week of the year without leading zeros and with an ordinal suffix.	wo
01–53rd	Week of the year with leading zeros.	ww
1–23	Hours, in 24-hour format, without leading zeros.	H
01–23	Hours, in 24-hour format, with leading zeros.	HH
1–12	Hours, in 12-hour format, without leading zeros.	h
01–12	Hours, in 12-hour format, with leading zeros.	hh
0–59	Minutes without leading zeros.	m
00–59	Minutes with leading zeros.	mm
0–59	Seconds without leading zeros.	s
00–59	Seconds with leading zeros.	ss
am or pm	am/pm	a
AM or PM	AM/PM	A
1632184215	Unix timestamp.	X
1632184215000	Millisecond Unix timestamp.	x

The following date types are not supported.

- Time zones offset with a colon. For example, +07:00.
- Time zones offset without a colon. For example, +0730.

Preset date formats

To quickly customize dates and times to appear as one of the following example formats, you can use the following Insights preset tokens.

Example	Token
8:30 PM	LT
8:30:25 PM	LTS
August 2 1985	LL
Aug 2 1985	ll
August 2 1985 08:30 PM	LLL
Aug 2 1985 08:30 PM	lll
Thursday, August 2 1985 08:30 PM	LLLL
Thu, Aug 2 1985 08:30 PM	llll

Common date formats

Following are three common date examples and their associated token formats for your quick reference.

Example	Token Format
Sep 20, 2021	MMM DD, YYYY
20-09-21 5pm	DD-MM-YY ha
Monday, September 20, 2021 17:30:15	dddd, MMMM DD, YYYY HH:mm:ss

Adding words to dates

To include words in your date formats, such as the word "of" in 20th of Sep, 2021, enter backslashes (\) before each character in the word. For example, for the 20th of Sep, 2021 date example, use the following token format: Do \o\f MMM, YYYY.

Example: Customizing the date format in a filter control

Use the following procedure to learn how to use date token formats to customize dates for a filter control.

To learn to customize dates for a filter control with data tokens

1. In an Insights analysis, choose the filter control that you want to customize.
2. On the filter control, choose the Edit control icon.
3. On the Edit control page that opens, for Date format, enter the custom date format that you want. Use the tokens listed previously in this topic.

   For example, let's say that you want to customize your dates using the following format: Sep 3rd, 2020 at 5pm. To do so, you can enter the following token format:

   MMM Do, YYYY \a\t ha

   A preview of the date format appears below the input field as you enter each token.
4. Choose Apply.

   The dates in the control update to the format you specified.

Format a number field

When you format a number field, you can choose the decimal place and thousand separator format from a list of common options. Or you can open the Format Data pane and manually format the field. Manually formatting the field enables you to choose which separators to use and the number of decimal places to show. It also enables you to choose which units to use, and how to display negative numbers.

Changing a field format changes it for all visuals in the analysis, but does not change it in the underlying dataset.

If you want to format a number field by choosing from a list of common options, you can access such a list from the Field list pane, an on-visual editor, or a visual field well.

To change a number field's format by choosing a list option:

- Choose one of the following options:
  - In the Field list pane, choose the selector icon to the right of the number field that you want to format.
  - On any visual that contains an on-visual editor associated with the number field that you want to format, choose that on-visual editor. Expand the Field wells pane, and then choose the field well associated with the number field that you want to change.
- Choose Format, and then choose the format that you want. The following quick formatting options are offered for number fields:

- Use commas to separate groups of thousands and use a decimal point to show the fractional part of the number, for example 1,234.56.
- Use a decimal point to show the fractional part of the number, for example 1234.56.
- Show the number as an integer and use commas to separate groups of thousands, for example 1,234.
- Show the number as an integer, for example 1234.

To manually change a number field's format:

1. Choose one of the following options:
    - In the Field list pane, choose the selector icon to the right of the number field that you want to format.
    - On any visual that contains an on-visual editor associated with the number field that you want to format, choose that on-visual editor. Expand the Field wells pane, and then choose the field well associated with the number field that you want to change.
2. Choose Format, and then choose More Formatting Options.

    The Format data pane opens.
3. Expand the Separators section and choose from the following options:
    - Under Decimal, choose a dot or a comma for the decimal separator. A dot is the default. If you choose a comma instead, use a dot or a space as the thousands separator.
    - Under Thousands, select or clear Enabled to indicate whether you want to use a thousands separator. Enabled is selected by default.
    - If you are using a thousands separator, choose whether to use a comma, dot, or space for the separator. A comma is the default. If you choose a dot instead, use a comma as the decimal separator.
4. Expand the Decimal Places section and choose from the following options:
    - Choose Auto to have Insights automatically determine the appropriate number of decimal places, or choose Custom to specify a number of decimal places. Auto is the default.

- If you chose Custom, enter the number of decimal places to use. Field values are rounded to the decimal places specified. For example, if you specify two decimal places, the value 6.728 is rounded to 6.73.

5. Expand the Units section and choose from the following options:

   - Choose the unit to use. Choosing a unit adds the appropriate suffix to the number value. For example, if you choose Thousands, a field value of 1234 displays as 1.234K.

     The unit options are as follows:

     - No unit suffix. This is the default.
     - Thousands (K)
     - Millions (M)
     - Billions (B)
     - Trillions (T)

   - If you want to use a custom prefix or suffix, specify it in the Prefix or Suffix box. You can specify both. You can also specify a custom prefix in addition to the suffix added by selecting a unit.

6. Expand the Negatives section and choose whether to display a negative value by using a minus sign or by enclosing it in parentheses. Using a minus sign is the default.

7. Expand the Null values section and choose whether to display null values as null or as a custom value. Using null is the default.

   NOTE When using a table or pivot table, null values only display for fields that are placed in the Rows, Columns, or Group by field wells. Null values for fields in the Values field well appear empty in the table or pivot table.

Format a percent field

When you format a percent field, you can choose the number of decimal places from a list of common options. Or you can open the Format data pane and manually format the field. Manually formatting the field enables you to choose which separators to use. It also enables you to choose the number of decimal places to show and how to display negative numbers.

Changing a field format changes it for all visuals in the analysis, but does not change it in the underlying dataset.

If you want to choose the number of decimal places for a percent field from a list of common options, you can access such a list in several ways. You can access it from the Field list pane, an on-visual editor, or a visual field well.

To change a percent field's number of decimal places by choosing a list option

1. Choose one of the following options:
    - In the Field list pane, choose the selector icon to the right of the number field that you want to format.
    - On any visual that contains an on-visual editor associated with the percent field that you want to format, choose that on-visual editor. Expand the Field wells pane, and then choose the field well associated with the number field that you want to change.
2. Choose Format, and then choose the number of decimal places that you want. The following quick formats are offered for percent fields:
    - Display the value with two decimal places.
    - Display the value with one decimal place.
    - Display the value with no decimal places.

To manually change a percent field's format

1. Choose one of the following options:
    - In the Field list pane, choose the selector icon to the right of the number field that you want to format.
    - On any visual that contains an on-visual editor associated with the number field that you want to format, choose that on-visual editor. Expand the Field wells pane, and then choose the field well associated with the number field that you want to change.
2. Choose Format, and then choose More Formatting Options.

   The Format data pane opens.
3. Expand the Separators section and choose from the following options:
    - Under Decimal, choose a dot or a comma for the decimal separator. A dot is the default. If you choose a comma instead, use a dot or a space as the thousands separator.

- Under Thousands, select or clear Enabled to indicate whether you want to use a thousands separator. Enabled is selected by default.
- If you are using a thousands separator, choose whether to use a comma, dot, or space for the separator. A comma is the default. If you choose a dot instead, use a comma as the decimal separator.

4. Expand the Decimal Places section and choose from the following options:
   - Choose Auto to have Insights automatically determine the appropriate number of decimal places, or choose Custom to specify a number of decimal places. Auto is the default.
   - If you chose Custom, enter the number of decimal places to use. Field values are rounded to the decimal places specified. For example, if you specify two decimal places, the value 6.728 is rounded to 6.73.
5. Expand the Negatives section and choose whether to display a negative value by using a minus sign or by enclosing it in parentheses. Using a minus sign is the default.
6. Expand the Null values section and choose whether to display null values as null or as a custom value. Using null is the default.

   NOTE When using a table or pivot table, null values only display for fields that are placed in the Rows, Columns, or Group by field wells. Null values for fields in the Values field well appear empty in the table or pivot table.

Format a text field

When you format a text field, you can choose how to display null values using the Field list pane, an on-visual editor, or a visual field well.

To choose how to display a text field's null values

1. Choose one of the following options:
   - In the Field list pane, choose the selector icon to the right of the number field that you want to format.
   - On any visual that contains an on-visual editor associated with the percent field that you want to format, choose that on-visual editor. Expand the Field wells pane, and then choose the field well associated with the number field that you want to change.
2. Choose Format, and then choose More Formatting Options.

The Format data pane opens.

3. Expand the Null values section and choose whether to display null values as null or as a custom value. Using null is the default.

Return a field's format to default settings

Use the following procedure to return a field's format to the default settings.

To return a field's format to the default settings

1. In the Field list pane, choose the selector icon to the right of the field that you want to reset.
2. Choose Format, and then choose More Formatting options.

   The Format data pane opens.
3. Choose Reset to defaults.

Sorting visual data in Insights

You can sort data using multiple methods for most visual types. You can choose the sort order of on-visual data by using the quick sort option or field wells. You can also use field wells to sort data by an off-visual metric. The visual element you can sort by depends on the visual type and whether sorting is supported for that visual. For more information on which visual types support sorting, see Formatting options available for each visual type in Insights.

Pivot tables behave differently than tables when sorting values. For more information about sorting pivot tables, see Sort pivot tables in Insights.

For SPICE datasets, you can sort text strings of sizes up to the following limitations:

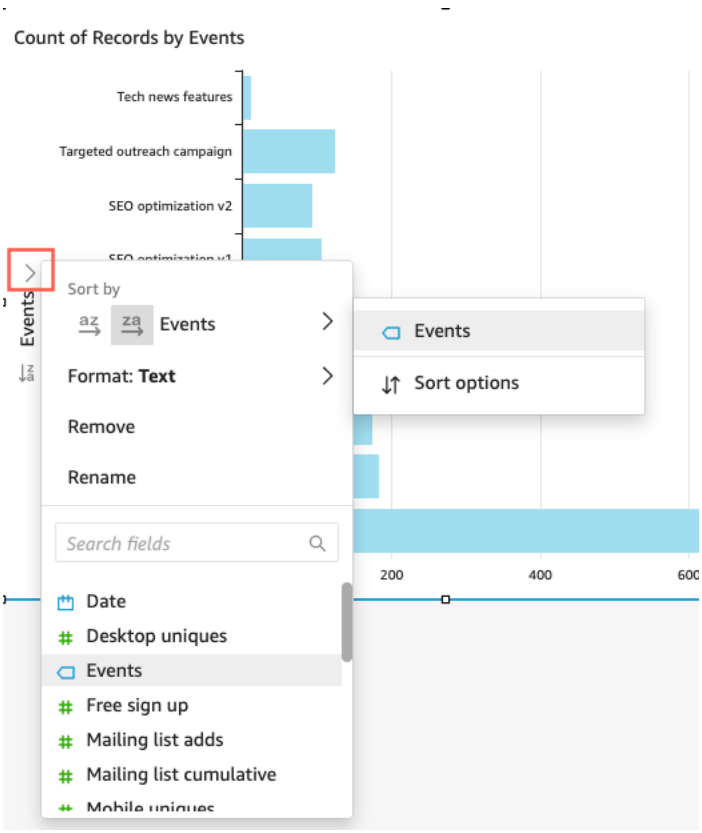
- Up to two million (2,000,000) unique values
- Up to 16 columns

When you exceed the limitations, the visual displays a notification at the upper right.

You can sort any visual type that supports sorting. If a visual type supports sorting, you can sort by using either the quick sort option or a field well.

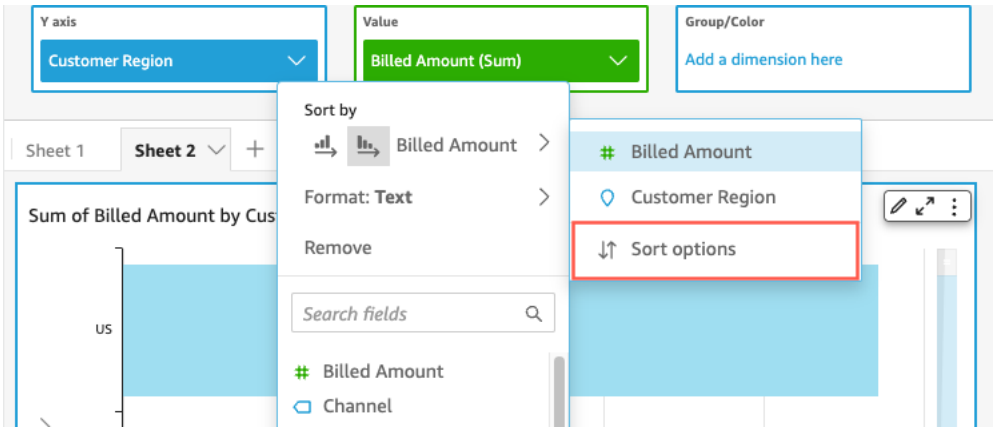
To quickly sort dimensions and measures

- Do one of the following:
  - Choose the sort icon that appears near the field name on either axis. In direct queries, this icon appears for any data type. For SPICE, this icon is available only for datetime, numeric, and decimal data types.
  - Choose the field name and then choose the sort option from the menu. If the label doesn't display on the axis, check the visual format to see if the axis is set to display labels. The display labels are automatically hidden on smaller visuals. You might need to make the visual large enough to display labels.



To sort by using an off-visual metric

1. Open the analysis with the visual that you want to sort and click anywhere on Field wells to expand the field wells.
2. Choose a field well that supports sorting, then choose Sort by, Sort options.



3. On the Sort options pane, sort by specific fields, choose an aggregation, or sort ascending or descending, or do a combination of these.

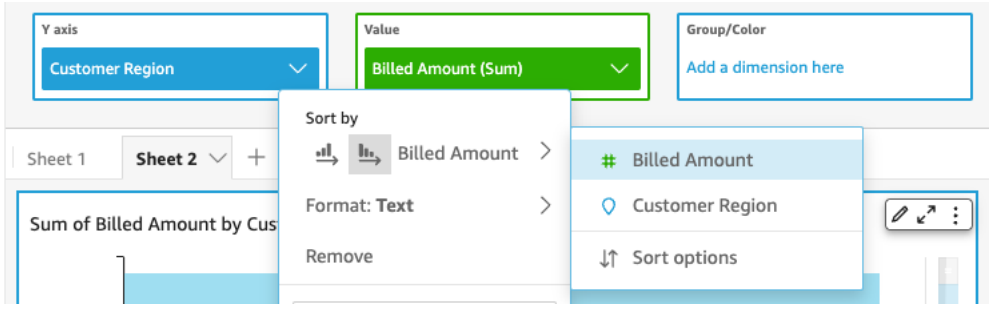
4. Choose Apply to save your changes. Or choose Clear to start over or Cancel to go back.

To sort by using a field well

1. Open the analysis with the visual you want to sort and click anywhere on Field wells to expand the field wells.

2. Choose a field well that supports sorting.

3. On the field well menu, choose Sort, and then choose the ascending or descending sort order icon.



Using themes in Insights

In Insights, a theme is a collection of settings that you can apply to multiple analyses and dashboards. Insights includes some themes, and you can add your own by using the theme editor. You can share themes with permissions levels set to user or owner. Anyone who has access to the theme can apply it to analyses and dashboards, or use Save as to make their own copy of it. Theme owners can also edit the theme and share it with others.

An analysis can have only one theme applied. If you apply a theme to an analysis (by using the Apply button), it instantly changes it for everyone—both analysis and dashboard viewers. To explore and save color options without applying them, avoid editing and saving the applied theme.

All colors come in pairs of background and foreground colors. The foreground colors are meant to specifically appear above their matching background color, so choose something that contrasts well.

The following table defines the different settings.

Group	Setting	What the setting changes
Main	Primary background	The background color used for visuals and other high emphasis UI.
Main	Primary foreground	The color of text and other foreground elements that appear over the primary background regions such as grid lines, borders, table banding, icons, and so on.
Main	Secondary background	The background color used for the sheet background and sheet controls.
Main	Secondary foreground	The foreground color used for any sheet title, sheet control text, or UI that appears over the secondary background.
Main	Accent	This setting is used as an interactive hint for the following: ■ Buttons ■ Borders around the selected visual ■ Loading indicators ■ Narration customizations ■ Links ■ Filter panes for embedded dashboards
Main	Accent foreground	The foreground color applies to any text or other elements that appear over the accent color.
Main	Font	The font to use for all of the text. You can choose from a variety of fonts supported by Insights.

Group	Setting	What the setting changes
Data	Data colors	These are the data colors that charts rotate through when assigning colors to groups. You can add or remove colors to this list, or choose a color to change it.
Data	Min max gradient	The default minimum and maximum gradient colors to use when a gradient is used as a scale, for example in heat maps.
Data	Empty fill color	This is the color used with your data colors to indicate a lack of data. For example, this color appears in the empty portion of the progress bars that are shown in key performance indication (KPI) and gauge charts, or for empty heat map cells.
Layout	Border	This setting toggles the border around the visuals that aren't currently selected. The selected visual's border still displays the accent color.
Layout	Margin	This setting toggles the space between the sheet boundaries and the visuals.
Layout	Gutter	This setting shows or hides the space between visuals in the grid.
Other	Success Success foreground	These colors are used for success messages, for example the check mark for a successful download.
Other	Warning Warning foreground	These colors are used for warning and informational messages.
Other	Danger Danger foreground	These colors are used for error messages.
Other	Dimension Dimension foreground	These colors are used for the names of fields that are identified as dimensions. This option also sets the color for dimensions in the filter panel of embedded dashboards.
Other	Measure Measure foreground	These colors are used for the names of fields that are identified as measures. These colors also apply to measures in the filter panel of embedded dashboards.

To take a short tour of the theme viewer and editor

1. Open an analysis, or create a new one. You must have an analysis open to work with themes. However, the view you see with the theme applied is only a preview.

   Themes are separate from analyses. No changes are made to your analysis, even when you save a theme.

2. Choose Themes on the left. The theme panel opens.

3. The list of themes shows the following:

   - Applied theme shows the theme that is currently applied to this analysis and its dashboards.
   - My themes shows themes that you created and themes that are shared with you.
   - Starter themes shows themes created by Insights.

4. Each theme has context menu that you can access from the … icon.

   The actions that are available to you on each theme depend on your level of access.

   - Theme owners – If you created the theme, or someone shared it with you and made you an owner, you can do the following:
     - Edit – Change the settings for the theme, and save them.
     - Save – Save changes you made to the theme. If you edit the applied theme save your changes, the new theme settings apply to all the analyses and dashboards that use it. An informational message displays before you overwrite an applied theme.
     - Share – Share the theme and assign user or owner permissions to other people.
     - Delete – Delete a theme. You can't undo this action. An informational message displays before you confirm deletion.
   - Theme users – If someone shared the theme with you, or if it's an Insights theme, you can do the following:
     - Apply – Apply the theme to the current analysis. This option also applies the theme to dashboards created from the analysis. An informational message displays before you overwrite an applied theme.
     - Save as – Save the current theme to another name, so you can edit it.

- Analysis authors – If you have access to the analysis, but not the theme, you can do the following:
  - You can see the analysis with the theme applied.
  - You can see the theme in the Theme panel.
  - You can use Save as to create your own copy of the theme.
- Dashboard viewers – If you have access to the dashboard, but not the theme, you can do the following:
  - You can see the dashboard with the theme applied.
  - You can't see the theme or its settings. Dashboard users can't see the Theme panel.

5. To explore a theme's settings, choose the icons on the left to see settings for colors.

The following procedure walks you through creating a theme. You can start on the analysis, or a copy of the analysis, that you want to use to preview the colors. Or you can start a new analysis. After you save the theme, you can apply it to the current analysis or to other analyses. If you share it, other people can use it too.

To use the theme editor

1. Open an analysis, or create a new one. Choose Themes at left.

   You must have an analysis open to work with themes. However, the view you see with the theme applied is only a preview. Themes are separate from analyses. No changes are made to your analysis, even when you save a theme.

2. Choose Main. The color picker used in each of these settings is the standard one used throughout Insights.

   Set colors for Primary background and Primary foreground to use in visuals and other high impact UI.

   Set colors for Secondary background and Secondary foreground to use in sheets and sheet controls.

   Set colors for Accent and Accent foreground to use in interactive hints including buttons, borders around selected visuals, loading indicators, narration customizations, links, and the filter pane in embedded dashboards.

3. Choose Data.

Set the Colors to use as data colors. Charts rotate through these when assigning colors. You can add or delete colors, or change the order they're in by dragging and dropping. To change an existing color, select it to open the color editor.

Set colors for Min max gradient to use when a gradient is used as a scale, for example in heat maps.

Set the color for Empty fill to use when showing a lack of data, for example the unfilled part of a progress bar.

4. Choose Layout.

   Enable or disable the Border check box to show or hide the border around the visuals that aren't currently selected.

   Enable or disable the Margin check box to show or hide the space between the sheet boundaries and the visuals.

   Enable or disable the Gutter check box to show or hide the space between visuals in the grid.

5. Choose Other.

   Set the color for Success to use in success messages, for example when you successfully download a .csv file. The success foreground color isn't currently used.

   Set the color for Warning to use in warning and informational messages. The warning foreground color isn't currently used.

   Set the color for Danger to use in error messages. The danger foreground color isn't currently used.

   Set the color for Dimension to use for the names of fields that are identified as dimensions. This option also sets the color for dimensions in the filter panel of embedded dashboards.

   Set the color for Measure to use for the names of fields that are identified as measures. This option also sets the color for measures in the filter panel of embedded dashboards.

6. To save the theme, choose Main and give the new theme a name, and then choose Save at the upper-right of the browser.

   Saving a theme doesn't apply it to the analysis, even though you can see a preview of the colors that uses the current analysis.

7. To share the theme, save or close the theme you are viewing. Find the theme in your theme collection. Choose Share from the context menu (…).

8. To apply the theme, save or close the theme you are viewing. Find the theme in your theme collection. Choose Apply from the context menu (…).

Accessing Insights using keyboard shortcuts

You can use the following keyboard shortcuts to navigate an Insights dashboard or analysis:

- Use the TAB key to navigate among menu options or visuals.
- Use the Shift+TAB keys to move backward to the previous selection.
- Use the Enter key to select a visual or menu option.
- Use the ESC key to clear the selection from a visual or menu item.

Using shortcuts within a visual

You can use the TAB, Shift+TAB, and Enter keys to navigate and select different fields within a selected visual. For example, say that you want to use a link that's a part of your visuals title. To do this, select the visual that you want, then use the TAB key until just the link is selected. Then, use the Enter key to click on the link.

You can also use these keyboard shortcuts to navigate and enter the on-visual menu on the upper-right corner of a visual. To do this, select the visual that you want and use the TAB key to get to the field that you want to select. If you miss the field that you want, use the Shift+TAB keys to go back a field.

Gaining insights with machine learning (ML) in Insights

Insights uses machine learning to help you uncover hidden insights and trends in your data, identify key drivers, and forecast business metrics. You can also consume these insights in natural language narratives embedded in dashboards.

Using machine learning (ML) and natural language capabilities, Insights takes you beyond descriptive and diagnostic analysis, and launches you into forecasting and decision-making. You can understand your data at a glance, share your findings, and discover the best decisions to achieve your goals. You can do this without developing teams and technology to create the necessary machine learning models and algorithms.

You likely have already built visualizations that answer questions about what happened, when, where, and provide drill down for investigation and identification of patterns. With ML insights, you can avoid spending hours manually analyzing and investigating. You can select from a list of customized context-sensitive narratives, called autonarratives, and add them to your analysis. In addition to choosing autonarratives, you can choose to view forecasts, anomalies, and factors contributing to these. You can also add autonarratives that explain the key takeaways in plain language, providing a single data-driven truth for your company.

As time passes and data flows through the system, Insights continually learns so it can deliver ever more pertinent insights. Instead of deciding what the data means, you can decide what to do with the information it provides.

With a shared foundation based on machine learning, all of your analysts and stakeholders can see trends, anomalies, forecasts, and custom narratives built on millions of metrics. They can see root causes, consider forecasts, evaluate risks, and make well-informed, justifiable decisions.

You can create a dashboard like this with no manual analysis, no custom development skills, and no understanding of machine learning modeling or algorithms. All this capability is built into Insights.

NOTE Machine learning capabilities are used as needed throughout the product. Features that actively use machine learning are labeled as such.

With ML Insights, Insights provides these major features:

- ML-powered forecasting – Insights enables nontechnical users to confidently forecast their key business metrics. The built-in ML Random Cut Forest algorithm automatically handles complex real-world scenarios such as detecting seasonality and trends, excluding outliers, and imputing missing values. You can interact with the data with point-and-click simplicity.
- Autonarratives – By using automatic narratives in Insights, you can build rich dashboards with embedded narratives to tell the story of your data in plain language. Doing this can save hours of sifting through charts and tables to extract the key insights for reporting. It also creates a shared understanding of the data within your organization so you make decisions faster. You can use the suggested autonarrative, or you can customize the computations and language to meet your unique requirements. Insights is like providing a personal data analyst to all of your users.

Topics

- Understanding the ML algorithm used by Insights
- Working with insights in Insights
- Creating autonarratives with Insights
- Forecasting and creating what-if scenarios with Insights

Understanding the ML algorithm used by Insights

You don't need any technical experience in machine learning to use the ML-powered features in Insights. This section dives into the technical aspects of the algorithm, for those who want the details about how it works. This information isn't required reading to use the features.

Insights uses a built-in version of the Random Cut Forest (RCF) algorithm. The following sections explain what that means and how it is used in Insights.

First, let's look at some of the terminology involved:

- Data point – A discrete unit—or simply put, a row—in a dataset. However, a row can have multiple data points if you use a measure over different dimensions.
- Decision Tree – A way of visualizing the decision process of the algorithm that evaluates patterns in the data.
- Forecast – A prediction of future behavior based on current and past behavior.
- Model – A mathematical representation of the algorithm or what the algorithm learns.
- Seasonality – The repeating patterns of behavior that occur cyclically in time series data.
- Time series – An ordered set of date or time data in one field or column.

Topics

- What RCF is and what it does
- How RCF is applied to detect anomalies
- How RCF is applied to generate forecasts
- References for machine learning and RCF

What RCF is and what it does

A random cut forest (RCF) is a special type of random forest (RF) algorithm, a widely used and successful technique in machine learning. It takes a set of random data points, cuts them down to the same number of points, and then builds a collection of models. In contrast, a model corresponds to a decision tree—thus the name forest. Because RFs can't be easily updated in an incremental manner, RCFs were invented with variables in tree construction that were designed to allow incremental updates.

As an unsupervised algorithm, RCF uses cluster analysis to detect spikes in time series data, breaks in periodicity or seasonality, and data point exceptions. Random cut forests can work as a synopsis or sketch of a dynamic data stream (or a time-indexed sequence of numbers). The answers to our questions about the stream come out of that synopsis. The following characteristics address the stream and how we make connections toforecasting:

- A streaming algorithm is an online algorithm with a small memory footprint. An online algorithm makes its decision about the input point indexed by time t before it sees the (t+1)-st point. The small memory allows nimble algorithms that can produce answers with low latency and allow a user to interact with the data.
- Respecting the ordering imposed by time, as in an online algorithm, is necessary in forecasting. If we already know what will happen the day after tomorrow, then predicting what happens tomorrow isn't a forecast—it's just interpolating an unknown missing value.

How RCF is applied to generate forecasts

To forecast the next value in a stationary time sequence, the RCF algorithm answers the question "What would be the most likely completion, after we have a candidate value?" It uses a single tree in RCF to perform a search for the best candidate. The candidates across different trees are aggregated, because each tree by itself a weak predictor. The aggregation also allows the generation of quantile errors. This process is repeated t times to predict the t−th value in the future.

The algorithm in Insights is called BIFOCAL. It uses two RCFs to create a CALibrated BI-FOrest architecture. The first RCF is used to filter out anomalies and provide a weak forecast, which is corrected by the second. Overall, this approach provides significantly more robust forecasts in comparison to other widely available algorithms such as ETS.

The number of parameters in the Insights forecasting algorithm is significantly fewer than for other widely available algorithms. This allows it to be useful out of the box, without human adjustment for a larger number of time series data points. As more data accumulates in a particular time series, the forecasts in Insights can adjust to data drifts and changes of pattern. For time series that show trends, trend detection is performed first to make the series stationary. The forecast of that stationary sequence is projected back with the trend.

Because the algorithm relies on an efficient online algorithm (RCF), it can support interactive "what-if" queries. In these, some of the forecasts can be altered and treated as hypotheticals to provide conditional forecasts. This is the origin of the ability to explore "what-if" scenarios during analysis.

Working with insights in Insights

In Insights, you can add ready-to-use analytical computations to your analysis as widgets. You can work with insights in two ways:

- Suggested insights

  Insights creates a list of suggested insights based on its interpretation of the data you put into your visuals. The list changes based on context. In other words, you can see different suggestions depending on what fields you add to your visual and what type of visual you choose. For example, if you have a time-series visualization, your insights might include period-over-period changes, anomalies, and forecasts. As you add more visualizations to your analysis, you generate more suggested insights.

- Custom insights

  Custom insights enable you to create your own computation, using your own words to give context to the fields that appear in the widget. When you create a custom insight, you add it to the analysis, and then choose what type of calculation that you want to use. Then, you can add text and formatting to make it look how you want. You can also add more fields, calculations, and parameters.

You can add any combination of suggested and custom insights to your analysis, to create the decision-making environment that best serves your purposes.

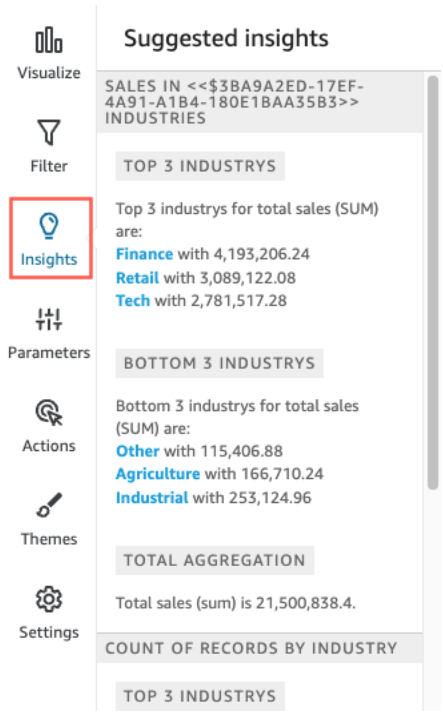
Topics

- Adding suggested insights
- Adding custom insights to your analysis

Adding suggested insights

Use the following procedure to add suggested insights to your analysis.

1. Begin with an analysis that has a few fields added to a visual.
2. On the left, choose Insights. The Insights panel opens and displays a list of ready-to-use suggested insights.

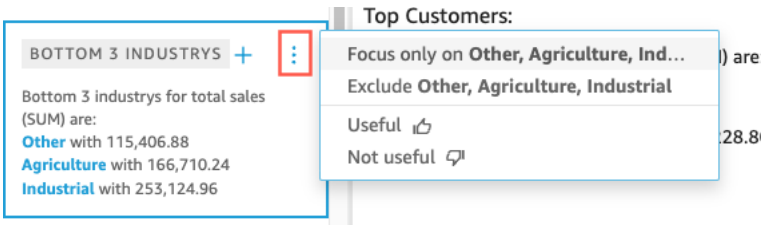


Each visual also displays a small box on its top border to display how many insights are available for that visual. You can choose this box to open the Insights panel, and it opens to whatever view you most recently had open.

Scroll down to preview more insights.

The insights that appear are controlled by the data type of the fields you choose to include in your visual. This list is generated each time you change your visual. If you make changes, check Insights to see what is new. To get a specific insight, see Adding custom insights to your analysis.

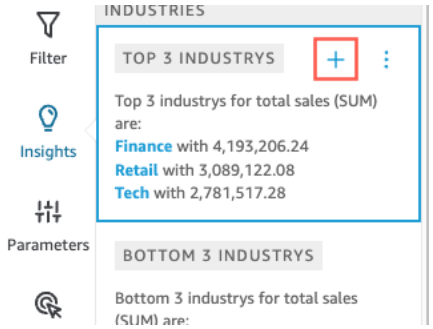
3. (Optional) Open the context menu with more options for one of the insights. To do this, choose the ellipses on the top right of the insight (…).



The options are different for each type of insight. The options that you can interact with include the following:

- Change the time series aggregation – To year, quarter, month, week, day, hour, or minute.
- Analyze contributions to metrics – Choose contributors and a time frame to analyze.
- Show all anomalies – Browse anomalies in this time frame.
- Edit forecast – Choose forecast length, prediction interval, and seasonality.
- Focus on or Exclude – Zoom in or zoom out on your dimensional data.
- Show details – View more information about a recent anomaly (outlier).
- Provide feedback on the usefulness of the insight in your analysis.

4. Add a suggested insight to your analysis by choosing the plus sign (+) near the insight title.



5. (Optional) After you add an insight to your analysis, customize the narrative that you want it to display. To do this, choose the v-shaped on-visual menu, then choose Customize narrative. For more information, see Creating autonarratives with Insights.

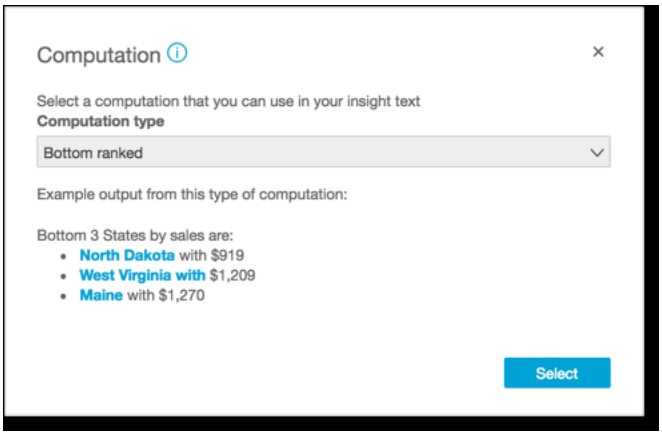
6. (Optional) To remove the insight from your analysis, choose the v-shaped on-visual menu at the top right of the visual. Then choose Delete.

Adding custom insights to your analysis

If you don't want to use any of the suggested insights, you can create your own custom insight. Use the following procedure to create a custom computational insight.

1. Start with an existing analysis. On the top menu bar, choose Add+. Then choose Add Insight.

   A container for the new insight is added to the analysis. The following screen appears.



2. Do one of the following:

   - Choose the computation that you want to use from the list. As you choose each item, an example of that insight's output displays. When you find the one that you want to use, choose Select.
   - Exit this screen and customize the insight manually. An unconfigured insight has a Customize insight button. Choose the button to open the Configure narrative screen. For more information on using the expression editor, see Creating autonarratives with Insights.

   Because you are initiating the creation of the insight, it's not based on an existing visual. When the insight is added to the analysis, it displays a note showing what kind of data it needs to complete your request. For example, it might ask for 1 dimension in Time. In this case, you add a dimension to the Time field well.

3. After you have the correct data, follow any remaining screen prompts to finish creating the custom insight.

4. (Optional) To remove the insight from your analysis, choose the v-shaped on-visual menu at the top right of the visual. Then choose Delete.

Creating autonarratives with Insights

An autonarrative is a natural-language summary widget that displays descriptive text instead of charts. You can embed these widgets throughout your analysis to highlight key insights and callouts. You don't have to sift through the visual, drilling down, comparing values, and rechecking ideas to extract a conclusion. You also don't have to try to understand what the data means, or discuss different interpretations with your colleagues. Instead, you can extrapolate the conclusion from the data, and display it in the analysis, stated plainly. A single interpretation can be shared by everyone.

Insights automatically interprets the charts and tables in your dashboard and provides a number of suggested insights in natural language. The suggested insights that you can choose from are ready-made and come with words, calculations, and functions. But you can change them if you want to. You can also design your own. As the author of the dashboard, you have complete flexibility to customize the computations and language for your needs. You can use narratives to effectively tell the story of your data in plain language.

NOTE Narratives are separate from machine learning. They only use ML if you add forecast computations to them.

Topics

- Insights that include autonarratives
- Working with the expression editor screen and menus
- Adding URLs
- Walkthrough: Use the narrative expression editor
- Working with autonarrative computations

Insights that include autonarratives

When you are adding an insight, also known as an autonarrative, to your analysis, you can choose from the following templates. In the following list, they defined by example. Each definition includes a list of the minimum required fields for the autonarrative to work. If you are using only the suggested insights on the Insights tab, choose the appropriate fields to get an insight to show up in the suggested insights list.

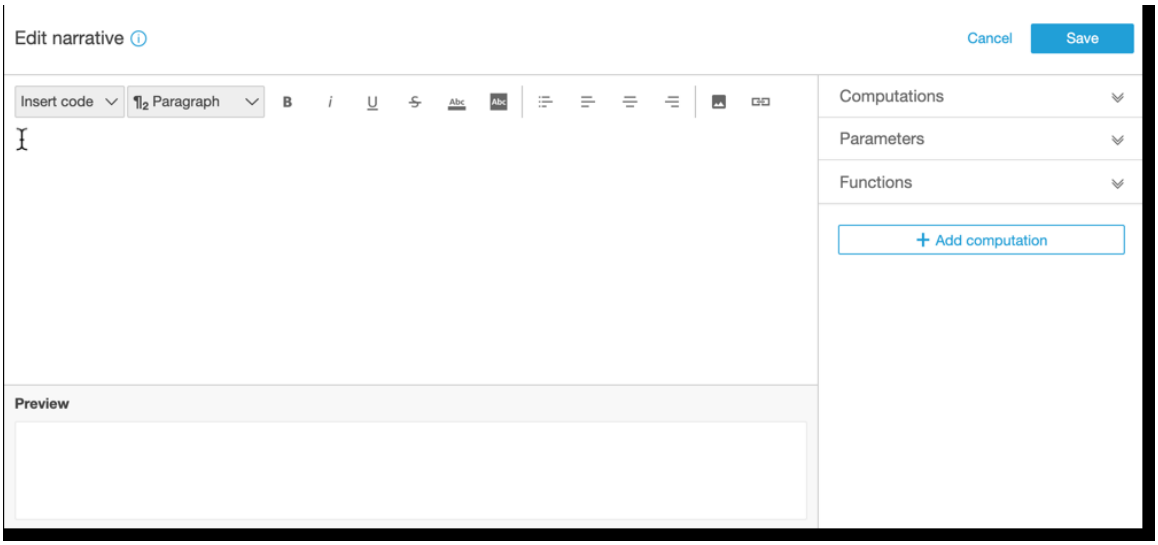
For more information on customizing autonarratives, see Working with autonarrative computations.

- Bottom ranked – For example, the bottom three states by sales revenue. Requires that you have at least one dimension in the Categories field well.
- Bottom movers – For example, the bottom three products sold, by sales revenue. Requires that you have at least one dimension in the Time field well and at least one dimension in the Categories field well.
- Forecast (ML-powered insight) – For example, "Total sales are forecasted to be $58,613 for Jan 2016." Requires that you have at least one dimension in the Time field well.
- Growth rate – For example, "The 3-month compounded growth rate for sales is 22.23%." Requires that you have at least one dimension in the Time field well.

- Maximum – For example, "Highest month is Nov 2014 with sales of $112,326." Requires that you have at least one dimension in the Time field well.
- Metric comparison – For example, "Total sales for Dec 2014 is $90,474, 10% higher than target of $81,426." Requires that you have at least one dimension in the Time field well and at least two measures in the Values field well.
- Minimum – For example, "Lowest month is Feb 2011 with sales of $4,810." Requires that you have at least one dimension in the Time field well.
- Period over period – For example, "Total sales for Nov 2014 increased by 44.39% ($34,532) from $77,793 to $112,326." Requires that you have at least one dimension in the Time field well.
- Period to date – For example, "Year-to-date sales for Nov 30, 2014 increased by 25.87% ($132,236) from $511,236 to $643,472." Requires that you have at least one dimension in the Time field well.
- Top ranked – For example, top three states by sales revenue. Requires that you have at least one dimension in the Categories field well.
- Top movers – For example, top products by sales revenue for November 2014. Requires that you have at least one dimension in the Time field well and at least one dimension in the Categories field well.
- Total aggregation – For example, "Total revenue is $2,297,200." Requires that you have at least one dimension in the Time field well and at least one measure in the Values field well.
- Unique values – For example, "There are 793 unique values in Customer_IDs." Requires that you have at least one dimension in the Categories field well.

Working with the expression editor screen and menus

The following screenshot shows a new blank narrative. In this image, the browser window is smaller than usual, so you can see the icons on the menu bar. You can maximize the browser to make the editor as large as your screen.



On the right side of the screen, there's a list of items that you can add to the narrative:

- Computations – Use this to choose from the computations that are available in this insight. You can expand this list.
- Parameters – Use this to choose from the parameters that exist in your analysis. You can expand this list.
- Functions – Use this to choose from functions that you can add to a narrative. You can expand this list.
- Add computation – Use this button to create another computation. New computations appear in the Computations list, ready to add to the insight.

At the bottom of the narrative expression editor, there's a preview of the narrative that updates as you work. This area also shows an alert if you introduce an error into the narrative or if the narrative is empty. To see a preview of ML-powered insights like forecasting, run your insight calculation at least once before customizing the narrative.

Editing tools are located across the top of the screen. They offer the following options:

- Insert code – You can insert the following code blocks from this menu:
  - Expressions – Add a free-form expression.
  - Inline IF – Add an IF statement that displays inline with the existing block of text.

- Inline FOR – Add a FOR statement that displays inline with the existing block of text.
- Block IF – Add an IF statement that displays in a separate block of text.
- Block FOR – Add a FOR statement that displays in a separate block of text.

The IF and FOR statements enable you to create content that is conditionally formatted. For example, you might add a block IF statement, then configure it to compare an integer to a value from a calculation. To do this, you use the following steps, also demonstrated in Walkthrough: Use the narrative expression editor:

1. Open the calculations menu at right, and choose one of the blue highlighted items from one of the calculations. Doing this adds the item to the narrative.
2. Click once on the item to open it.
3. Enter the comparison that you want to make. The expression looks something like this: PeriodOverPeriod.currentMetricValue.value>0.
4. Save this expression in the pop-up editor, which prompts you for Conditional content.
5. Enter what you want to display in the insight, and format it as you want it to appear. Or if you prefer, you can add an image or a URL—or add a URL to an image.

- Paragraph – This menu offers options for changes to the font size:
  - H1 Large header
  - H2 Header
  - H3 Small header
  - ¶1 Large paragraph
  - ¶2 Paragraph
  - ¶3 Small paragraph
- Font – Use this menu tray to choose options for text formatting. These include bold, italic, underline, strikethrough, foreground color of the text (the letters themselves), and background color of the text. Choose the icon to turn on an option; choose it again to toggle the option off.

- Formatting – Use this menu tray to choose options for paragraph formatting, including bulleted list, left justify, center, and right justify. Choose the icon to turn on an option, choose it again to toggle the option off.
- Image – Use this icon add an image URL. The image displays in your insight, provided the link is accessible. You can resize images. To display an image based on a condition, put the image inside an IF block.
- URL – Use this icon to add a static or dynamic URL. You can also add URLs to images. For example, you can add traffic light indicator images to an insight for an executive dashboard, with links to a new sheet for red, amber, and green conditions.

Adding URLs

Using the URL button on the editing menu of the narrative expression editor, you can add static and dynamic URLs (hyperlinks) into a narrative. You can also use the following keyboard shortcuts: ⌘ +⇧+L or Ctrl+⇧+L.

A static URL is a link that doesn’t change; it always opens the same URL. A dynamic URL is a link that changes based on the expressions or parameters that you provide when you set it up. It's built with dynamically evaluated expressions or parameters.

Following are of examples of when you might add a static link in your narrative:

- In an IF statement, you might use the URL in the conditional content. If you do and a metric fails to meet an expected value, your link might send the user to a wiki with a list of best practices to improve the metric.
- You might use a static URL to create a link to another sheet in the same dashboard, by using the following steps:
    1. Go to the sheet that you want to make the link to.
    2. Copy that sheet's URL.
    3. Return to the narrative editor and create a link using the URL that you just copied.

Following are examples of when you might add a dynamic link in your narrative:

- To search a website with a query, by using the following steps.
    1. Create a URL with the following link.

```
https://google.com?q=<<formatDate(now(),'yyyy-MM-dd')>>
```

This link sends a query to Google with search text that is the evaluated value of the following.

```
formatDate(now(), 'yyyy-MM-dd')
```

If the value of now() is 02/02/2020, then the link on your narrative contains https://google.com?q=2020-02-02.

- To create a link that updates a parameter. To do this, create or edit a link and set the URL to the current dashboard or analysis URL. Then add the expression that sets the parameter value to at the end, for example #p.myParameter=12345.

  Suppose that the following is the dashboard link that you start with.

  ```
  https://us-east-1.quicksight.aws.amazon.com/sn/analyses/00000000-1111-2222-3333-44444444
  ```

  If you add a parameter value assignment to it, it looks like the following.

  ```
  https://us-east-1.quicksight.aws.amazon.com/sn/analyses/00000000-1111-2222-3333-44444444#p.myParameter=12345
  ```

  For more information on parameters in URLs, see Using parameters in a URL.

Walkthrough: Use the narrative expression editor

The following walkthrough shows an example of how to customize a narrative. For this example, we use a period over period computation type.

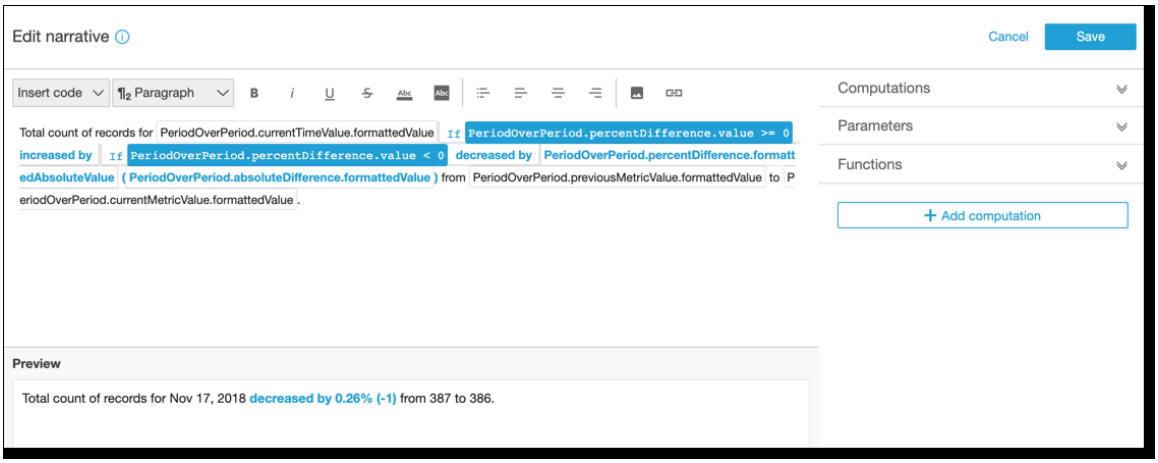
1. Begin with an existing analysis. Add a period over period insight to it. The easiest way to do this is to choose the + icon, then Add insight, then choose a type of insight from the list. To learn what type of computational insights you can add as autonarratives, see Insights that include autonarratives.

   After you choose a type of insight, choose Select to create the widget. To create an empty narrative, close this screen without choosing a template. To follow this example, choose Period over period.

   If you had a visual selected when you added the insight, the field wells have preconfigured fields for the date, metric, and category. These come from the visualization that you chose when you created the insight. You can customize the fields as needed.

   You can only customize a narrative for a new or existing insight (text-based) widget. You can't add one to an existing visual (chart based), because it's a different type of widget.

2. Edit the narrative in the expressions editor by choosing the on-visual menu, then choosing Customize narrative. The following screen appears, filling the entire browser window except for the Insights menu.



In this context, Computations are predefined calculations (period-over-period, period-to-date, growth rate, max, min, top movers, and so on) that you can reference in your template to describe your data. Currently, Insights supports 13 different types of computations that you can add to your insight. In this example, PeriodOverPeriod is added by default because we chose the Period Over Period template from the suggested insights panel.

3. Choose Add computation at bottom right to add a new computation, and then choose one from the list. For this walkthrough, choose Growth rate, and then choose Next.

4. Configure the computation by choosing the number of periods that you want to compute over. The default is four, and that works for our example. Optionally, you can change the name of the computation at the top of the screen. However, for our purposes, leave the name unchanged.

   > **NOTE**
   > The computation names that you create are unique within the insight. You can reference multiple computations of the same type in your narrative template. For example, suppose that you have two metrics, sales revenue and units sold. You can create growth rate computations for each metric if they have different names.

   To proceed, choose Add.

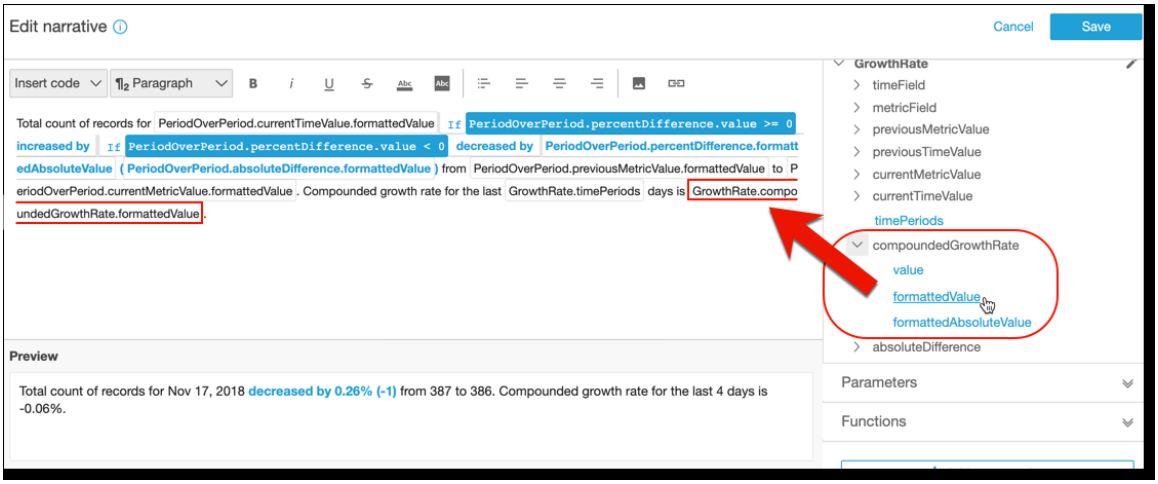
5. Expand Computations on the right. The computations that are part of the narrative display in the list. In this case, it's PeriodOverPeriod and GrowthRate.

6. In the workspace, add the following text after the final period: Compounded growth rate for the last, then add a space.

7. Next, to add the computation leave your cursor after the space after the word last. On the right, under GrowthRate, choose the expression named timePeriods (click only once to add it).

   Doing this inserts the expression GrowthRate.timePeriods, which is the number of periods you set in the configuration for GrowthRate.

8. Complete the sentence with days is (a space before and afterwards), and add the expression GrowthRate.compoundedGrowthRate.formattedValue, followed by a period (.). Choose the expression from the list, rather than typing it in. However, you can edit the contents of the expression after you add it.



> **NOTE** The formattedValue expression returns a string that is formatted based on the formatting applied for the metric on the field. To perform metric math, use value instead, which returns the raw value as an integer or decimal.

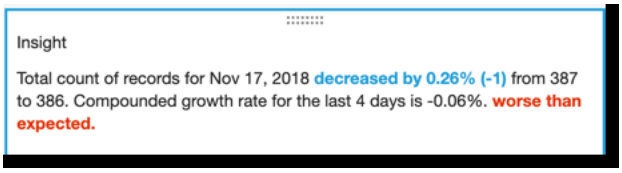
9. Add a conditional statement and formatting. Place your cursor at the end of the template, after the formattedValue expression. Add a space if necessary. On the Edit narrative menu bar, choose Insert code, and then choose Inline IF from the list. An expression block opens.

10. With the expression block open, choose GrowthRate, compoundedGrowthRate, value from the expression list. Enter >0 at the end of the expression. Choose Save. Don't move your cursor yet.

    A prompt appears for the conditional content; enter better than expected! Then select the text you just entered, and use the formatting toolbar at the top to turn it green and bold.

11. Add another expression block for the case when the growth rate wasn't that great by repeating the previous step. But this time, make it <0 and enter the text worse than expected. Make it red instead of green.

12. Choose Save. The customized narrative that we just created should look similar to the following.



The expression editor provides you with a sophisticated tool to customize your narratives. You can also reference the parameters you create for your analysis or dashboard, and use a set of built-in functions for further customization.

> **NOTE**
> To create an empty narrative, add an insight using the + icon and then Add insights. But instead of choosing a template, simply close the screen.
>
> The best way to get started with customizing narratives is to use the existing templates to learn the syntax.

Working with autonarrative computations

Use this section to help you understand what functions are available to you when you are customizing an autonarrative. You only need to customize a narrative if you want to change or build on the default computation.

After you create an autonarrative, the expression editor opens. You can also activate the expression editor by choosing the on-visual menu, and then Customize Narrative. To add a computation while using the expression editor, choose + Add computation.

You can use the following code expression to build your autonarrative. These are available from the list that's labeled Insert code. Code statements can display inline (in a sentence) or as a block (in a list).

- Expression – Create your own code expression.
- IF – An IF statement that includes an expression after evaluating a condition.
- FOR – A FOR statement that loops through values.

You can use the following computations to build your autonarrative. You can use the expression editor without editing any syntax, but you can also customize it if you want to. To interact with the syntax, open the computational widget in the autonarrative expression editor.

Topics

- Bottom movers computation
- Bottom ranked computation
- ML-powered forecasting
- Growth rate computation
- Maximum computation
- Metric comparison computation
- Minimum computation
- Period over period computation
- Period to date computation
- Top movers computation
- Top ranked computation
- Total aggregation computation
- Unique values computation

Bottom movers computation

The bottom movers computation counts the requested number of categories by date that rank in the bottom of the autonarrative's dataset. For example, you can create a computation to find the bottom three products sold, by sales revenue.

To use this function, at least one dimension in the Time field well and at least one dimension in the Categories field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Date

The date dimension that you want to rank.

Category

The category dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Number of movers

The number of ranked results that you want to display.

Order by

The order that you want to use, percent difference or absolute difference.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

NOTE These are the same output parameters as the ones that are returned by the top movers computation.

- timeField – From the Time field well.
  - name – The formatted display name of the field.
  - timeGranularity – The time field granularity (DAY, YEAR, and so on).
- categoryField – From the Categories field well.
  - name – The formatted display name of the field.
- metricField – From the Values field well.

- name – The formatted display name of the field.
- aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).

- startTimeValue – The value in the date dimension.
  - value – The raw value.
  - formattedValue – The value formatted by the datetime field.
- endTimeValue – The value in the date dimension.
  - value – The raw value.
  - formattedValue – The absolute value formatted by the datetime field.
- itemsCount – The number of items included in this computation.
- items: Bottom moving items.
  - categoryField – The category field.
    - value – The value (contents) of the category field.
    - formattedValue – The formatted value (contents) of the category field. If the field is null, this displays 'NULL'. If the field is empty, it displays '(empty)'.
  - currentMetricValue – The current value for the metric field.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field
    - formattedAbsoluteValue – The absolute value formatted by the metric field.
  - previousMetricValue – The previous value for the metric field.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field
    - formattedAbsoluteValue – The absolute value formatted by the metric field.
  - percentDifference – The percent difference between the current and previous values of the metric field.

- value – The raw value of the calculation of the percent difference.
- formattedValue – The formatted value of the percent difference (for example, -42%).
- formattedAbsoluteValue – The formatted absolute value of the percent difference (for example, 42%).

- absoluteDifference – The absolute difference between the current and previous values of the metric field.
  - value – The raw value of the calculation of the absolute difference.
  - formattedValue – The absolute difference formatted by the settings in the metric field's format preferences.
  - formattedAbsoluteValue – The absolute value of the difference formatted by the metric field.

Bottom ranked computation

The bottom ranked computation calculates the requested number of categories by value that rank in the bottom of the autonarrative's dataset. For example, you can create a computation to find the bottom three states by sales revenue.

To use this function, you need at least one dimension in the Categories field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Category

The category dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Number of results

The number of ranked results that you want to display.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

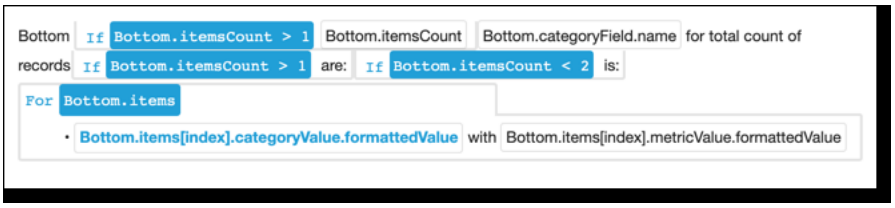
To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

NOTE These are the same output parameters as the ones that are returned by the top ranked computation.

- categoryField – From the Categories field well.
  - name – The formatted display name of the field.
- metricField – From the Values field well.
  - name – The formatted display name of the field.
  - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
- itemsCount – The number of items included in this computation.
- items: Bottom ranked items.
  - categoryField – The category field.
    - value – The value (contents) of the category field.
    - formattedValue – The formatted value (contents) of the category field. If the field is null, this displays 'NULL'. If the field is empty, it displays '(empty)'.
  - metricValue – The metric field.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field.
    - formattedAbsoluteValue – The absolute value formatted by the metric field.

Example

The following screenshot shows the default configuration for the bottom-ranked computation.



ML-powered forecasting

The ML-powered forecast computation forecasts future metrics based on patterns of previous metrics by seasonality. For example, you can create a computation to forecast total revenue for the next six months.

To use this function, you need at least one dimension in the Time field well.

For more information about working with forecasts, see Forecasting and creating what-if scenarios with Insights.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Date

The date dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Periods forward

The number of time periods in the future that you want to forecast. Ranges from 1 to 1,000.

Periods backward

The number of time periods in the past that you want to base your forecast on. Ranges from 0 to 1,000.

Seasonality

The number of seasons included in the calendar year. The default setting, automatic detects this for you. Ranges from 1 to 180.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

- timeField – From the Time field well.
    - name – The formatted display name of the field.
    - timeGranularity – The time field granularity (DAY, YEAR, and so on).
- metricField – From the Values field well.
    - name – The formatted display name of the field.
    - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
- metricValue – The value in the metric dimension.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field.
    - formattedAbsoluteValue – The absolute value formatted by the metric field.
- timeValue – The value in the date dimension.
    - value – The raw value.
    - formattedValue – The value formatted by the date field.
- relativePeriodsToForecast – The relative number of periods between latest datetime record and last forecast record.

Growth rate computation

The growth rate computation compares values over time periods. For example, you can create a computation to find the three-month compounded growth rate for sales, expressed as a percentage.

To use this function, you need at least one dimension in the Time field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Date

The date dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Number of periods

The number of time periods in the future that you want to use to compute the growth rate.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

- timeField – From the Time field well.
    - name – The formatted display name of the field.
    - timeGranularity – The time field granularity (DAY, YEAR, and so on).
- metricField – From the Values field well.
    - name – The formatted display name of the field.
    - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
- previousMetricValue – The previous value in the metric dimension.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field.

        - formattedAbsoluteValue – The absolute value formatted by the metric field.
    - previousTimeValue – The previous value in the datetime dimension.
        - value – The raw value.
        - formattedValue – The value formatted by the datetime field.
    - compoundedGrowthRate – The percent difference between the current and previous values of the metric field.
        - value – The raw value of the calculation of the percent difference.
        - formattedValue – The formatted value of the percent difference (for example, -42%).
        - formattedAbsoluteValue – The formatted absolute value of the percent difference (for example, 42%).
    - absoluteDifference – The absolute difference between the current and previous values of the metric field.
        - value – The raw value of the calculation of the absolute difference.
        - formattedValue – The absolute difference formatted by the settings in the metric field's format preferences.
        - formattedAbsoluteValue – The absolute value of the difference formatted by the metric field.

Maximum computation

The maximum computation finds the maximum dimension by value. For example, you can create a computation to find the month with the highest revenue.

To use this function, you need at least one dimension in the Time field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Date

The date dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

NOTE These are the same output parameters as the ones that are returned by the minimum computation.

- timeField – From the Time field well.
  - name – The formatted display name of the field.
  - timeGranularity – The time field granularity (DAY, YEAR, and so on).
- metricField – From the Values field well.
  - name – The formatted display name of the field.
  - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
- metricValue – The value in the metric dimension.
  - value – The raw value.
  - formattedValue – The value formatted by the metric field.
  - formattedAbsoluteValue – The absolute value formatted by the metric field.
- timeValue – The value in the datetime dimension.
  - value – The raw value.
  - formattedValue – The value formatted by the datetime field.

Metric comparison computation

The metric comparison computation compares values in different measures. For example, you can create a computation to compare two values, such as actual sales compared to sales goals.

To use this function, you need at least one dimension in the Time field well and at least two measures in the Values field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Date

The date dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Target value

The field that you want to compare to the value.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

- timeField – From the Time field well.
    - name – The formatted display name of the field.
    - timeGranularity – The time field granularity (DAY, YEAR, and so on).
- fromMetricField – From the Values field well.
    - name – The formatted display name of the field.
    - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
- fromMetricValue – The value in the metric dimension.

        - value – The raw value.
        - formattedValue – The value formatted by the metric field.
        - formattedAbsoluteValue – The absolute value formatted by the metric field.
    - toMetricField – From the Values field well.
        - name – The formatted display name of the field.
        - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
    - toMetricValue – The current value in the metric dimension.
        - value – The raw value.
        - formattedValue – The value formatted by the metric field.
        - formattedAbsoluteValue – The absolute value formatted by the metric field.
    - timeValue – The value in the datetime dimension.
        - value – The raw value.
        - formattedValue – The value formatted by the datetime field.
    - percentDifference – The percent difference between the current and previous values of the metric field.
        - value – The raw value of the calculation of the percent difference.
        - formattedValue – The formatted value of the percent difference (for example, -42%).
        - formattedAbsoluteValue – The formatted absolute value of the percent difference (for example, 42%).
    - absoluteDifference – The absolute difference between the current and previous values of the metric field.
        - value – The raw value of the calculation of the absolute difference.
        - formattedValue – The absolute difference formatted by the settings in the metric field's format preferences.
        - formattedAbsoluteValue – The absolute value of the difference formatted by the metric field.

Minimum computation

The minimum computation finds the minimum dimension by value. For example, you can create a computation to find the month with the lowest revenue.

To use this function, you need at least one dimension in the Time field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Date

The date dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

NOTE These are the same output parameters as the ones that are returned by the maximum computation.

- timeField – From the Time field well.
  - name – The formatted display name of the field.
  - timeGranularity – The time field granularity (DAY, YEAR, and so on).
- metricField – From the Values field well.

- name – The formatted display name of the field.
- aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).

- metricValue – The value in the metric dimension.
  - value – The raw value.
  - formattedValue – The value formatted by the metric field.
  - formattedAbsoluteValue – The absolute value formatted by the metric field.
- timeValue – The value in the datetime dimension.
  - value – The raw value.
  - formattedValue – The value formatted by the datetime field.

Period over period computation

The period over period computation compares values from two different time periods. For example, you can create a computation to find out how much sales increased or decreased since the previous time period.

To use this function, you need at least one dimension in the Time field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Date

The date dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

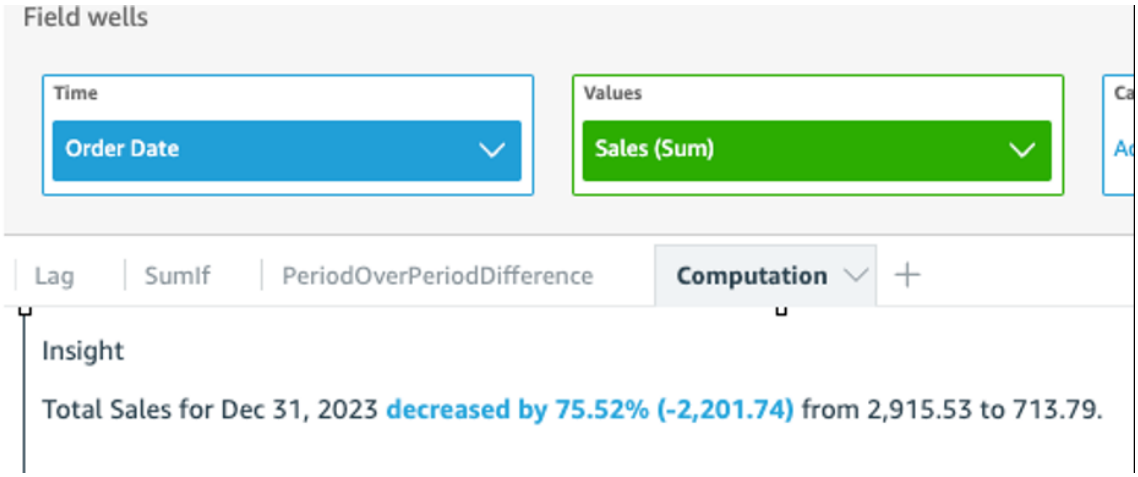
- timeField – From the Time field well.
    - name – The formatted display name of the field.
    - timeGranularity – The time field granularity (DAY, YEAR, and so on).
- metricField – From the Values field well.
    - name – The formatted display name of the field.
    - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
- previousMetricValue – The previous value in the metric dimension.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field.
    - formattedAbsoluteValue – The absolute value formatted by the metric field.
- previousTimeValue – The previous value in the datetime dimension.
    - value – The raw value.
    - formattedValue – The value formatted by the datetime field.
- currentMetricValue – The current value in the metric dimension.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field.
    - formattedAbsoluteValue – The absolute value formatted by the metric field.
- currentTimeValue – The current value in the datetime dimension.
    - value – The raw value.
    - formattedValue – The value formatted by the datetime field.

- percentDifference – The percent difference between the current and previous values of the metric field.
    - value – The raw value of the calculation of the percent difference.
    - formattedValue – The formatted value of the percent difference (for example, -42%).
    - formattedAbsoluteValue – The formatted absolute value of the percent difference (for example, 42%).
- absoluteDifference – The absolute difference between the current and previous values of the metric field.
    - value – The raw value of the calculation of the absolute difference.
    - formattedValue – The absolute difference formatted by the settings in the metric field's format preferences.
    - formattedAbsoluteValue – The absolute value of the difference formatted by the metric field.

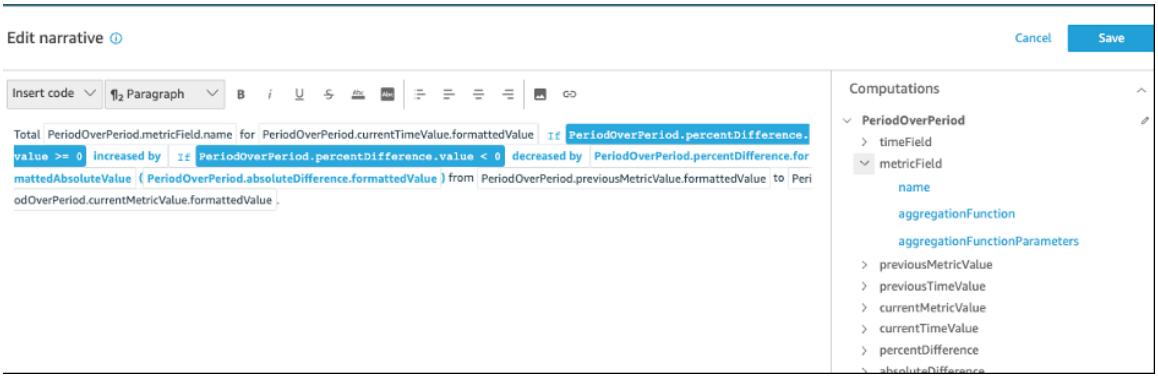
Example

To create a Period over period computation

1. In the analysis that you want to change, choose Add insight.
2. For Computation type, choose Period over period, and then choose Select.
3. In the new insight that you created, add the time dimenstion and value dimension fields that you want to compare. In the screenshot below, Order Date and Sales (Sum) are added to the insight. With these two fields selected, Insights shows the year to date sales of the latest month and the percentage difference compared with the previous month.



4. (Optional) To further customize the insight, open the on-visual menu and choose Customize narrative. In the Edit narative window that appears, drag and drop the fields that you need from the Computations list, and then choose Save.



Period to date computation

The period to date computation evaluates values for a specified period to date. For example, you can create a computation to find out how much you've earned in year-to-date sales.

To use this function, you need at least one dimension in the Time field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Date

The date dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Time granularity

The date granularity that you want to use for the computation, for example year to date.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

- timeField – From the Time field well.
    - name – The formatted display name of the field.
    - timeGranularity – The time field granularity (DAY, YEAR, and so on).
- metricField – From the Values field well.
    - name – The formatted display name of the field.
    - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
- previousMetricValue – The previous value in the metric dimension.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field.
    - formattedAbsoluteValue – The absolute value formatted by the metric field.
- previousTimeValue – The previous value in the datetime dimension.
    - value – The raw value.
    - formattedValue – The value formatted by the datetime field.

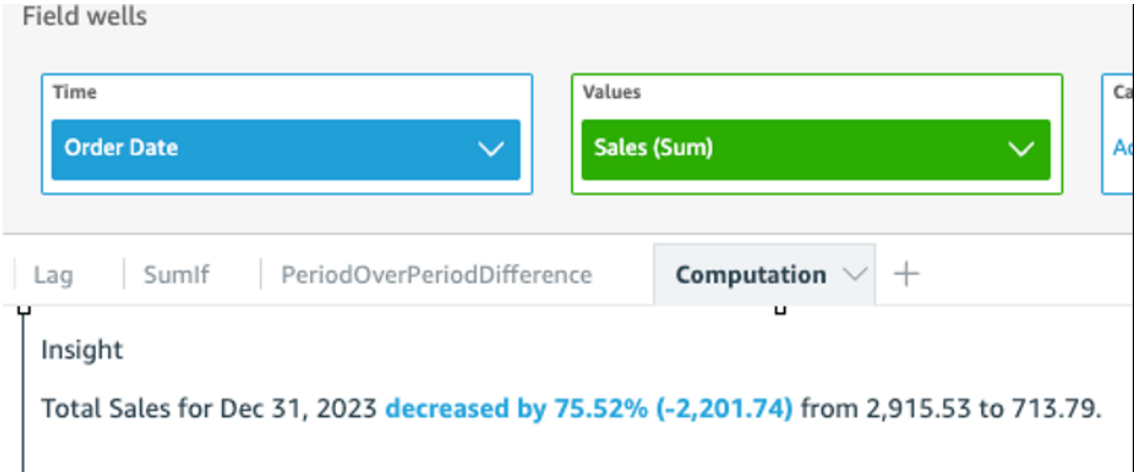
- currentMetricValue – The current value in the metric dimension.
  - value – The raw value.
  - formattedValue – The value formatted by the metric field.
  - formattedAbsoluteValue – The absolute value formatted by the metric field.
- currentTimeValue – The current value in the datetime dimension.
  - value – The raw value.
  - formattedValue – The value formatted by the datetime field.
- periodGranularity – The period granularity for this computation (MONTH, YEAR, and so on).
- percentDifference – The percent difference between the current and previous values of the metric field.
  - value – The raw value of the calculation of the percent difference.
  - formattedValue – The formatted value of the percent difference (for example, -42%).
  - formattedAbsoluteValue – The formatted absolute value of the percent difference (for example, 42%).
- absoluteDifference – The absolute difference between the current and previous values of the metric field.
  - value – The raw value of the calculation of the absolute difference.
  - formattedValue – The absolute difference formatted by the settings in the metric field's format preferences.
  - formattedAbsoluteValue – The absolute value of the difference formatted by the metric field.

Example

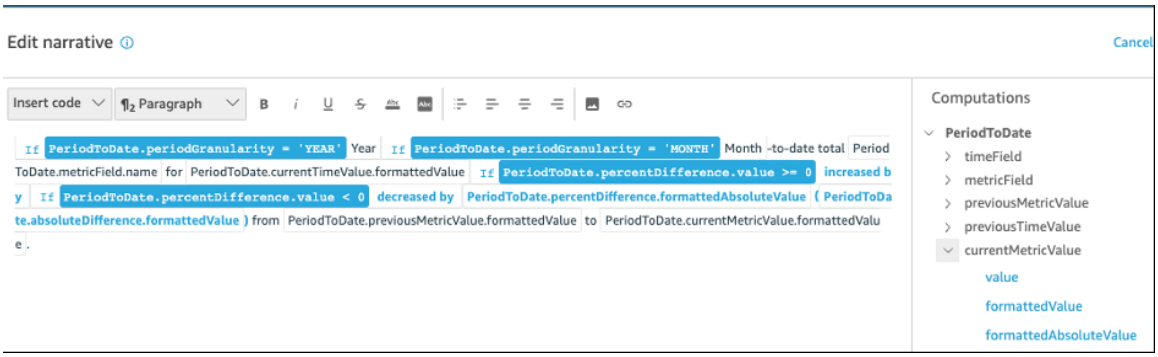
To create a Period to date computation

1. In the analysis that you want to change, choose Add insight.
2. For Computation type, choose Period to date, and then choose Select.

3. In the new insight that you created, add the time dimension and value dimension fields that you want to compare. In the screenshot below, Order Date and Sales (Sum) are added to the insight. With these two fields selected, Insights shows the year to date sales of the latest month and the percentage difference compared with the previous month.



4. (Optional) To further customize the insight, open the on-visual menu and choose Customize narrative. In the Edit narative window that appears, drag and drop the fields that you need from the Computations list, and then choose Save.



Top movers computation

The top movers computation counts the requested number of categories by date that rank in the top of the autonarrative's dataset. For example, you can create a computation to find the top products by sales revenue for a time period.

To use this function, you need at least one dimension in the Time field well and at least one dimension in the Categories field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Category

The category dimension you want to rank.

Value

The aggregated measure that the computation is based on.

Number of results

The number of top ranking items you want to find.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

NOTE These are the same output parameters as the ones that are returned by the bottom movers computation.

- timeField – From the Time field well.
  - name – The formatted display name of the field.
  - timeGranularity – The time field granularity (DAY, YEAR, and so on).
- categoryField – From the Categories field well.
  - name – The formatted display name of the field.
- metricField – From the Values field well.

        - name – The formatted display name of the field.
        - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
    - startTimeValue – The value in the date dimension.
        - value – The raw value.
        - formattedValue – The value formatted by the datetime field.
    - endTimeValue – The value in the date dimension.
        - value – The raw value.
        - formattedValue – The absolute value formatted by the datetime field.
    - itemsCount – The number of items included in this computation.
    - items: Top moving items.
        - categoryField – The category field.
            - value – The value (contents) of the category field.
            - formattedValue – The formatted value (contents) of the category field. If the field is null, this displays 'NULL'. If the field is empty, it displays '(empty)'.
        - currentMetricValue – The current value for the metric field.
            - value – The raw value.
            - formattedValue – The value formatted by the metric field.
            - formattedAbsoluteValue – The absolute value formatted by the metric field.
        - previousMetricValue – The previous value for the metric field.
            - value – The raw value.
            - formattedValue – The value formatted by the metric field.
            - formattedAbsoluteValue – The absolute value formatted by the metric field.
        - percentDifference – The percent difference between the current and previous values of the metric field.

- value – The raw value of the calculation of the percent difference.
- formattedValue – The formatted value of the percent difference (for example, -42%).
- formattedAbsoluteValue – The formatted absolute value of the percent difference (for example, 42%).

- absoluteDifference – The absolute difference between the current and previous values of the metric field.
  - value – The raw value of the calculation of the absolute difference.
  - formattedValue – The absolute difference formatted by the settings in the metric field's format preferences.
  - formattedAbsoluteValue – The absolute value of the difference formatted by the metric field.

Top ranked computation

The top ranked computation finds the top ranking dimensions by value. For example, you can create a computation to find the top three states by sales revenue.

To use this function, you need at least one dimension in the Categories field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Category

The category dimension that you want to rank.

Value

The aggregated measure that the computation is based on.

Number of results

The number of top ranking items that you want to find.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

NOTE These are the same output parameters as the ones that are returned by the bottom ranked computation.

- categoryField – From the Categories field well.
  - name – The formatted display name of the field.
- metricField – From the Values field well.
  - name – The formatted display name of the field.
  - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
- itemsCount – The number of items included in this computation.
- items: Top ranked items.
  - categoryField – The category field.
    - value – The value (contents) of the category field.
    - formattedValue – The formatted value (contents) of the category field. If the field is null, this displays 'NULL'. If the field is empty, it displays '(empty)'.
  - metricValue – The metric field.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field.
    - formattedAbsoluteValue – The absolute value formatted by the metric field.

Total aggregation computation

The total aggregation computation creates a grand total of the value. For example, you can create a computation to find the total revenue.

To use this function, you need at least one dimension in the Time field well and at least one measure in the Values field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Value

The aggregated measure that the computation is based on.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

- categoryField – The category field.
    - name – The display name of the category field.
- metricField – From the Values field well.
    - name – The formatted display name of the field.
    - aggregationFunction – The aggregation used for the metric (SUM, AVG, and so on).
- totalAggregate – The total value of the metric aggregation.
    - value – The raw value.
    - formattedValue – The value formatted by the metric field.
    - formattedAbsoluteValue – The absolute value formatted by the metric field.

Unique values computation

The unique values computation counts the unique values in a category field. For example, you can create a computation to count the number of unique values in a dimension, such as how many customers you have

To use this function, you need at least one dimension in the Categories field well.

Parameters

name

A unique descriptive name that you assign or change. A name is assigned if you don't create your own. You can edit this later.

Category

The category dimension that you want to rank.

Computation outputs

Each function generates a set of output parameters. You can add these outputs to the autonarrative to customize what it displays. You can also add your own custom text.

To locate the output parameters, open the Computations tab on the right, and locate the computation that you want to use. The names of the computations come from the name you provide when you create the insight. Choose the output parameter by clicking on it only once. If you click twice, you add the same output twice. Items displayed in bold can be used in the narrative.

- categoryField – The category field.
    - name – The display name of the category field.
- uniqueGroupValuesCount – The number of unique values included in this computation.

Forecasting and creating what-if scenarios with Insights

Using ML-powered forecasting, you can forecast your key business metrics with point-and-click simplicity. No machine learning expertise is required. The built-in ML algorithm in Insights is designed to handle complex real-world scenarios. Insights uses machine learning to help provide more reliable forecasts than available by traditional means.

For example, suppose that you are a business manager. Suppose that you want to forecast sales to see if you are going to meet your goal by the end of the year. Or, suppose that you expect a large deal to come through in two weeks and you want to know how it's going to affect your overall forecast.

You can forecast your business revenue with multiple levels of seasonality (for example, sales with both weekly and quarterly trends). Insights automatically excludes anomalies in the data (for example, a spike in sales due to price drop or promotion) from influencing the forecast. You also don't have to clean and reprep the data with missing values because Insights automatically handles that. In addition, with ML-powered forecasting, you can perform interactive what-if analyses to determine the growth trajectory you need to meet business goals.

Using forecasts and what-if scenarios

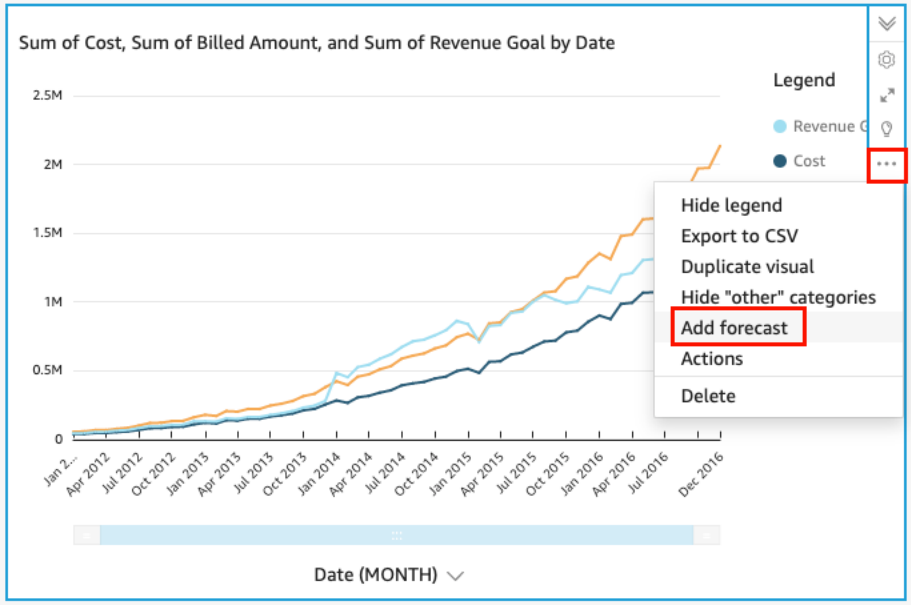
You can add a forecasting widget to your existing analysis, and publish it as a dashboard. To analyze what-if scenarios, use an analysis, not a dashboard. With ML-powered forecasting, Insights enables you to forecast complex, real-world scenarios such as data with multiple seasonality. It automatically excludes outliers that it identifies and imputes missing values.

Use the following procedure to add a graphical forecast to your analysis, and explore what-if scenarios.

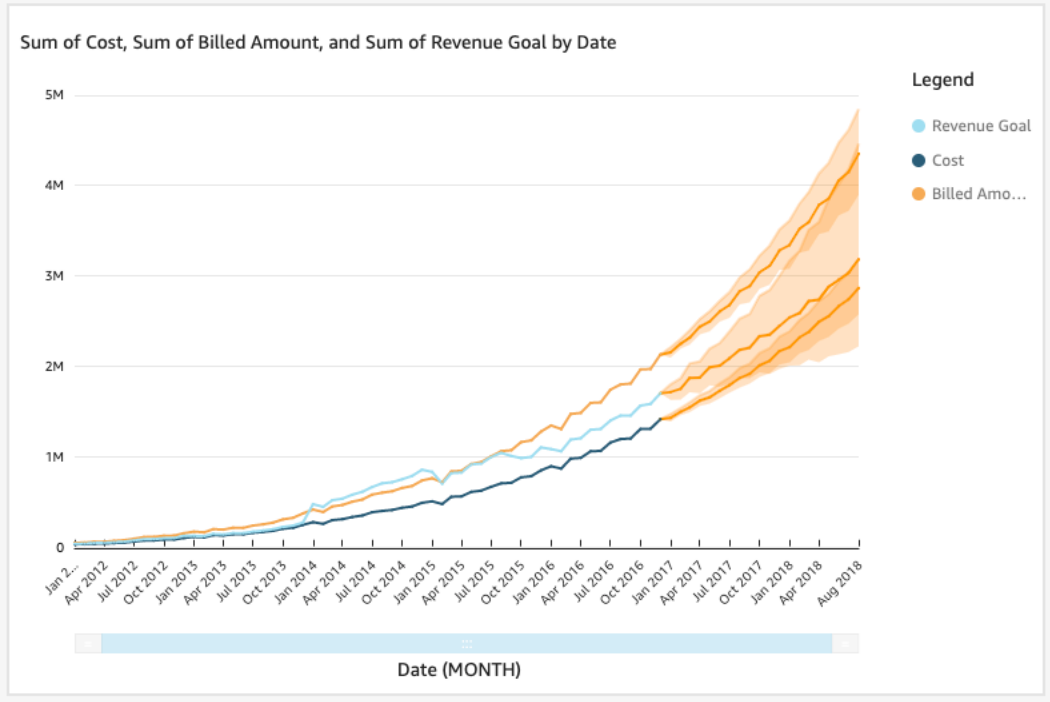
Although the following procedure is for graphical forecasting, you can also add a forecast as a narrative in an insight widget. To learn more, see Creating autonarratives with Insights.

To add a graphical forecast to your analysis

1. Create a visual that uses a single date field and up to three metrics (measures).
2. On the menu in the upper-right corner of the visual, choose the Menu options icon (the three dots), and then choose Add forecast.



Insights automatically analyzes the historical data using ML, and displays a graphical forecast for the next 14 periods. Forecast properties apply to all metrics in your visual. If you want individual forecasts for each metric, consider creating a separate visual for each metric and adding a forecast to each.



3. On the Forecast properties panel at left, customize one or more of the following settings:

   - Forecast length – Set Periods forward to forecast, or set Periods backward to look for patterns to base the forecast on.
   - Prediction interval – Set the estimated range for the forecast. Doing this changes how wide the band of possibility is around the predicted line.
   - Seasonality – Set the number of time periods involved in the predictable seasonal pattern of data. The range is 1–180, and the default setting is Automatic.
   - Forecast boundaries – Set a minimum and/or maximum forecast value to prevent forecast values from going above or below a specified value. For example, if your forecasting predicts the number of new hires the company will make in the next month to be in the negative

numbers, you can set a forecast boundary minimum to zero. This stops the forecasted values from ever going below zero.

To save your changes, choose Apply.

If your forecast contains multiple metrics, you can isolate one of the forecasts by selecting anywhere inside the orange band. When you do this, the other forecasts disappear. Select the isolated forecast band again to have them reappear.

4. Analyze what-if scenarios by choosing a forecasted data point (in the orange band) on the chart, and then choosing What-if analysis from the context menu.

   The What-if analysis panel opens at left. Set the following options:

   - Scenario – Set a target for a date, or set a target for a time range.
   - Dates – If you are setting a target for a specific date, enter that date here. If you are using a time range, set the start and end dates.
   - Target – Set a target value for the metric.

   Insights adjusts the forecast to meet the target.

   NOTE The What-if analysis option isn't available for multiple-metric forecasts. If you want to perform a what-if scenario on your forecast, your visual should contain only one metric.

5. Keep your changes by choosing Apply. To discard them, close the What-if analysis panel.

   If you keep your changes, you see the new forecast adjusted for the target, alongside the original forecast without the what-if.

   The what-if analysis is represented on the visual as a dot on the metric line. You can hover over the data points on the forecasting line to see the details.

Here are other things you can do:

- To interact with or remove a what-if analysis, choose the dot on the metric line.
- To create additional what-if scenarios, close the what-if analysis before choosing a new point on the line.

NOTE What-if analyses can exist inside an analysis only, not inside a dashboard.

Share and subscribe to data in Insights

Prerequisites

- You have one of these licenses:
  - (To create analyses and dashboards) Insights Author
  - (To view dashboards) Insights Reader
- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data
- (To create analyses and dashboards) You have the Create Content permission.
- (To share dashboards) You have the Share Content permission.

Page location

Insights > Dashboards

A *dashboard* is a read-only snapshot of an analysis that you can share with other Insights users for reporting purposes. A dashboard preserves the configuration of the analysis at the time you publish it, including things like filtering, parameters, controls, and sort order. The data used for the analysis isn't captured as part of the dashboard. When you view the dashboard, it reflects the current data in the data sets used by the analysis.

When you share a dashboard, you specify which people have access to it. People who are dashboard viewers can view and filter the dashboard data. Any selections to filters, controls, or sorting that people apply while viewing the dashboard exist only while they are viewing the dashboard and aren't saved after it's closed. People who are dashboard owners can edit and share the dashboard and optionally can edit and share the analysis.

Topics in this section

Use the following pages to learn how to publish and share dashboards, subscribe to threshold alerts, and send and subscribe to dashboard email reports.

- Share an Insights analysis
- Publish an Insights dashboard
- Share an Insights dashboard
- Schedule and send reports by email
- Subscribing to email reports in Insights
- Print a dashboard or an analysis in Insights
- Export Insights analyses or dashboards as PDFs
- Error codes for failed PDF export jobs
- Organize assets into folders for Insights

Share an Insights analysis

You can share an analysis with other people by emailing them a link, making it easy to collaborate and disseminate findings.

Prerequisites

- You have the Insights Author license.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data
- You have the Create Content permission.
- You have the Share Content permission.
- You have created an analysis. See Create an analysis in Insights for instructions.

Page location

Insights > Analyses > Click an analysis

Procedures

Share an analysis

You can only share analyses with people or groups who are in your Insights account.

1. Click **File** (upper-left corner of the page) and select **Share**. The **Share analysis** window opens.
2. Enter the name of the person or group you want to share with in the **Enter a username, group, or email address** field. The search returns any user, group, or email address that contains your search term. Searching is case-sensitive, and wildcards are not supported.

   > **NOTE** To share the analysis with all users, enter **AllUsersGroup**. To share the analysis with people based on the product data they have permission to view, enter **WFMUsersGroup**, **QMUsersGroup**, or **AnalyticsUsersGroup**.

3. Click **Share**. The people that you have shared the analysis with get emails with a link to the analysis. Groups don't receive invitation emails.

View which users or groups have access to an analysis

1. Click **File** (upper-left corner of the visual) and select **Share**. The **Share analysis** window opens.
2. Click **Manage analysis permissions**. The **Manage analysis permissions** page lists the people and groups who can access the analysis.

Revoke access to an analysis

1. Click **File** (upper-left corner of the visual) and select **Share**. The **Share analysis** window opens.
2. Click **Manage analysis permissions**. The **Manage analysis permissions** page lists the people and groups who can access the analysis.
3. Click the trash-can icon next to the person or group you want to remove. The **Revoke user access** window opens.
4. Click **Confirm**.

Related topics

- Create an analysis in Insights
- Share an Insights dashboard

Publish an Insights dashboard

Prerequisites

- You have the Insights Author license.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data
- You have the Create Content permission.
- You have the Share Content permission.
- You have created an analysis to publish as a dashboard. See Create an analysis in Insights for instructions.

Page location

Insights > Analyses > Click an analysis

When you publish an analysis, that analysis becomes a dashboard that other people in your organization's Insights account can share and interact with. When you publish an interactive sheet, that sheet becomes an interactive dashboard that users can interact with.

For more information about scheduling a report, see Schedule and send reports by email.

Procedure

Publish a dashboard

A renamed dashboard retains its security and emailed report settings.

1. Click **Publish** (upper-right corner of the page). The **Publish a dashboard** window opens.
2. Do one of the following:
   - To create a new dashboard, select **Publish new dashboard as**, and then enter a dashboard name.

- To replace an existing dashboard, do one of the following. You can replace only dashboards that you have created. Replacing a dashboard updates it without altering security or emailed report settings.
  - To update it with your changes, select **Replace an existing dashboard** and then select a dashboard from the list.
  - To rename it, select **Replace an existing dashboard**, select a dashboard from the list, and then click **Rename**. Enter a new name to rename the existing dashboard. When you rename a dashboard, it also saves any changes you made to the analysis.

3. (Optional) To publish only some of the sheets in the dashboard, click **All Sheets Selected**, and then clear the check box next to sheets that you don't want to share.

   If you are replacing an existing dashboard, the sheets that are already published to the existing dashboard are pre-selected in the dropdown. You can select or de-select sheets from this list.

4. (Optional) Expand **Advanced publish options**. These options are available if at least one sheet in the new dashboard is an interactive sheet.

   NOTE This is a scrollable window. Scroll down in the **Publish a dashboard** window to view all the options.

   There are some options that you can turn off to simplify the experience for this dashboard, as follows:

   - In the **Dashboard options** section:
     - To show a simplified view, leave **Expand top of sheet controls by default** cleared. This is disabled by default. To show the controls by default, select this option.
     - To let dashboard viewers filter the data themselves, select **Enable ad hoc filtering**. If they create their own filters, the filters exist only while the user is viewing the dashboard. Filters can't be saved or reused.
     - Clear **Enable on-hover tooltip** to turn off tooltips.
   - In the **Visual options** section:
     - To turn off the ability to enlarge visuals to fill the screen, clear **Enable maximize visual option**.
     - To turn off the on-visual menu entirely, clear **Enable visual menu**.

        - If your dashboard viewers don't need to download data from the visuals in the dashboard, clear **Enable download options**. The CSV file includes only what is currently visible in the visual at the time they download it. The viewer downloads data by using the on-visual menu on each individual visual.
    - In the **Data point options** section:
        - If your dashboard doesn't offer drillable field hierarchies, clear **Enable drill up/down**.
        - To turn off tooltips that appear when the reader clicks a data point, clear **Enable on-click tooltip**.
        - To turn off sorting controls, clear **Enable sort options**.
5. Click **Publish dashboard**. If you renamed the existing dashboard, the top of the screen refreshes to show the new name.

Related topics

- Share an Insights analysis
- Copy an Insights dashboard
- Delete an Insights dashboard
- Share an Insights dashboard

Copy an Insights dashboard

When you copy a dashboard, you create a new analysis from the copied dashboard. You can then collaborate on it by sharing the new analysis with other people. For example, you can preserve a production version of the dashboard, while also developing or testing a new version of it.

Prerequisites

- You have the Insights Author license.
- You have at least one of these permissions:
    - View Analytics Data
    - View Classic WFM Data

- View QM Data
- View WFM Data

- You have the Create Content permission.
- You have co-owner access or Save as privileges for the dashboard you want to copy.

Page location

Insights > Dashboards > Click a dashboard

Procedure

Copy a dashboard

1. Click **Save as** (the floppy disk icon at the upper-right corner of the page). The **Save as analysis** window opens.
2. Enter the name for the copy in the **Analysis name** field.
3. Click **Save**. The dashboard you copied opens as an analysis. From here, you can edit the new analysis and share it with other people. See Publish an Insights dashboard.

Related topics

- Share an Insights dashboard
- Share an Insights analysis
- Publish an Insights dashboard

Delete an Insights dashboard

Permanently remove a dashboard from your account and all associated folders. Access to the deleted dashboard will no longer be possible. You can only delete dashboards you own or co-own.

Prerequisite

- You have the Insights Author license.
- You have the View Content permission.
- You have at least one of these permissions:

- View Analytics Data
- View Classic WFM Data
- View QM Data
- View WFM Data

- You have the Create Content permission.
- You own or co-own the dashboard that you want to delete.

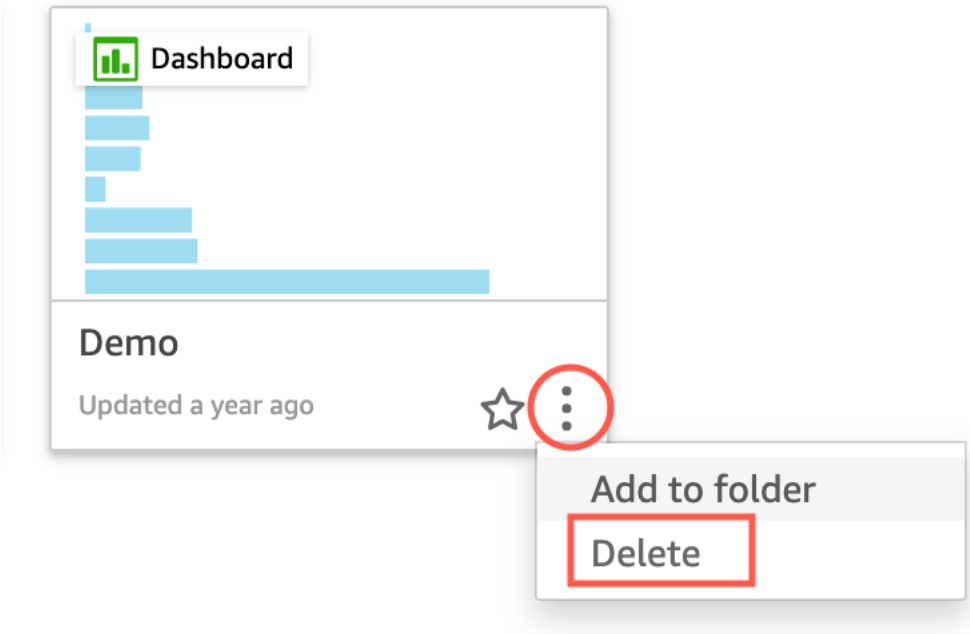
Page location

Insights > Dashboards

Procedure

Delete a dashboard

1. Click the details icon (vertical dots ⋮) on the dashboard that you want to delete.
2. Click **Delete**. A confirmation window opens.
3. To confirm your choice, click **Delete** again.



NOTE Deleting a dashboard permanently deletes it from your account and all folders it was part of. You cannot access the deleted dashboard but can still access or create other dashboards from the analysis it was published from.

Related topics

- Publish an Insights dashboard
- Share an Insights dashboard
- Copy an Insights dashboard

Share an Insights dashboard

By default, dashboards in Insights aren't shared with anyone and are only accessible to the owner. However, after you publish a dashboard, you can share it with other users or groups in your Insights account. You can also choose to share the dashboard with everyone in your Insights account and make the dashboard visible on the Insights homepage for all users in your account.

IMPORTANT Users who have access to the dashboard can also see the data used in the associated analysis.

After you share a dashboard, you can review the other users or groups that have access to it and control the type of access they have. You can revoke access to the dashboard for any user. You can also remove yourself from it.

Prerequisites

- You have the Insights Author or Reader license.

  NOTE You must first click the Insights tab in Webex WFO to activate your Insights user ID for dashboard sharing.

- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data

- You have the Create Content permission.
- You have the Share Content permission.

BEST PRACTICE You should share Insights dashboards using the Landing Page Management module. See Assign landing pages to users.

- You have published a dashboard. See Publish an Insights dashboard for instructions.

Page location

Insights > Dashboards > Click a dashboard

Procedures

View who has access to a dashboard

1. Click **Share**(upper-right corner of the page) and select **Share dashboard**. The Share dashboard page opens.
2. Under Manage permissions, review the **Users and Groups**, and their **Permission**.

   Search for a specific user or group by filtering by email address or group name.

Revoke user access to a dashboard

1. Click **Share**(upper-right corner of the page) and select **Share dashboard**. The Share dashboard page opens.
2. Under Manage permissions, locate the user you want to remove and click the delete icon on the far right.

Related topics

- Publish an Insights dashboard
- Delete an Insights dashboard
- Copy an Insights dashboard
- Share an Insights analysis
- share-a-dashboard-grant-access-users.htm

Grant individual Insights users and groups access to a dashboard in Insights

Prerequisites

- You have the Insights Author license.
- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data
- You have the Share Content permission.
- You have published a dashboard. See Publish an Insights dashboard for instructions.

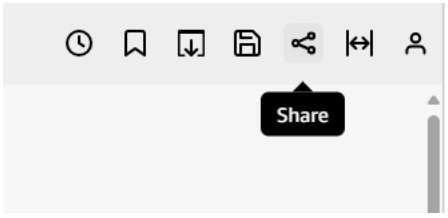
Page location

Insights > Dashboards > Click a dashboard

Procedure

Grant users or groups access to a dashboard

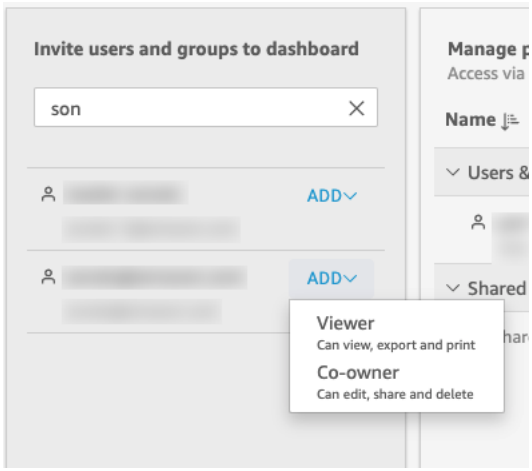
1. Click **Share**(upper-right corner of the page) and select **Share dashboard**. The **Share dashboard** page opens.



2. Enter a user email or group name in the search box under **Invite users and groups to dashboard** on the left.

   NOTE Only active users and groups appear in the list.

3. Click **Add** and then select the desired permission level.



Select Viewer or Co-owner, depending on the user's Insights role. The available permissions for each role are as follows:

- Readers – Insights readers can only be granted Viewer access to dashboards. They can view and print the dashboard, but they can't save the dashboard as an analysis. They can view, filter, and sort the dashboard data. They can also use any controls or custom actions that are on the dashboard. Any changes that they make to the dashboard exist only while they are viewing it and aren't saved after they close the dashboard.
- Authors – Insights authors can be granted Viewer or Co-owner access to dashboards. Authors with Viewer access can view and print the dashboard. They can view, filter, and sort the dashboard data. They can also use any controls or custom actions that are on the dashboard. Any changes that they make to the dashboard exist only while they are viewing it and aren't saved after they close the dashboard.

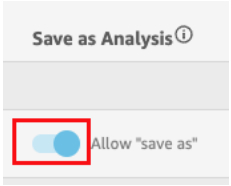
  However, they can save the dashboard as an analysis, unless the dashboard owner specifies otherwise. This privilege grants them read-only access to the datasets so that they can create new analyses from them. The owner has the option to provide them with the same permissions to the analysis.

  - Authors with Co-owner access can view and print the dashboard. They can also edit, share, and delete it. They can also save the dashboard as an analysis, unless the dashboard owner specifies otherwise. This privilege grants them read-only access to the datasets so that they can create new analyses from them. The owner has the option to provide them with the same permissions to the analysis.

- Groups – Insights groups can only be granted Viewer access to dashboards. They can view and print the dashboard, but they can't save the dashboard as an analysis.

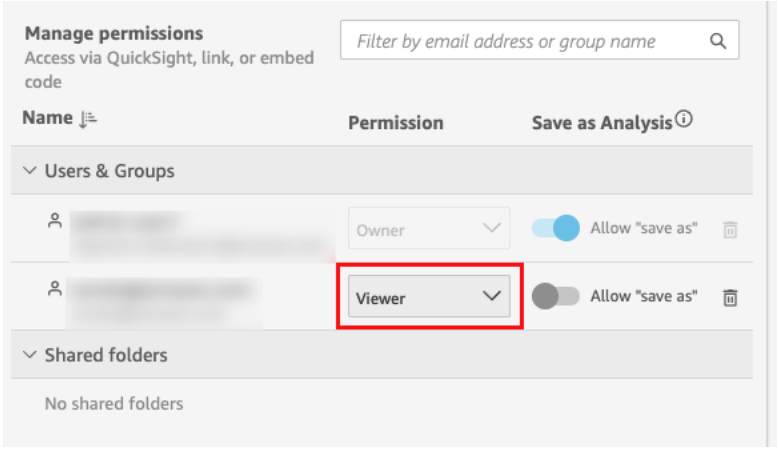
Manage permissions for users and groups

1. After adding a user or group to the dashboard, view their information in the **Manage permissions** section, under **Users & Groups**. Check their user name, email, permission level, and **"save as"** privileges.
2. To allow a user or group to save the dashboard as an analysis, turn on **Allow "save as"** in the **Save as Analysis** column.



Change permission level for users and groups

1. To change the permission level for a user, choose the permission level menu in the **Permission** column and select a permission.



Related topic

- Share an Insights dashboard
- Share an Insights analysis
- Assign landing pages to users

Schedule and send reports by email

In Insights, you can email a report from any dashboard sheet, including interactive dashboards. Schedules include settings for when to send them, the contents to include, and who receives the email. You can also preview a sample report.

IMPORTANT When you share the dashboard with new Insights user names or groups, they automatically start receiving the email reports. If you don't want this to happen, you need to edit the report settings each time you add people to the dashboard.

NOTE Insights generates a custom email snapshot for each user or group based on their data permissions, which are defined in the dashboard. Click **Scheduling**(upper-right corner of the page) and select **Recent snapshots** to view them.

Prerequisites

- You have the Insights Author license.
- You have the Create Content permission.
- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data
- You have published a dashboard. See Publish an Insights dashboard for instructions.
- To receive email reports, the users must meet the following conditions:
  - They are part of your Insights subscription
  - You already shared the dashboard with them
- You can't send scheduled emails to more than 5,000 members.
- You must be an owner or co-owner of the dashboard to set up or change the schedule.
- You can create up to five schedules for each dashboard.
- If your report includes custom visuals, you can't include images from a private network in an email report, even if you can access them. To include an image, use a publicly available one.

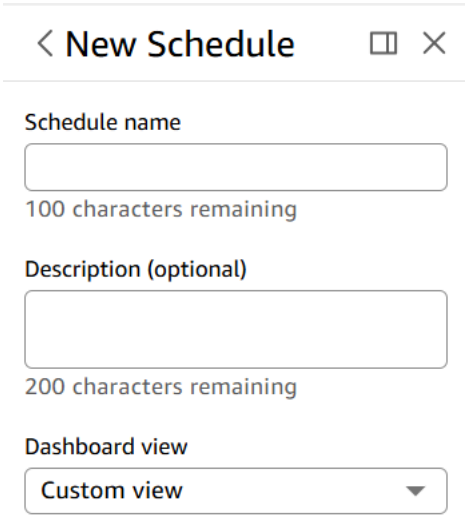
Page location

Insights > Dashboards > Click a dashboard

Procedure

Add a schedule

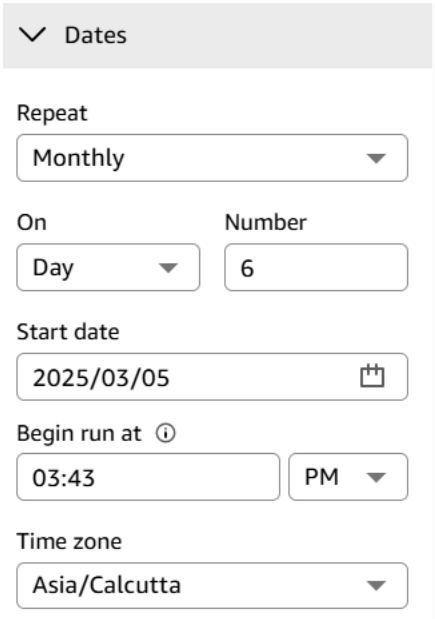
1. Click **Scheduling**(the clock icon, upper-right corner of the page) and select **Schedules**. The **Schedules** pane opens.
2. Click **+ ADD**.
3. In the **New Schedule** pane, enter the **Schedule name**, optionally, add a **Description** for the new schedule and select a **Dashboard view** from the drop-down.



4. In the **Content** section, toggle on the **PDF** switch to select PDF as the report format, and select the **Sheet** you want to schedule a report for from the drop-down.
5. In the **Dates** section, select the report frequency from the **Repeat** drop-down. Scheduling options that are available for an email report include the following:
    - Once (Does not repeat) – Sends the report only once at the date and time that you choose.
    - Daily – Repeats daily at the time that you choose.

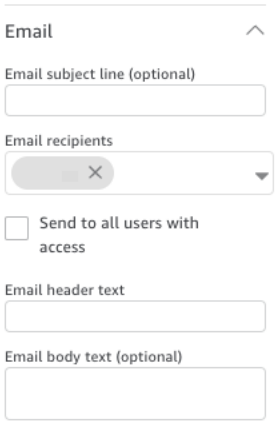
- Weekly – Repeats each week on the same day or days at the time that you choose. You can also use this option to send reports in weekly intervals, such as every other week or every three weeks.
- Monthly – Repeats each month on the same day of the month at the time that you choose. You can also use this option to send reports on specific days of the month, such as the second Wednesday or the last Friday of each month.
- Yearly – Repeats each year on the same day of the month or months selected at the time that you choose. You can also use this option to send reports on specific days or sets of days in selected months. For example, you can configure a report to be sent on the first Monday of January, March, and September, or on July 14th, or on the second day of February, April, and June each year.
- Custom – Configure your own scheduled report that best fits your business needs.

6. Configure the additional frequency settings. The options available vary based on the frequency you selected.
7. For **Start date**, select the start date and **Begin run at** for the first report.
8. For **Time zone**, select the time zone from the drop-down.



9. In the **Email** section, enter **Email subject line (optional)**.

10. In **Email recipients**, enter the email addresses of the Insights group name of the users or groups that you want to receive the report. You can also select the **Send to all users with access** box to send the report to everyone that has access to the dashboard in your account.
11. For **Email header text**, enter the header that you want the email report to show.
12. (Optional) For **E-mail body text**, leave it blank or enter a custom message to display at the beginning of the email.



13. (Optional) For PDF attachments, you can select **Include sheet in email body** to show the first page of the PDF snapshot in the email's body.
14. Choose the method of attachment that you want the report to use. The following options are available.
    - **Download link** – adds a link to the email body that users can access to download the snapshot report. When a user clicksthe download link, they are prompted to sign in before the report starts to download. The link expires one year after the report is sent.
    - **File attachment** – uploads an attachment of the snapshot to the email. The email size can't exceed 10 MB. This limit includes all attachments.
15. (Optional, recommended) To send a sample of the report before you save changes, click **Sent Test** report . This option displays beside the user name of the owner of the dashboard.
16. Do one of the following:
    - (Recommended) Choose **Save** to confirm your entries.
    - To immediately send a report, choose **Save and run now**. The report is sent immediately,

even if your schedule's start date is in the future.



Related topics

- Grant individual Insights users and groups access to a dashboard in Insights
- Share an Insights dashboard

Print a dashboard or an analysis in Insights

Prerequisites

- You have the Insights Author license.
- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data
- You have the Share Content permission.
- You have published a dashboard. See Publish an Insights dashboard for instructions.

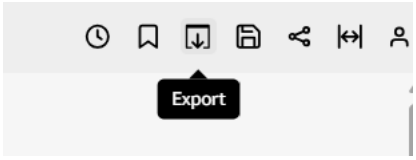
Page location

Insights > Dashboards > Click a dashboard

Procedure

Print a dashboard or an analysis in Insights

1. Click **Export**(upper-right corner of the page) and select **Print**. The **Prepare for printing** window opens.



2. Select the **Paper size** and **Paper orientation** that you want.
3. (Optional) To include the background color, select **Print background color**.
4. Click **Go to Preview**. The **Preview** window opens.
5. Do one of the following:
   - To proceed to printing, click **Print**.
   - To change the paper size or orientation, click **Configure**.
6. To close the preview screen, click **X**.

Related topic

- Export Insights analyses or dashboards as PDFs
- Use filters on dashboard data
- Sort dashboard data

Export Insights analyses or dashboards as PDFs

Prerequisites

- You have the Insights Author license.
- You have the Insights Reader license (allows exporting dashboards as PDFs but does not allow exporting analyses).

- You have the View Content permission.
- You have at least one of these permissions:
  - View Analytics Data
  - View Classic WFM Data
  - View QM Data
  - View WFM Data
- You have the Share Content permission.

Page location

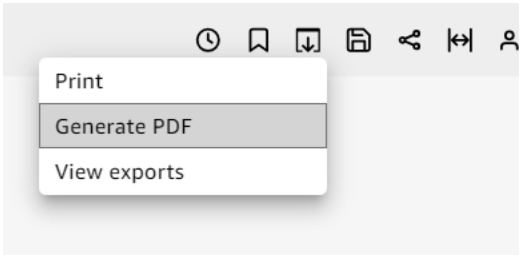
Insights > Dashboards > Click a dashboard

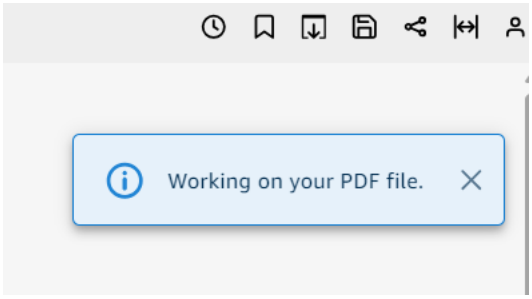
Insights > Analyses > Click an analysis

Procedures

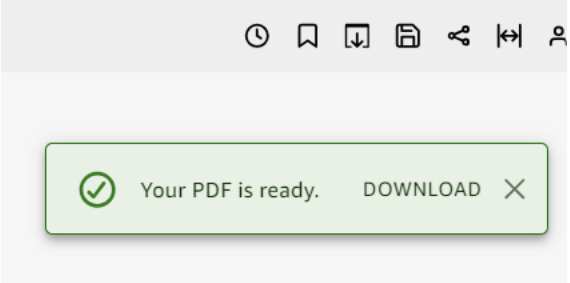
Export a dashboard as a PDF

1. Click **Export**(upper-right corner of the page) and select **Generate PDF**. A message appears stating **Working on your PDF file**.





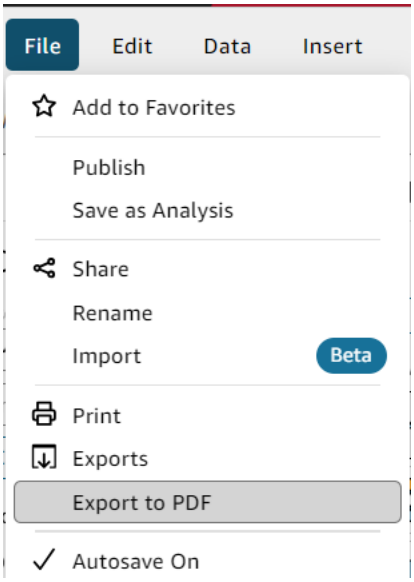
2. When the message **Your PDF is ready** appears , click **Download.**

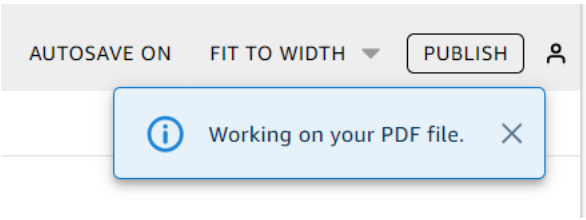


NOTE If you close the dialog box without downloading the file, repeat the previous step. Also, the downloadable file is available only temporarily for five minutes. If you wait too long, the file will expire.

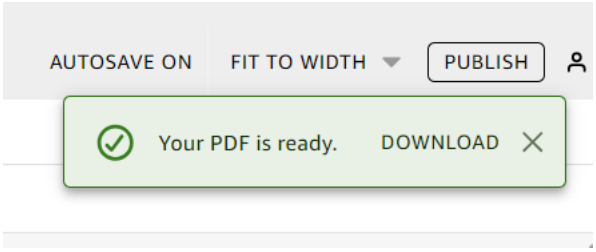
Export an analysis as a PDF

1. Click **File**(upper-left corner of the page) and select **Export to PDF**. A message appears stating **Working on your PDF file**.





2. When the message **Your PDF is ready** appears, click **Download.**



NOTE You can click **Download** or click **Exports** under **File** to view and download every analysis or report that is ready to download.

Related topic

- Export and print interactive dashboard reports
- Print a dashboard or an analysis in Insights
- Error codes for failed PDF export jobs

Error codes for failed PDF export jobs

When you generate PDF reports in Insights, you may encounter instances where your request to generate a PDF report fails. There are many reasons why a failure might occur. Insights provides error codes that can help you understand why the error occurred and provide guidance to troubleshoot the issue. The table below lists the error codes that Insights returns when a PDF export job fails.

Error code	Guidance
INVALID_DATAPREP_SYNTAX	Check the syntax for your calculated fields, and try again.
POST_AGGREGATED_METRIC_AS_DIMENSION	Aggregated metrics/operands can't be used as visual's grouping dimensions. Choose a valid visual's grouping dimensions, and try again.
COLUMN_NOT_FOUND	Replace the missing columns in your filters or parameters, and try again.
DATA_SOURCE_TIMEOUT	Your query has timed out. Reduce the amount of data, and try again.
MAX_PAGE_EXCEEDED_ERROR	Your file is ready but content is not complete. PDFs have a 1,000 page limit. Choose a shorter PDF, and try again.

Error code	Guidance
INSUFFICIENT_BODY_HEIGHT_ERROR	Adjust the header and footer to be less than the page height, and try again.
FIRST_PAGE_HEIGHT_TOO_SMALL_ERROR	Adjust sections to make room for your tables, and try again.
INTERNAL_ERROR	INTERNAL_ERROR

Related topic

- Export Insights analyses or dashboards as PDFs
- Print a dashboard or an analysis in Insights

Organize assets into folders for Insights

In Insights, your team members can create personal folders to add hierarchical structure to Insights asset management. Using folders, people can more easily organize, navigate through, and discover dashboards, analyses, and datasets. Within a folder, you can still use your usual tools to search for assets or to add assets to your favorites list.

NOTE Personal folders are visible only to the person who owns them. You can't transfer ownership of personal folders to anyone else.

Prerequisites

- You have the Insights Author license.
- You have the Insights Reader license. The following limitations apply:
  - Readers can't own a personal folder.
  - Readers can't create or manage folders or folder content.
- You have the Create Content permission.
- You have the View Content permission.
- You have at least one of these permissions:

- View Analytics Data
- View Classic WFM Data
- View QM Data
- View WFM Data

Page location

Insights > My folders

Procedure

Favorite a folder

- Click the favorite (☆) icon next to your personal folder to mark it as a favorite.

Create a subfolder

- Click + **New** to create a subfolder in your folder.

Add assets to a folder

- Click + **New** to add asset to your folder, including **Analysis**, and **Dataset**.

NOTE To add assets to a personal folder, you must already have access to the assets. Multiple assets can have the same name.

Related topics

- Share and subscribe to data in Insights
- Share an Insights analysis

Visual issues with Insights

Use the following section to help you troubleshoot problems with visuals and their formatting.

Topics

- I can't see my visuals
- I get a feedback bar across my printed documents

- My map charts don't show locations
- My pivot table stops working
- My visual doesn't update after I change a calculated field
- I am seeing drill-down error messages while using Insights dashboards

I can't see my visuals

Use the following section to help you troubleshoot problems with visuals.

Problem	Solution

I am trying to view visuals, but they are not rendering properly.
 	
NOTE These settings must be configured on your computer and through the applications you use for ad blockers and endpoint security. A restart is required for the network changes to take effect.
	Whitelist domains for VPN and proxy restrictions
	
	1. Click **Start** and type firewall.
	2. Click **Firewall & network protection**.
	3. Click **Allow an app through firewall**. The **Allowed apps** tab opens.
	4. Click **Change settings**.
	5. Add the following domains to your whitelist.
	   - *.aws.amazon.com
	   - amazonaws.com
	   - https://mobileanalytics.*.amazonaws.com
	   - *.cloudfront.net
	   - https://launchdarkly.com
	   - *.launchdarkly.com
	6. Click **OK**.
	
	Add exceptions for Insights domains in your ad blocker
	
	1. Open your ad blocker’s settings or preferences.
	2. Locate the **Exceptions** or **Allowlist** section.
	3. Add the following domains to your **Allowlist**:

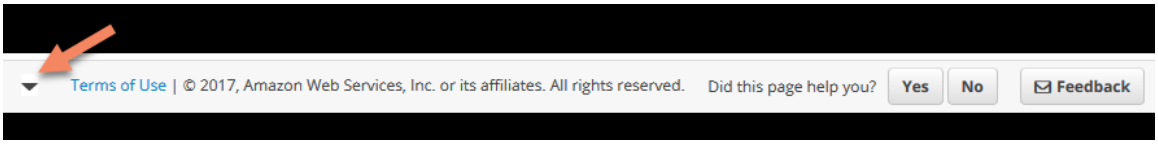
Problem	Solution
	■ *.aws.amazon.com ■ amazonaws.com ■ https://mobileanalytics.*.amazonaws.com ■ *.cloudfront.net ■ https://launchdarkly.com ■ *.launchdarkly.com 4. Click **Save**. ***Allow domains in proxy server*** 1. Click **Start** and type **proxy**. 2. Click **Proxy settings**. 3. Click **Set up** under **Use a proxy server** in the **Manual proxy setup** section. 4. Add the following domains to your whitelist: ■ *.quicksight.aws.amazon.com ■ *.cloudfront.net ■ https://launchdarkly.com ■ *.launchdarkly.com 5. Click **Save**. ***Whitelist endpoint security restrictions*** 1. Open your endpoint security application. 2. Navigate to the **URL Exceptions** or **Trusted Sites** section. 3. Add the following URL to the exception list: ■ https://launchdarkly.com 4. Click **Save**.

Problem	Solution
I am trying to add a visual, but the option is unavailable.	■ Check that you aren't trying to add more objects than the quota allows. Insights supports up to 30 datasets in a single analysis, up to 30 visuals in a single sheet, and a limit of 20 sheets per analysis.
I see maps as visual options in Insights, but I don't see any geospatial data in any of the datasets. Can I make a map in Insights?	■ While you may see the mention of geospatial fields in Insights, there may be no data to support them. As currently, Insights does not include any geospatial-type data.

I get a feedback bar across my printed documents

The browser sometimes prints the document feedback bar across the page, blocking some printed content.

To avoid this problem, use the twirl-down icon on the bottom left of the screen (shown following) to minimize the feedback bar. Then print your document.



My map charts don't show locations

For automatic mapping, called geocoding, to work on map charts, make sure that your data is prepared following specific rules. For help with geospatial issues, see I can't see my visuals.

My pivot table stops working

If your pivot table exceeds the computational limitations of the underlying database, this is usually caused by the combination of items in the field wells. That is, it's caused by a combination of rows, columns, metrics, and table calculations. To reduce the level of complexity and the potential for errors, simplify your pivot table. For more information, see Pivot table best practices.

My visual doesn't update after I change a calculated field

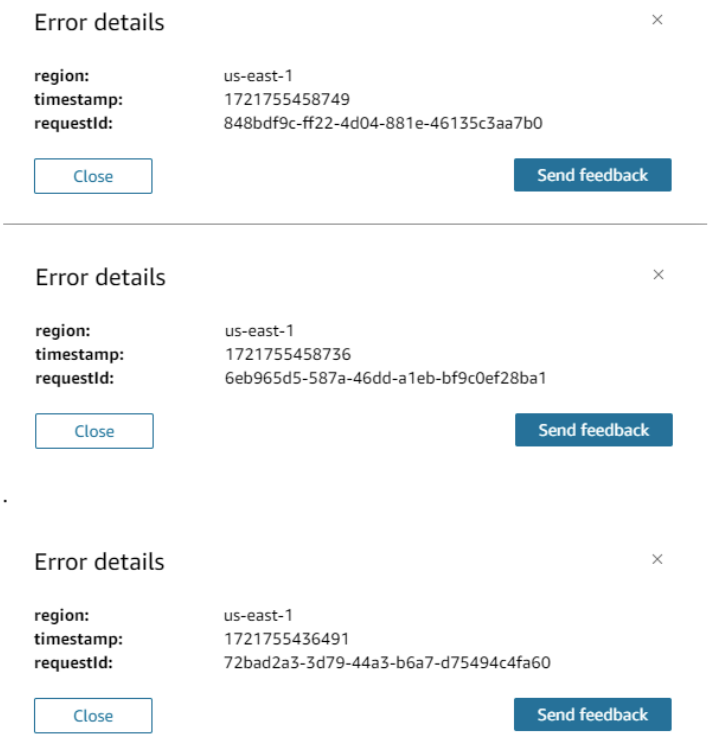
When you update a calculated field that many other fields depend on, the consuming entities might not update as expected. For example, when you update a calculated field that's used by a field being visualized, the visual doesn't update as expected.

To resolve this issue, refresh your internet browser.

I am seeing drill-down error messages while using Insights dashboards

If you receive an error when clicking **show details** for **inbound contacts**, **contacts taken**, and **average contact duration**, an error screen may appear showing technical details such as the region, timestamp, and requestId.

Agent Smart Benchmarking - error received when clicking show details for inbound contacts, contacts taken and avg contact duration



In this case, click **Send feedback** and include all the information under **Error details**. We will open a support case to address this issue.

Insights dataset dictionary

When you create a new analysis in Insights, one of the first steps is to select a dataset. Datasets are collections of related information. The datasets available to you vary based on the Cisco products your organization has purchased. This document describes the different datasets you can choose from and defines the different fields contained in each set.

For instructions on creating an analysis, go to Create an analysis in Insights.

Prerequisites

- Your organization has Cisco Insights.
- You have the Insights Author license.
- You have the following permissions:
  - View Content
  - Create Content
  - At least one View Data permission

Page location

Insights > Datasets

Different types of data

Insights contains different types of data, such as names, numbers, dates, and more. When you use a dataset in an analysis, each data field has an icon next to it that indicates which type of data it is. The table below defines each icon.

Icon	Definition
	Text data. For example, Contact Start Timezone, Full Name, or Absence Type.
	Measure data. These fields are typically numbers that you want to report on. For example, Agent Answered Volume, Abandoned Calls, or Contact Holds.
	Dimension data. These fields are number data that you want to organize other numbers by. They are not typically data you want to report on for their own sake. For example, Contact ID, Approver ID, or Evaluation ID.
	Date data. For example, Shift Start Date, Employment End Date, or Contact Start Time.
	A calculated field. These kinds of fields are created by combining multiple fields that already exist in Insights. You probably won't see this icon when you first start building analyses. This icon is orange if the data is a measure and blue if the data is a dimension.

Overview of datasets

Analytics datasets

Dataset	Granularity	Use for
Phrase Usage	One row per phrase hit	Reporting on phrase hits from transcriptions and text analytics. Use this dataset when you want to analyze patterns and trends of how phrases or phrase categories are used in contacts.
Phrase Usage - CrossTab	One row per phrase hit per coinciding phrase hit	Reporting on phrase hits from transcriptions and text analytics. Use this dataset only when you want to compare phrases and phrase categories to each other, such when trying to determine how often people said phrases in other categories in relation to the one you are studying. This dataset uses complex comparisons, and analyses that use it run more slowly than those that use the basic Phrase Usage dataset. **EXAMPLE** This dataset helps you uncover insights like this: People who used Negative Phrases like “speak to a manager” also used Leaving Phrases like “cancel my credit card” more often than Positive Phrases like “you are doing a great job.”

QM datasets

Dataset	Granularity	Use for
Contact Metadata	One row per custom metadata field per contact	Reporting on contacts when you need to see the granular detail of all the metadata associated with each contact. This dataset also contains all of the fields in the Contacts dataset. Unless you need to see all the granular metadata, we recommend that you use the Contacts dataset for optimal processing speed.
Contacts	One row per interaction contact	Reporting on basic contact details such as durations, calling number, number called, and custom metadata.
Contacts with Phrases and Evaluations	One row per contact, repeated for each related Evaluation record, PhraseUsage record, or both	Reporting on all contacts, evaluation data, and phrase hits. This dataset is ideal when you need to analyze interactions that include evaluation data, phrase hits, or both. Use Level Aware Calculations (LAC) when grouping by evaluations or phrases to ensure accurate aggregation. This dataset includes Trending Topics data for the contact records. Consider using a different dataset if you do not need values from all three dimensions.

Dataset	Granularity	Use for
Evaluation Answers	One row per evaluation question response	Reporting down to the individual question level of a form. This dataset is great for getting into the details of form responses or showing the performance of a single question over time. However, it might perform slowly if you try to run a report for a long time range. To report on how overall form scores trend over time, use the Evaluations dataset.
Evaluation Answers (Manual + Auto)	One row per evaluation answer	Reporting on evaluations and their individual answers, including both manual and automatically generated data. This dataset only includes contacts that have evaluations and new evaluation type fields and flags to show whether the data was created manually or automatically. Also includes section score values and Trending Topics data for the associated contact records.
Evaluation Comments	One row per evaluation comment	Adding information from evaluation comments to dashboards that already show information at the individual evaluation level.

Dataset	Granularity	Use for
Evaluations	One row per evaluation	Reporting on evaluation scores where you don't need to get more detailed than an individual evaluation. This dataset is great for trending scores rolled up to teams and groups and over longer time periods. To get into the detail of question responses, use the Evaluation Answers dataset.
Evaluations (Manual + Auto)	One row per evaluation	Reporting on evaluation scores, including both manual and automatically generated evaluations. This dataset only includes contacts that have evaluations and new fields for automatically generated evaluation data, such as evaluation type and flags to identify whether the data was created manually or automatically.
People	One row per person	Reporting on your organization's hierarchy of groups, teams, and agents when you don't need to see any other fields. The fields in this dataset appear in most of the other QM datasets too. If you need other fields, use one of the other QM datasets.
Recording Events	One row per recording event. For example, pause, silence, hold, and so on.	Reporting on recording events in contacts when you need to see the granular details of every recording even for each contact.

WFM datasets

*Datasets marked with an asterisk (*) are a good place to start if you're new to building analyses from scratch. They contain the most detailed information that is probably important to you in a WFM analysis.

Dataset	Granularity	Use for
WFM Adherence	One row per agent per day	Reporting on adherence levels per day when you don't need anything more detailed than agents' activities in a single day.
WFM Adherence Details*	One row per agent per state	Comparing agents' scheduled activities and absences to their actual activities and time in state.
WFM Agent Queue Stats	One row per agent per queue per interval	Reporting on statistics that come from your ACD, broken down by agent, queue, and interval.
WFM Agent Skills	One row per agent per interval	Reporting on when an agent was assigned or unassigned a skill.
WFM Agent Stats	One row per agent per interval	Reporting on statistics that come from your ACD, broken down by agent and interval.
WFM Forecast Skill vs. Schedule*	One row per skill per scenario per interval	Reporting on differences between forecast scenarios and actual schedules.
WFM Forecast Workload	One row per interval per scenario per skill per workload	Comparing different "what if" forecast scenarios to each other. This dataset does not currently contain actual statistics.
WFM Hourly Availability	One row per agent per day per scenario	Reporting on available time, scheduled time, and utilization at the daily level.
WFM People	One row per person period	Reporting on how long agents were employed in your contact center. For example, you can use this dataset to report on turnover rates for different groups or teams. **NOTE** This dataset contains WFM data only. It is not the same as the QM People datasest.

Dataset	Granularity	Use for
WFM Queue Stats	One row per queue per interval, per linked Workload and Skill. **NOTE** If a queue is assigned to more than one Workload or Skill, a separate row will be generated for each assignment.	Reporting on statistics that come from your ACD, broken down by queue and interval.
WFM Requests	One row per request	Reporting on the types of requests that agents submit and the status of those requests.
WFM Schedule Deviation	One row per person per interval	Reporting on scheduled statistics vs. actual schedules.
WFM Schedule Preferences	One row per person per preference per day	If your organization uses preferences, reporting on how many agents' preferences were fulfilled and what percentage of their requests those fulfillments represent.
WFM Scheduled Agent Days	One row per person per scenario per day	Reporting on how many agents are working on a particular day and where they are located.
WFM Scheduled Agent Time*	One row per agent per scenario per interval	This is the primary dataset for reporting on schedule activity. Use this if you're reporting on agent schedules, including absences, activities, overtime, or ready time.

Phrase Usage dataset

The Phrase Usage dataset contains the following data:

Contact

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact ID	The unique identifier for every interaction.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Start Time	The date and time this contact began, in GMT (UTC).
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.

Data field	Definition
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur.
Contacts Taken	A count of the number of contacts that were taken.
Has Screen	Whether or not the contact has a screen recording. 1= yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Inbound Contacts	A count of the number of contacts that were inbound.
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for human resources (HR). 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words the called number.
Outbound Contacts	A count of the number of contacts that were outbound.
Recording Type ID	The Webex WFO database ID for the recording type.
Time To Answer (s)	Milliseconds from the startTime until the agent answered the incoming

Data field	Definition
	call.
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to 20 Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields. Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation State

Data field	Definition
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100.
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6

Data field	Definition
	inclusive.
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD.

Data field	Definition
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for “.6 FTE.” This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Enabled For Scheduling	Whether or not a person can be scheduled in WFM. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user’s account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization’s Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.

Data field	Definition
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent’s ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Phrase Use

Data field	Definition
Phrase	Phrases are one or more words that are configured to be recognized in calls.
Phrase Category	A collection of Phrases.
Phrase Channel	For calls with multiple audio streams, the channel in which the phrase was spoken.
Phrase Confidence	Confidence rating from 0-100 indicating match.
Phrase End Offset (s)	The number of seconds from the end of the contact where the phrase occurred.
Phrase Position	The number of characters from the start of the text body to the position where the phrase occurs. This field is not available for all phrases.
Phrase Source	Source system where the phrase hit was reported: Transcription, Phonetics, or Text Analytics.
Phrase Start Offset (s)	The number of seconds from the start of the contact where the phrase occurred.
Phrase Use Date	The date when the phrase was used in a contact.

Data field	Definition
Phrases	Count of all phrase hits. **EXAMPLE** The word “hello” is said four times in one call. This field contains the number 4 for this call.
Unique Phrases	Count of unique phrase hits. **EXAMPLE** The word “hello” is said four times in one call, and no other phrases that Analytics is configured to recognize are said. This field counts all four instances of “hello” as one unique phrase and contains the number 1 for this call.

Predictive Scores

Data field	Definition
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0–6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7–8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9–10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.

Data field	Definition
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those Contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those Contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Phrase Usage - CrossTab dataset

The Phrase Usage - CrossTab dataset contains the following data:

Contact

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact ID	The unique identifier for every interaction.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Start Time	The date and time this contact began, in GMT (UTC)
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.

Data field	Definition
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur
Contacts Taken	A count of the number of contacts that were answered
Has Screen	Whether or not the contact has a screen recording. 1= yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Inbound Contacts	A count of the number of contacts that were inbound
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words the called number.
Outbound Contacts	A count of the number of contacts that were outbound
Recording Type ID	The Webex WFO database ID for the recording type.
Time To Answer (s)	Milliseconds from the startTime until the agent answered the incoming call.

Data field	Definition
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to 20 Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields. Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation State

Data field	Definition
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.

Data field	Definition
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD system.
AD Login	The agent’s username for logging in to the ACD.

Data field	Definition
Agent Rank	A number that indicates agent seniority.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for ".6 FTE." This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Enabled For Scheduling	Whether or not a person can be scheduled in WFM. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user's account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization's Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.

Data field	Definition
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent’s ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Phrase Use

Data field	Definition
Phrase	Phrases are one or more words that are configured to be recognized in calls.
Phrase Category	A collection of Phrases
Phrase Category2	The list of phrase categories for logical comparison. Combine this field with Phrase Category to search for contacts with phrase hits in both categories or in neither category.
Phrase Channel	For calls with multiple audio streams, the channel in which the phrase was spoken.
Phrase Confidence	Confidence rating from 0-100 indicating match.
Phrase End Offset (s)	The number of seconds from the end of the call where the phrase occurred.
Phrase Position	The number of characters from the start of the text body to the position where the phrase occurs. This field is not available for all phrases.
Phrase Source	Source system where the phrase hit was reported: Transcription, Phonetics, or Text Analytics.
Phrase Start Offset (s)	The number of seconds from the start of the contact where the phrase occurred.

Data field	Definition
Phrase Use Date	The date when the phrase was used in a contact.
Phrase2	The list of phrases for logical comparison. Combine this field with Phrase to search for contacts with phrase hits for both phrases or for neither phrase.
Phrases	Count of all phrase hits.
Unique Phrases	Count of unique phrase hits.

Predictive Scores

Data field	Definition
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0–6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7–8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9–10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those Contacts with a sentiment score.

Data field	Definition
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those Contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Contact Metadata dataset

The Contact Metadata dataset contains the following data:

Contact

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact ID	The unique identifier for every interaction.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Start Time	The date and time this contact began, in GMT (UTC)
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.

Data field	Definition
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur
Contacts Taken	A count of the number of contacts that were answered
Has Screen	Whether or not the contact has a screen recording. 1= yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Inbound Contacts	A count of the number of contacts that were inbound
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words the called number.
Outbound Contacts	A count of the number of contacts that were outbound
Recording Type ID	The Webex WFO database ID for the recording type.
Time To Answer (s)	Milliseconds from the startTime until the agent answered the incoming call.

Data field	Definition
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to 20 Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields. Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation State

Data field	Definition
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.

Metadata

Data field	Definition
DX Key	The number 1—20 for the item.
Metadata Created Date	When the metadata was created on Metadata Manager page.
Metadata Field Display Name	The name for the metadata field that appears to users in Webex WFO. This comes from the Metadata Label field on the Metadata Manager page.
Metadata Field ID	The Webex WFO database ID for the metadata field.

Data field	Definition
Metadata Field Key Name	The automatically generated key for the metadata field. This comes from the Metadata Key field on the Metadata Manager page.
Metadata ID	The Webex WFO database ID for the metadata.
Metadata Type ID	The Webex WFO database ID for the metadata type.
Metadata Type Name	What kind of metadata it is: number, text, or hyperlink. This comes from the Metadata Manager page.
Metadata Updated Date	The date when the metadata was last updated on the Metadata Manager page.
Value (number)	For number-type custom metadata, the value for the field in number form. This appears as an integer.
Value (text)	For custom metadata, the value for the field in text form. For number-type custom metadata, this appears as the word form of the number.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Realm ID	The Webex WFO database ID for the Cisco realm that the tenant is in.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.
Tenant ID	The Webex WFO database ID for the tenant.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD system.
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.

Data field	Definition
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for ".6 FTE." This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Enabled For Scheduling	Whether or not a person can be scheduled in WFM. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user's account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization's Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent's ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Predictive Scores

Data field	Definition
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0-6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7-8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9-10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those Contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those Contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.

Data field	Definition
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Contacts dataset

The Contacts dataset contains the following data:

Contact Date

Data field	Definition
Contact Created Date	The date the contact record was created in the Webex WFO database.
Contact Start Time	The date and time this contact began, in GMT (UTC).
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Updated Date	The database date stamp when the last change was made to the contact record. For example, adding custom metadata to the contact.

Contact Measures

Data field	Definition
Avg Contact Duration (s)	The sum of contact durations divided by the number of contacts.
Contact Duration (ms)	The duration of the call from time answered to time dropped, in milliseconds.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur
Contacts Taken	A count of the number of contacts that were answered
Inbound Contacts	A count of the number of contacts that were inbound
Outbound Contacts	A count of the number of contacts that were outbound
Paused Contacts	A count of the number of contacts where pause events occur
Time To Answer (s)	Seconds from the startTime until the agent answered the incoming call.

Contact Properties

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Audio Upload State	Whether or not the contact's voice recording is uploaded to Webex WFO. 1 = yes, 0 = no.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact ID	The unique identifier for every interaction.
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Has Screen	Whether or not the contact has a screen recording. 1= yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words the called number.

Data field	Definition
Screen Upload State	Whether or not the contact's screen recording is uploaded to Webex WFO. 1 = yes, 0 = no.
Survey Send Status	Whether or not a post-contact survey was sent for the contact. 1 = yes, 0 = no.
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Contact Type

Data field	Definition
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to 20 Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields. Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation State

Data field	Definition
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Group Activated Date	The date when the group was activated. This field is good for filtering out groups that aren't active.
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Groups	A distinct count of Groups.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Realm ID	The Webex WFO database ID for the Cisco realm that the tenant is in.
Team Activated Date	The date when the team was activated in Webex WFO.

Data field	Definition
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.
Teams	A distinct count of teams.
Tenant ID	The Webex WFO database ID for the tenant.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD system.
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Agents	A distinct count of unique agents.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.
Enabled For Scheduling	Whether the user is enabled for scheduling in WFM. 1 = yes, 0 = no.
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for “.6 FTE.” This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.

Data field	Definition
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user's account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization's Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
People	A distinct count of Person IDs. The unique number of people (persons).
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent's ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Predictive Scores

Data field	Definition
Avg Predictive NPS Response	The average net promoter score across multiple contacts.

Data field	Definition
Avg Predictive Quality Score	Calculated average predictive quality score.
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0-6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7-8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9-10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those Contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those Contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.

Data field	Definition
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Contacts with Phrases and Evaluations dataset

The Contacts with Phrases and Evaluations dataset contains the following data:

Contact Date

Data field	Definition
Contact Created Date	The date the contact record was created in the Webex WFO database.
Contact Start Time	The date and time this contact began, in GMT (UTC).
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Updated Date	The database date stamp when the last change was made to the contact record. For example, adding custom metadata to the contact.

Contact Measures

Data field	Definition
Avg Contact Duration (s)	The sum of contact durations divided by the number of contacts.
Contact Duration (ms)	The duration of the call from time answered to time dropped, in milliseconds.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur.
Contacts Taken	A count of the number of contacts that were answered.
Inbound Contacts	A count of the number of contacts that were inbound.
Outbound Contacts	A count of the number of contacts that were outbound.
Paused Contacts	A count of the number of contacts where pause events occur.
Time To Answer (s)	Seconds from the startTime until the agent answered the incoming call.

Contact Properties

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Audio Upload State	Whether or not the contact's voice recording is uploaded to Webex WFO. 1 = yes, 0 = no.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact ID	The unique identifier for every interaction.
Contact URL Path	The hyperlink path used to open a specific interaction.
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Has Screen	Whether or not the contact has a screen recording. 1= yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other

Data field	Definition
	words, the called number.
Screen Upload State	Whether or not the contact's screen recording is uploaded to Webex WFO. 1 = yes, 0 = no.
Survey Send Status	Whether or not a post-contact survey was sent for the contact. 1 = yes, 0 = no.
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Contact Type

Data field	Definition
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to twenty Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields. Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation

Data field	Definition
Approver Email	The email address of the person who approved the evaluation.
Approver Full Name	The name of the person who approved the evaluation.
Approver ID	The Webex WFO database ID of the person who approved the evaluation. This field can be useful if you have two approvers with the same name.
Auto Evaluations	The total number of evaluations automatically scored by artificial intelligence.
Evaluated Date	The date when the contact was evaluated.
Evaluation Created Date	The date an evaluation was created, in UTC format.
Evaluation ID	The Webex WFO database ID for a completed evaluation.
Evaluation Response Date	The date when the agent responded to an evaluation of a contact they handled.
Evaluation Response State ID	The Webex WFO database ID for the evaluation response's state.
Evaluation Response State Name	The state of the agent’s response to the evaluation.
Evaluation State	The current status of the evaluation.
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation Type	Identifies the evaluation as either MANUAL or AUTO.
Evaluations	Total number of evaluations.
Evaluator Email	The email address of the person who evaluated the contact.
Evaluator Full Name	The full name of the person who evaluated the contact.
Evaluator ID	The Webex WFO database ID of the person who evaluated the contact. This ID can be helpful if your organization has multiple evaluators with the same name.

Data field	Definition
Is Auto Evaluation	Whether the evaluation was automatically created by artificial intelligence. 1 = true, 0 = false.
Is Manual Evaluation	Whether the evaluation was manually created by a human evaluator. 1 = true, 0 = false.
Manual Evaluations	The total number of evaluations manually scored by a human evaluator.

Evaluation Form

Data field	Definition
Evaluation Form ID	The Webex WFO database ID for an evaluation form.
Evaluation Response Type ID	The Webex WFO database ID for the evaluation response type.
Evaluation Response Type Name	The type of evaluation response from the agent: acknowledged or appealed.
Form Applicable Points	The total score points applicable to the form.
Form Band Max 1	The maximum score that falls within the Needs Improvement scoring band.
Form Band Max 2	The maximum score that falls within the Meets Expectations scoring band.
Form Description	The description for the form. This comes from the Form Description field on the Evaluation Form Manager page.
Form Name	The name of the form. This comes from the Form Name field on the Evaluation Form Manager page.
Form Scoring Type ID	The Webex WFO database ID for the form's scoring type. Forms are either Percentage or Points.
Form Scoring Type Name	The way in which the form calculates scores. Scoring types are either Percentage or Points.
Form Status Description	The publication status of the evaluation form.

Data field	Definition
Form Total Points	The maximum possible score points for the form.
Is Default Form	Whether or not the form is used for predictive analytics. 1 = yes, 0 = no.

Evaluation Score

Data field	Definition
Additive Score	The total points score for a form down to the question level.
Is Counted Score	Whether or not the score is the official score of record for the contact. Scores given as part of calibration exercises, for example, are not counted. 1 = yes, 0 = no.
Is Score Overridden	Whether or not the score for an evaluation question was changed from the automatically assigned value. 1 = yes, 0 = no.
Normalized Evaluation Score	The score for an evaluation as a percentage normalized across points versus percentage-based forms. This field lets you compare evaluation scores across both points forms and percentage forms.
Total Score	The score earned for a contact.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100.
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10

Data field	Definition
	inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Webex WFO Hostname	The name of the Webex WFO server.
Group Activated Date	The date that the group was activated in the system.
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Groups	Collections of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Realm ID	The Webex WFO database ID for the Cisco realm that the tenant is in.
Team Activated Date	The date when the team was activated in Webex WFO.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.
Teams	A distinct count of unique teams.
Tenant ID	The Webex WFO database ID for the tenant.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD system.
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Agents	A distinct count of agents.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.
Enabled For Scheduling	Whether the user is enabled for scheduling in WFM. 1 = yes, 0 = no.
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for “.6 FTE.” This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user’s account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization’s Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.

Data field	Definition
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent’s ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Phrase use

Data field	Definition
Phrase	Phrases are one or more words that are configured to be recognized in calls.
Phrase Category	A collection of Phrases.
Phrase Channel	For calls with multiple audio streams, the channel in which the phrase was spoken.
Phrase Confidence	Confidence rating from 0-100 indicating match.
Phrase End Offset (s)	The number of seconds from the end of the contact where the phrase occurred.
Phrase Position	The number of characters from the start of the text body to the position where the phrase occurs. This field is not available for all phrases.

Data field	Definition
Phrase Source	Source system where the phrase hit was reported: Transcription, Phonetics, or Text Analytics.
Phrase Start Offset (s)	The number of seconds from the start of the contact where the phrase occurred.
Phrase Use Date	The date when the phrase was used in a contact.
Phrases	Count of all phrase hits. **EXAMPLE** The word “hello” is said four times in one call. This field contains the number 4 for this call.
Unique Phrases	Count of unique phrase hits. **EXAMPLE** The word “hello” is said four times in one call, and no other phrases that Analytics is configured to recognize are said. This field counts all four instances of “hello” as one unique phrase and contains the number 1 for this call.

Predictive Scores

Data field	Definition
Avg Predictive NPS Response	The average of all raw predicted NPS score responses.
Avg Predictive Quality Score	The average of all predicted evaluation quality scores.
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0–6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7–8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9–10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.

Data field	Definition
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Trending Topics

Data field	Definition
Subtopic	Topics broken down into subordinate, more granular groups within a broader conversation topic.
Topic	The main reason a customer contacted you, identified by analyzing the entire conversation.

Evaluation Answers dataset

The Evaluation Answers dataset contains the following data:

Contact

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.

Data field	Definition
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact ID	The unique identifier for every interaction.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Start Time	The date and time this contact began, in GMT (UTC)
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur
Contacts Taken	A count of the number of contacts that were answered

Data field	Definition
Has Screen	Whether or not the contact has a screen recording. 1= yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Inbound Contacts	A count of the number of contacts that were inbound
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words the called number.
Outbound Contacts	A count of the number of contacts that were outbound
Time To Answer (s)	Milliseconds from the startTime until the agent answered the incoming call.
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to 20 Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields.

Data field	Definition
	Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation

Data field	Definition
Approver Email	The email address of the person who approved the evaluation.
Approver Full Name	The name of the person who approved the evaluation.
Approver ID	The Webex WFO database ID of the person who approved the evaluation. This field can be useful if you have two approvers with the same name.
Evaluated Date	The date when the contact was evaluated.
Evaluated Timezone	The timezone of the person who evaluated the contact.
Evaluation Additive Score	The total points score for a form down to the question level.
Evaluation Created Date	The date an evaluation was created, in UTC format.
Evaluation ID	The Webex WFO database ID for a completed evaluation.
Evaluation Response Date	The date when the agent responded to an evaluation of a contact they handled.
Evaluation Response State ID	The Webex WFO database ID for the evaluation response's state.
Evaluation Response State Name	The state of the agent’s response to the evaluation.
Evaluation Scoring Band	A field to indicate where an Evaluation's score falls against the Exceeds/Meets/Below bands set for the Form used in an Evaluation.
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.

Data field	Definition
Evaluation Total Score	The percentage or number of points earned in the evaluation.
Evaluation Total Score Cohort	Places evaluation total scores into buckets to evaluate distribution of scores.
Evaluation Total Score Dual Cohort	Multi-part buckets to account for points and percentage scores.
Evaluations	Total number of evaluations.
Evaluator Email	The email address of the person who evaluated the contact.
Evaluator Full Name	The full name of the person who evaluated the contact.
Evaluator ID	The Webex WFO database ID of the person who evaluated the contact. This ID can be helpful if your organization has multiple evaluators with the same name.
Is Counted Score	Whether or not the score is the official score of record for the contact. Scores given as part of calibration exercises, for example, are not counted. 1 = yes, 0 = no.
Is Evaluation Deleted	Whether or not an evaluation score is deleted. 1 = yes, 0 = no.
Normalized Contact Score	The score for an evaluation as a percentage normalized across points vs percentage-based forms. This field lets you compare evaluation scores across both points forms and percentage forms.

Evaluation Answer

Data field	Definition
Answer Created Date	The date when an evaluation question was answered.
Evaluation Answer ID	The Webex WFO database ID of the answer to an evaluation question. This ID can be helpful if your organization has multiple answer options with the same wording.
Question Score	Score for a single question in a section on a form.

Data field	Definition
Selected Option ID	The Webex WFO database ID for the answer option that the evaluator selected.
Selected Option Is Default	Whether or not the answer option that the evaluator selected is the default selection for the question. 1 = yes, 0 = no.
Selected Option Label	The text for the answer option that the evaluator selected.
Selected Option Points	The points value for the answer option that the evaluator selected.
Selected Option Type ID	The Webex WFO database ID for the type of answer option that the evaluator selected.
Selected Option Type Name	The type of answer option that the evaluator selected. Options are Null, Additive, KPI, or Not Applicable.

Evaluation Form

Data field	Definition
Evaluation Form ID	The Webex WFO database ID for an evaluation form.
Evaluation Forms	Total number of forms.
Evaluation Response Type ID	The Webex WFO database ID for the evaluation response type.
Evaluation Response Type Name	The type of evaluation response from the agent: acknowledged or appealed.
Form Applicable Points	The number of points possible in a form, excluding “not applicable” (N/A) answers. You can use this field to remove questions answered as N/A from the total points possible on a form so that agents' scores are not artificially lowered.
Form Band Max 1	The maximum score that falls within the Needs Improvement scoring band.
Form Band Max 2	The maximum score that falls within the Meets Expectations scoring band.

Data field	Definition
Form Description	The description for the form. This comes from the Form Description field on the Evaluation Form Manager page.
Form Name	The name of the form. This comes from the Form Name field on the Evaluation Form Manager page.
Form Scoring Type ID	The Webex WFO database ID for the form's scoring type. Forms are either Percentage or Points.
Form Scoring Type Name	The way in which the form calculates scores. Scoring types are either Percentage or Points.
Form Status Description	The publication status of the evaluation form.
Form Status ID	The Webex WFO database ID for the evaluation form's publication status.
Form Total Points	The total number of points possible in the evaluation form.
Is Default Form	Whether or not the form is used for predictive analytics. 1 = yes, 0 = no.

Evaluation Form Section

Data field	Definition
Form Section ID	The Webex WFO database ID for the section within an evaluation form. This ID can be helpful if your organization has multiple sections with the same name.
Form Section Name	The name of a section within an evaluation form. This comes from the Section Title field on the Evaluation Form Manager page.
Form Section Ordinal	The order in which the section appears in the form. To display the sections in the same order they appear in a form, add this field to a table visual, sort by this field, and then hide its column.
Form Section Weight	The extent to which a section in an evaluation form contributes toward the total score on the form.

Evaluation Question

Data field	Definition
Evaluation Question ID	The Webex WFO database ID for a question on an evaluation form. This ID can be helpful if your organization has multiple questions with the same wording.
Is KPI	Whether or not the question is a KPI question. 1 = yes, 0 = no.
Points Form Question Possible Score	Maximum possible points for points form. Used to calculate percentage.
Points Form Question Possible Score Applicable	Maximum possible points for points form. Used to calculate percentage. This takes into account “not applicable” responses and their impact on score.
Question Description	The explanation text that accompanies a question in an evaluation form.
Question Ordinal	The order in which the question appears in the form. To display the questions in the same order they appear in a form, add this field to a table visual, sort by this field, and then hide its column.
Question Possible Score	Potential score for a single question in a section on a form.
Question Text	The wording of the question that appears to evaluators.
Question Weight	The extent to which the question contributes to the total score on the form.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.

Data field	Definition
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Realm ID	The Webex WFO database ID for the Cisco realm that the tenant is in.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.
Tenant ID	The Webex WFO database ID for the tenant.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to

Data field	Definition
	the ACD system.
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for “.6 FTE.” This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Enabled For Scheduling	Whether or not a person can be scheduled in WFM. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user’s account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization’s Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.

Data field	Definition
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent’s ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Predictive Scores

Data field	Definition
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0-6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7-8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9-10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.

Data field	Definition
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those Contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those Contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Evaluation Answers (Manual + Auto) dataset

The Evaluation Answers (Manual + Auto) dataset contains the following data:

Contact

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact ID	The unique identifier for every interaction.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Start Time	The date and time this contact began, in GMT (UTC).
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.

Data field	Definition
Contact URL Path	The hyperlink path used to open a specific interaction.
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur.
Contacts Taken	A count of the number of contacts that were answered.
Has Screen	Whether or not the contact has a screen recording. 1 = yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Inbound Contacts	A count of the number of contacts that were inbound.
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words, the called number.
Outbound Contacts	A count of the number of contacts that were outbound.
Time To Answer (s)	Seconds from the startTime until the agent answered the incoming call.
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to twenty Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields. Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation

Data field	Definition
Approver Email	The email address of the person who approved the evaluation.
Approver Full Name	The name of the person who approved the evaluation.
Approver ID	The Webex WFO database ID of the person who approved the evaluation. This field can be useful if you have two approvers with the same name.
Auto Evaluations	The total number of evaluations automatically scored by artificial intelligence.
Evaluated Date	The date when the contact was evaluated.
Evaluated Additive Score	The total score calculated by summing all evaluations.
Evaluation Created Date	The date an evaluation was created, in UTC format.
Evaluation ID	The Webex WFO database ID for a completed evaluation.
Evaluation Response Date	The date when the agent responded to an evaluation of a contact they handled.
Evaluation Response State ID	The Webex WFO database ID for the evaluation response's state.
Evaluation Response State	The state of the agent’s response to the evaluation.

Data field	Definition
Name	
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.
Evaluation Total Score	The total score for an evaluation, shown as an integer. This is the sum of all question points when no KPI options are selected.
Evaluation Total Score Cohort	Groups total evaluation scores into buckets to help evaluate score distribution.
Evaluation Total Score Dual Cohort	Groups evaluation scores into ranges based on both point totals and percentage values.
Evaluation Type	Identifies the evaluation as either MANUAL or AUTO.
Evaluations	Total number of evaluations.
Evaluator Email	The email address of the person who evaluated the contact.
Evaluator Full Name	The full name of the person who evaluated the contact.
Evaluator ID	The Webex WFO database ID of the person who evaluated the contact. This ID can be helpful if your organization has multiple evaluators with the same name.
Is Auto Evaluation	Whether the evaluation was automatically created by artificial intelligence. 1 = yes, 0 = no.
Is Counted Score	Whether the evaluation score should be included in aggregated scoring. 1 = yes, 0 = no.
Is Evaluation Deleted	Whether or not an evaluation score is deleted. 1 = yes, 0 = no.
Is Manual Evaluation	Whether the evaluation was manually created by a human evaluator. 1 = yes, 0 = no.
Manual Evaluations	The total number of evaluations manually scored by a human evaluator.
Normalized Evaluation Score	The evaluation score shown as a percentage, regardless of scoring type.

Evaluation Answer

Data field	Definition
Answer Created Date	The date when an evaluation question was answered.
Evaluation Answer ID	The Webex WFO database ID of the answer to an evaluation question. This ID can be helpful if your organization has multiple answer options with the same wording.
Is Score Overridden	Whether or not the automatically assigned score was manually changed for the individual evaluation question. 1 = yes, 0 = no.
Question Score	Score for a single question in a section on a form.
Selected Option ID	The Webex WFO database ID for the answer option that the evaluator selected.
Selected Option Is Default	Whether or not the answer option that the evaluator selected is the default selection for the question. 1 = yes, 0 = no.
Selected Option Label	The text for the answer option that the evaluator selected.
Selected Option Points	The points value for the answer option that the evaluator selected.
Selected Option Reason	The rationale or explanation provided by the evaluator for choosing a specific answer option.
Selected Option Type ID	The Webex WFO database ID for the type of answer option that the evaluator selected.
Selected Option Type Name	The type of answer option that the evaluator selected. Options are Null, Additive, KPI, or Not Applicable.

Evaluation Form

Data field	Definition
Evaluation Form ID	The Webex WFO database ID for an evaluation form.
Evaluation Forms	Total number of forms.

Data field	Definition
Evaluation Response Type ID	The Webex WFO database ID for the evaluation response type.
Evaluation Response Type Name	The type of evaluation response from the agent: acknowledged or appealed.
Form Band Max 1	The maximum score that falls within the Needs Improvement scoring band.
Form Band Max 2	The maximum score that falls within the Meets Expectations scoring band.
Form Description	The description for the form. This comes from the Form Description field on the Evaluation Form Manager page.
Form Name	The name of the form. This comes from the Form Name field on the Evaluation Form Manager page.
Form Scoring Type ID	The Webex WFO database ID for the form's scoring type. Forms are either Percentage or Points.
Form Scoring Type Name	The way in which the form calculates scores. Scoring types are either Percentage or Points.
Form Status Description	The publication status of the evaluation form.
Form Total Points	The total number of points assigned in the evaluation form.
Is Default Form	Whether or not the form is used for predictive analytics. 1 = yes, 0 = no.

Evaluation Form Section

Data field	Definition
Form Section ID	The Webex WFO database ID for the section within an evaluation form. This ID can be helpful if your organization has multiple sections with the same name.
Form Section Name	The name of a section within an evaluation form. This comes from the Section Title field on the Evaluation Form Manager page.

Data field	Definition
Form Section Ordinal	The order in which the section appears in the form. To display the sections in the same order they appear in a form, add this field to a table visual, sort by this field, and then hide its column.
Form Section Weight	The extent to which a section in an evaluation form contributes toward the total score on the form.
Is Section Score Overridden	Whether the section score was manually overridden by a human evaluator. 1 = yes, 0 = no.
Normalized Section Score	The section score shown as a percentage, regardless of scoring type.
Section Applicable Points	The total score points applicable to the section.
Section Score	The score assigned to the section.
Section Score Status	Whether the section score is valid or not applicable. Values: NA or Valid.

Evaluation Question

Data field	Definition
Evaluation Question ID	The Webex WFO database ID for a question on an evaluation form. This ID can be helpful if your organization has multiple questions with the same wording.
Is KPI	Whether or not the question is a KPI question. 1 = yes, 0 = no.
Points Form Question Possible Score	Maximum possible points for points form. Used to calculate percentage.
Points Form Question Possible Score Applicable	Maximum possible points for points form. Used to calculate percentage. This takes into account “not applicable” responses and their impact on score.
Question Description	The explanation text that accompanies a question in an evaluation form.
Question Ordinal	The order in which the question appears in the form. To display the questions in the same order they appear in a form, add this field to a table

Data field	Definition
	visual, sort by this field, and then hide its column.
Question Possible Score	Potential score for a single question in a section on a form.
Question Text	The wording of the question that appears to evaluators.
Question Weight	The extent to which the question contributes to the total score on the form.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100.
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Webex WFO Hostname	The name of the Webex WFO server.
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.

Data field	Definition
Group Name	The display name for a collection of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD system.
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for “.6 FTE.” This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Enabled For Scheduling	Whether or not a person can be scheduled in WFM. 1 = yes, 0 = no.

Data field	Definition
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization's Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent's ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Predictive Scores

Data field	Definition
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.

Data field	Definition
Predictive NPS Detractors	Total predicted survey responses scored 0–6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7–8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9–10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Trending Topics

Data field	Definition
Topic	The main reason a customer contacted you, identified by analyzing the entire conversation.
Subtopic	Topics broken down into subordinate, more granular groups within a broader conversation topic.

Evaluation Comments dataset

The Evaluation Comments dataset contains the following data:

Contact

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.

Data field	Definition
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact ID	The unique identifier for every interaction.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Start Time	The date and time this contact began, in GMT (UTC)
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur
Contacts Taken	A count of the number of contacts that were answered

Data field	Definition
Has Screen	Whether or not the contact has a screen recording. 1= yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Inbound Contacts	A count of the number of contacts that were inbound
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words the called number.
Outbound Contacts	A count of the number of contacts that were outbound
Time To Answer (s)	Milliseconds from the startTime until the agent answered the incoming call.
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to 20 Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields.

Data field	Definition
	Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation

Data field	Definition
Approver Email	The email address of the person who approved the evaluation.
Approver Full Name	The name of the person who approved the evaluation.
Approver ID	The Webex WFO database ID of the person who approved the evaluation. This field can be useful if you have two approvers with the same name.
Evaluated Date	The date when the contact was evaluated.
Evaluated Timezone	The timezone of the person who evaluated the contact.
Evaluation Created Date	The date an evaluation was created, in UTC format.
Evaluation ID	The Webex WFO database ID for a completed evaluation.
Evaluation Response Date	The date when the agent responded to an evaluation of a contact they handled.
Evaluation Response State ID	The Webex WFO database ID for the evaluation response's state.
Evaluation Response State Name	The state of the agent’s response to the evaluation.
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.
Evaluations	Total number of evaluations.
Evaluator Email	The email address of the person who evaluated the contact.
Evaluator Full Name	The full name of the person who evaluated the contact.

Data field	Definition
Evaluator ID	The Webex WFO database ID of the person who evaluated the contact. This ID can be helpful if your organization has multiple evaluators with the same name.
Is Evaluation Deleted	Whether or not an evaluation score is deleted. 1 = yes, 0 = no.

Evaluation Comment

Data field	Definition
Comment Created Date	The date when someone added a comment to an evaluation.
Comment Created Timezone	The timezone of the person who added a comment to an evaluation.
Comment Group ID	A comment group is a collection of comments, one of which is a response to another. Comment Group ID allows parent and child comments to be associated.
Comment Text	The text of the comment that someone added to an evaluation.
Comment Updated Date	The date when the comment on an evaluation was updated.
Commenter Email	The email address of the person who added a comment to the evaluation.
Commenter Full Name	The full name of the person who added a comment to the evaluation.
Commenter ID	The Webex WFO database ID of the person who added a comment to an evaluation.
Commenter Team ID	The Webex WFO database ID of the team that the person who added a comment to the evaluation belongs to.
Contact Offset	The offset from the start of the contact when the comment was created.
Evaluation Comment ID	The Webex WFO database ID of the comment on an evalaution form.
Evaluation Comments	This is a distinct count of the number of Evaluation Comments.
Evaluation Question Description	The explanation text that accompanies a question in an evaluation form. This text helps the evaluators understand the question.

Data field	Definition
Evaluation Question ID	The Webex WFO database ID for a question on an evaluation form. This ID can be helpful if your organization has multiple questions with the same wording.
Evaluation Question Text	The text of a question in an evaluation form.
Evaluation Section ID	The Webex WFO database ID for the section within an evaluation form. This ID can be helpful if your organization has multiple sections with the same name.
Evaluation Section Name	The name of a section within an evaluation form.
Parent Comment ID	The Webex WFO database ID for the comment that is a parent to another comment on an evaluation form. Usually child comments are responses to parent comments.
Question Possible Score	Potential score for a single question in a section on a form.

Evaluation Form

Data field	Definition
Evaluation Form ID	The Webex WFO database ID for an evaluation form.
Evaluation Forms	Total number of forms.
Evaluation Response Type ID	The Webex WFO database ID for the evaluation response type.
Evaluation Response Type Name	The type of evaluation response from the agent: acknowledged or appealed.
Form Band Max 1	The maximum score that falls within the Needs Improvement scoring band.
Form Band Max 2	The maximum score that falls within the Meets Expectations scoring band.
Form Description	The description for the form. This comes from the Form Description field on the Evaluation Form Manager page.

Data field	Definition
Form Name	The name of the form. This comes from the Form Name field on the Evaluation Form Manager page.
Form Scoring Type ID	The Webex WFO database ID for the form's scoring type. Forms are either Percentage or Points.
Form Scoring Type Name	The way in which the form calculates scores. Scoring types are either Percentage or Points.
Form Status Description	The publication status of the evaluation form.
Form Status ID	The Webex WFO database ID for the evaluation form's publication status.
Is Default Form	Whether or not the form is used for predictive analytics. 1 = yes, 0 = no.

Evaluation Score

Data field	Definition
Additive Score	The total points score for a form down to the question level.
Avg Evaluation Score	The average of the score per evaluation as a key performance indicator
Evaluation Scoring Band	A field to indicate where an Evaluation's score falls against the Exceeds/Meets/Below bands set for the Form used in an Evaluation.
Evaluation Total Score Cohort	Places evaluation total scores into buckets to evaluate distribution of scores.
Evaluation Total Score Dual Cohort	Multi-part buckets to account for points and percentage scores.
Form Applicable Points	The number of points possible in a form, excluding “not applicable” (N/A) answers. You can use this field to remove questions answered as N/A from the total points possible on a form so that agents' scores are not artificially lowered.
Form Total Points	The total number of points possible in the evaluation form.

Data field	Definition
Is Counted Score	Whether or not the score is the official score of record for the contact. Scores given as part of calibration exercises, for example, are not counted. 1 = yes, 0 = no.
Normalized Contact Score	The score for an evaluation as a percentage normalized across points vs percentage-based forms. This field lets you compare evaluation scores across both points forms and percentage forms.
Total Score	The score earned for a contact.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.

Data field	Definition
Group Name	The display name for a collection of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Realm ID	The Webex WFO database ID for the Cisco realm that the tenant is in.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.
Tenant ID	The Webex WFO database ID for the tenant.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD system.
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for “.6 FTE.” This field comes from Classic WFM.

Data field	Definition
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Enabled For Scheduling	Whether or not a person can be scheduled in WFM. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user's account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization's Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent's ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Predictive Scores

Data field	Definition
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0–6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7–8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9–10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those Contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those Contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.

Data field	Definition
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Evaluations dataset

The Evaluations dataset contains the following data:

Contact

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.

Data field	Definition
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact ID	The unique identifier for every interaction.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Start Time	The date and time this contact began, in GMT (UTC)
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur
Contacts Taken	A count of the number of contacts that were answered

Data field	Definition
Has Screen	Whether or not the contact has a screen recording. 1= yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Inbound Contacts	A count of the number of contacts that were inbound
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words the called number.
Outbound Contacts	A count of the number of contacts that were outbound
Time To Answer (s)	Milliseconds from the startTime until the agent answered the incoming call.
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to 20 Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields.

Data field	Definition
	Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation

Data field	Definition
Approver Email	The email address of the person who approved the evaluation.
Approver Full Name	The name of the person who approved the evaluation.
Approver ID	The Webex WFO database ID of the person who approved the evaluation. This field can be useful if you have two approvers with the same name.
Evaluated Date	The date when the contact was evaluated.
Evaluated Timezone	The timezone of the person who evaluated the contact.
Evaluation Created Date	The date an evaluation was created, in UTC format.
Evaluation ID	The Webex WFO database ID for a completed evaluation.
Evaluation Response Date	The date when the agent responded to an evaluation of a contact they handled.
Evaluation Response State ID	The Webex WFO database ID for the evaluation response's state.
Evaluation Response State Name	The state of the agent’s response to the evaluation.
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.
Evaluations	Total number of evaluations.
Evaluator Email	The email address of the person who evaluated the contact.
Evaluator Full Name	The full name of the person who evaluated the contact.

Data field	Definition
Evaluator ID	The Webex WFO database ID of the person who evaluated the contact. This ID can be helpful if your organization has multiple evaluators with the same name.
Is Evaluation Deleted	Whether or not an evaluation score is deleted. 1 = yes, 0 = no.

Evaluation Form

Data field	Definition
Evaluation Form ID	The Webex WFO database ID for an evaluation form.
Evaluation Forms	Total number of forms.
Evaluation Response Type ID	The Webex WFO database ID for the evaluation response type.
Evaluation Response Type Name	The type of evaluation response from the agent: acknowledged or appealed.
Form Band Max 1	The maximum score that falls within the Needs Improvement scoring band.
Form Band Max 2	The maximum score that falls within the Meets Expectations scoring band.
Form Description	The description for the form. This comes from the Form Description field on the Evaluation Form Manager page.
Form Name	The name of the form. This comes from the Form Name field on the Evaluation Form Manager page.
Form Scoring Type ID	The Webex WFO database ID for the form's scoring type. Forms are either Percentage or Points.
Form Scoring Type Name	The way in which the form calculates scores. Scoring types are either Percentage or Points.
Form Status Description	The publication status of the evaluation form.
Form Status ID	The Webex WFO database ID for the evaluation form's publication status.

Data field	Definition
Is Default Form	Whether or not the form is used for predictive analytics. 1 = yes, 0 = no.

Evaluation Score

Data field	Definition
Additive Score	The total points score for a form down to the question level.
Avg Evaluation Score	The average of the score per evaluation as a key performance indicator
Evaluation Scoring Band	A field to indicate where an Evaluation's score falls against the Exceeds/Meets/Below bands set for the Form used in an Evaluation.
Evaluation Total Score Cohort	Places evaluation total scores into buckets to evaluate distribution of scores.
Evaluation Total Score Dual Cohort	Multi-part buckets to account for points and percentage scores.
Form Applicable Points	The number of points possible in a form, excluding “not applicable” (N/A) answers. You can use this field to remove questions answered as N/A from the total points possible on a form so that agents' scores are not artificially lowered.
Form Total Points	The total number of points possible in the evaluation form.
Is Counted Score	Whether or not the score is the official score of record for the contact. Scores given as part of calibration exercises, for example, are not counted. 1 = yes, 0 = no.
Normalized Contact Score	The score for an evaluation as a percentage normalized across points vs percentage-based forms. This field lets you compare evaluation scores across both points forms and percentage forms.
Total Score	The score earned for a contact.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Realm ID	The Webex WFO database ID for the Cisco realm that the tenant is in.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.
Tenant ID	The Webex WFO database ID for the tenant.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent's ACD system.
ACD Login ID	The Webex WFO database ID of the agent's username for logging in to the ACD system.
AD Login	The agent's username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for ".6 FTE." This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Enabled For Scheduling	Whether or not a person can be scheduled in WFM. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user's account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization's Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.

Data field	Definition
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent’s ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Predictive Scores

Data field	Definition
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0–6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7–8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9–10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those Contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those Contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.

Data field	Definition
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Evaluations (Manual + Auto) dataset

The Evaluations (Manual + Auto) dataset contains the following data:

Contact

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact ID	The unique identifier for every interaction.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Start Time	The date and time this contact began, in GMT (UTC).
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.

Data field	Definition
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.
Contact URL Path	The URL path to access contact's record.
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Contacts	A distinct count of unique contacts.
Contacts Put On Hold	A count of the number of contacts where hold events occur.
Contacts Taken	A count of the number of contacts that were answered.
Has Screen	Whether or not the contact has a screen recording. 1 = yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Inbound Contacts	A count of the number of contacts that were inbound.
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.

Data field	Definition
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words, the called number.
Outbound Contacts	A count of the number of contacts that were outbound.
Time To Answer (s)	Seconds from the startTime until the agent answered the incoming call.
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to twenty Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields. Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation

Data field	Definition
Approver Email	The email address of the person who approved the evaluation.
Approver Full Name	The name of the person who approved the evaluation.
Approver ID	The Webex WFO database ID of the person who approved the evaluation. This field can be useful if you have two approvers with the same name.
Auto Evaluations	The total number of evaluations automatically scored by artificial

Data field	Definition
	intelligence.
Evaluated Date	The date when the contact was evaluated.
Evaluation Created Date	The date an evaluation was created, in UTC format.
Evaluation ID	The Webex WFO database ID for a completed evaluation.
Evaluation Response Date	The date when the agent responded to an evaluation of a contact they handled.
Evaluation Response State ID	The Webex WFO database ID for the evaluation response's state.
Evaluation Response State Name	The state of the agent’s response to the evaluation.
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.
Evaluation Type	Identifies the evaluation as either MANUAL or AUTO.
Evaluations	Total number of evaluations.
Evaluator Email	The email address of the person who evaluated the contact.
Evaluator Full Name	The full name of the person who evaluated the contact.
Evaluator ID	The Webex WFO database ID of the person who evaluated the contact. This ID can be helpful if your organization has multiple evaluators with the same name.
Is Auto Evaluation	Whether the evaluation was automatically created by artificial intelligence. 1 = yes, 0 = no.
Is Evaluation Deleted	Whether or not an evaluation score is deleted. 1 = yes, 0 = no.
Is Manual Evaluation	Whether the evaluation was manually created by a human evaluator. 1 = yes, 0 = no.
Manual Evaluations	The total number of evaluations manually scored by a human evaluator.

Evaluation Form

Data field	Definition
Evaluation Form ID	The Webex WFO database ID for an evaluation form.
Evaluation Response Type ID	The Webex WFO database ID for the evaluation response type.
Evaluation Response Type Name	The type of evaluation response from the agent: acknowledged or appealed.
Form Band Max 1	The maximum score that falls within the Needs Improvement scoring band.
Form Band Max 2	The maximum score that falls within the Meets Expectations scoring band.
Form Description	The description for the form. This comes from the Form Description field on the Evaluation Form Manager page.
Form Name	The name of the form. This comes from the Form Name field on the Evaluation Form Manager page.
Form Scoring Type ID	The Webex WFO database ID for the form's scoring type. Forms are either Percentage or Points.
Form Scoring Type Name	The way in which the form calculates scores. Scoring types are either Percentage or Points.
Form Status Description	The publication status of the evaluation form.
Is Default Form	Whether or not the form is used for predictive analytics. 1 = yes, 0 = no.

Evaluation Score

Data field	Definition
Additive Score	The total points score for a form down to the question level.
Form Applicable Points	The number of points possible in a form, excluding “not applicable” (N/A) answers. You can use this field to remove questions answered as

Data field	Definition
	N/A from the total points possible on a form so that agents' scores are not artificially lowered.
Form Total Points	The total number of points possible in the evaluation form.
Is Counted Score	Whether or not the score is the official score of record for the contact. Scores given as part of calibration exercises, for example, are not counted. 1 = yes, 0 = no.
Is Score Overridden	Whether or not any evaluation question in the entire evaluation had its automatically assigned score manually changed. 1 = yes, 0 = no.
Normalized Contact Score	The score for an evaluation as a percentage normalized across points vs percentage-based forms. This field lets you compare evaluation scores across both points forms and percentage forms.
Total Score	The score earned for a contact.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100.
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Webex WFO Hostname	The name of the Webex WFO server.
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Realm ID	The Webex WFO database ID for the Cisco realm that the tenant is in.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD system.
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.

Data field	Definition
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for ".6 FTE." This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Enabled For Scheduling	Whether or not a person can be scheduled in WFM. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization's Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent's ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Predictive Scores

Data field	Definition
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0–6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7–8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9–10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.

Data field	Definition
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Trending Topics

Data field	Definition
Subtopic	Topics broken down into subordinate, more granular groups within a broader conversation topic.
Topic	The main reason a customer contacted you, identified by analyzing the entire conversation.

People dataset

The People dataset contains the following data:

Group and Team

Data field	Definition
Group Activated Date	The date when the group was activated. This field is good for filtering out groups that aren't active.
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Groups	A distinct count of Groups.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Team Activated Date	The date when the team was activated in Webex WFO.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.
Teams	A distinct count of teams.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD system.
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.

Data field	Definition
Agents	A distinct count of unique agents.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.
Enabled For Scheduling	Whether the user is enabled for scheduling in WFM. 1 = yes, 0 = no.
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for ".6 FTE." This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user's account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization's Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
People	A distinct count of Person IDs. The unique number of people (persons).
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.

Data field	Definition
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Realm ID	The Webex WFO database ID for the Cisco realm that the tenant is in.
Staffing Group ID	The Webex WFO database ID of the staffing group.
Tenant ID	The Webex WFO database ID for the tenant.
WFM Agent ID	The agent's ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

Recording Events dataset

The Recording Events dataset contains the following data:

Contact

Data field	Definition
Associated Call ID	The ID of other contacts associated with the contact in question. This is used to display associated calls on the Interactions page so that various legs of the same customer contact can be viewed together.

Data field	Definition
Calling Number	The automatic number identification (ANI) for a call. In other words, ANI identifies the number of the calling party.
Contact Duration (s)	The duration of the call from time answered to time dropped, in seconds.
Contact Hold Time (s)	The duration of time when the call was placed on hold, in seconds.
Contact Holds	The number of hold events per contact.
Contact ID	The unique identifier for every interaction.
Contact Pause Time (s)	The number of seconds that the recording process was paused.
Contact Pauses	The number of times that the recording process was paused.
Contact Silence Time (s)	The number of seconds when neither the agent nor the customer was speaking on the call.
Contact Silences	The number of times that neither the agent nor the customer was speaking on the call.
Contact Start Time	The date and time this contact began, in GMT (UTC)
Contact Start Timezone	The timezone that the contact occurred in, as determined by the ACD.
Contact Talkover Time (s)	The number of seconds when multiple people were talking on the call at the same time.
Contact Talkovers	The number of times when multiple people spoke at the same time on the call.
Contact Type ID	The unique reference ID for the type of contact.
Contact Type Name	Group contacts together by type, such as Call or Email.
Contact Was Held	Whether or not the contact was placed on hold. 1 = yes, 0 = no.
Contact Was Paused	Whether or not the process of recording the contact was paused. 1 = yes, 0 = no.
Contacts	A distinct count of unique contacts.

Data field	Definition
Contacts Put On Hold	A count of the number of contacts where hold events occur
Contacts Taken	A count of the number of contacts that were answered
Has Screen	Whether or not the contact has a screen recording. 1= yes, 0 = no.
Has Voice	Whether or not the contact has an audio recording. 1 = yes, 0 = no.
ICM Call ID	The Webex WFO database ID of an ICM call.
Inbound Contacts	A count of the number of contacts that were inbound
Is Calibration	Whether or not the contact had a calibration performed on it. 1 = yes, 0 = no.
Is Inbound	Whether or not a call was inbound to the contact center. 1 = yes, 0 = no.
Is PIP	Whether or not the contact is marked for HR. 1 = yes, 0 = no.
Is Reconciled	Whether or not a contact has gone through the reconciliation process to match the audio and screen recordings. 1 = yes, 0 = no.
Is Training	Whether or not a contact is marked for training. 1 = yes, 0 = no.
Line	The extension where the call took place.
Number Called	The dialed number identification server (DNIS) for the call. In other words the called number.
Outbound Contacts	A count of the number of contacts that were outbound
Recording Type ID	The Webex WFO database ID for the recording type.
Time To Answer (s)	Milliseconds from the startTime until the agent answered the incoming call.
Was Answered	Whether or not the call was answered. 1 = yes, 0 = no.

Custom Data

Data field	Definition
Custom Data 01 to Custom Data 20	Custom Data fields are unique to your organization. These fields allow reporting on metadata defined in Webex WFO. Up to 20 Custom Data fields can be identified by assigning a key to the metadata field on the Metadata Manager page. See Manage custom metadata fields. Custom Data Fields are stored as text data, regardless of whether they contain a number, a date, time, or text. To use these in a formula, you may need to convert their field data type.

Evaluation State

Data field	Definition
Evaluation State ID	The Webex WFO database ID for the evaluation state.
Evaluation State Name	The current evaluation state of a customer contact record.

Net Promoter Score

Data field	Definition
NPS	The computed Net Promoter Score where results can range from -100 to 100
NPS Cohort	Groups all NPS responses as Detractors, Passives, and Promoters.
NPS Detractors	The total number of survey responses with an NPS result between 0–6 inclusive.
NPS Passives	The total number of survey responses with an NPS result of 7–8 inclusive.
NPS Promoters	The total number of survey responses with an NPS result of 9–10 inclusive.
NPS Response	A response score from 0–10 used in calculating the Net Promoter Score.

Organization

Data field	Definition
Group Deactivated Date	The date that the group was deactivated in the system.
Group ID	The Webex WFO database ID for the group. This ID can be helpful if your organization has multiple groups with the same name.
Group Name	The display name for a collection of teams.
Is Group Active	Whether or not a group is active in Webex WFO. 1 = yes, 0 = no.
Is Team Active	Whether or not a team is active in Webex WFO. 1 = yes, 0 = no.
Realm ID	The Webex WFO database ID for the Cisco realm that the tenant is in.
Team Deactivated Date	The date when the team was deactivated in Webex WFO.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.
Tenant ID	The Webex WFO database ID for the tenant.

Person

Data field	Definition
ACD ID	The Webex WFO database ID of the agent’s ACD system.
ACD Login ID	The Webex WFO database ID of the agent’s username for logging in to the ACD system.
AD Login	The agent’s username for logging in to the ACD.
Agent Rank	A number that indicates agent seniority.
Department Start Date	The hire date of the agent in the department, which indicates seniority.
Email	The user's email address.
Employee ID	The Webex WFO database ID of the employee.

Data field	Definition
First Name	The user's first name.
Full Name	The user's full name.
Full Time Equivalent ID	The Webex WFO database ID for the agent's FTE designation. For example, the ID for ".6 FTE." This field comes from Classic WFM.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Enabled For Scheduling	Whether or not a person can be scheduled in WFM. 1 = yes, 0 = no.
Is Hotdesk Default User	Whether or not the person is a hotdesk default user. 1 = yes, 0 = no.
Is Person Active	Whether or not a user's account is active in Webex WFO. 1 = yes, 0 = no.
Is Tenant Owner	Whether or not the user is an administrator for their organization's Webex WFO account. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Activated Date	The date that the person was activated in the system.
Person Deactivated Date	The date that the person was deactivated in the system.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Locale	The two-letter code for the language the person is using in Webex WFO. For example, EN = English.
Person Peripheral ID	The Webex WFO database ID of the person's extension in the ACD.
Person Scheduling End Date	The last day that an agent is scheduled for in Webex WFO.
Person Scheduling Start Date	The first day that an agent was scheduled for in Webex WFO.
Person Timezone	The user's timezone. For example, America / Chicago.
Staffing Group ID	The Webex WFO database ID of the staffing group.
WFM Agent ID	The agent's ID from WFM. This field currently comes from Classic WFM only. We recommend using the Person ID or Is Agent fields instead.

Predictive Scores

Data field	Definition
Predictive NPS	Computed predictive NPS scores - range from -100 to 100.
Predictive NPS Cohort	Groups all Predictive NPS responses as Detractors, Passives, and Promoters.
Predictive NPS Detractors	Total predicted survey responses scored 0-6 inclusive.
Predictive NPS Passives	Total predicted survey responses scored 7-8 inclusive.
Predictive NPS Promoters	Total predicted survey responses scored 9-10 inclusive.
Predictive NPS Response	Raw predictive NPS score responses.
Predictive Quality Score	Predicted evaluation score.

Recording Event

Data field	Definition
Contact Offset	The offset from the start of the contact when the comment was created.
Hold Contact Time Fraction	The fraction of the call that was hold time. For example, .06.
Hold Duration (s)	The number of seconds that the call was placed on hold.
Paused Contact Time Fraction	The fraction of the contact where the recording of the call was paused. For example, .06 means that 6% of the contact is paused time.
Paused Duration (s)	Length of time, in seconds, that calls were in a paused state
Recording Event Created Date	Date and time at which a recording event occurred.
Recording Event Duration (ms)	The amount of time in milliseconds of a recording event such as talk-over, silences, holds, or desktop analytics events.
Recording Event Duration (s)	The amount of time in seconds of a recording event such as talk-over, silences, holds, or desktop analytics events. Recorded in seconds, displayed in hours, minutes, seconds formatting.

Data field	Definition
Recording Event ID	The Webex WFO database ID for the instance of a single recording event.
Recording Event Type ID	The Webex WFO database ID for the recording event type, such as pause or hold.
Recording Event Type Name	The display name for recording events such as pause or hold.

Sentiment

Data field	Definition
Contacts with Negative Sentiment	Count of Contact IDs with negative sentiment score.
Contacts with Negative Sentiment (%)	Percentage of Contact IDs with a negative sentiment score among those Contacts with a sentiment score.
Contacts with Neutral Sentiment	Count of Contact IDs with a neutral sentiment score.
Contacts with Positive Sentiment	Count of Contact IDs with a positive sentiment score.
Contacts with Positive Sentiment (%)	Percentage of Contact IDs with a positive sentiment score among those Contacts with a sentiment score.
Contacts with Sentiment	Count of Contact IDs with a sentiment score.
Predictive Sentiment Channel A	In a call with two audio streams, the predicted sentiment for the person in channel A.
Predictive Sentiment Channel B	In a call with two audio streams, the predicted sentiment for the person in channel B.
Sentiment Cohort	Groups all sentiment scores into Positive, Negative, or Neutral.
Sentiment Score	A decimal value that represents the sentiment of the contact. For example, -.33 or .56.

System

Data field	Definition
system_person_id	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_id	The Webex WFO database ID for the team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Adherence dataset

The WFM Adherence dataset contains the following data:

Adherence

Data field	Definition
Adherence (%)	The percentage of time marked as in adherence for an agent on day level.
In Adherence (h)	The time in hours marked as in adherence for an agent on day level.
In Adherence (m)	The time in minutes marked as in adherence for an agent on day level.
In Adherence (s)	The number of seconds when agents were adhering to their schedules.
In Neutral Adherence (h)	The time in hours marked as in neutral adherence for an agent on day level.
In Neutral Adherence (m)	The time in minutes marked as in neutral adherence for an agent on day level.
In Neutral Adherence (s)	The number of seconds when agents' adherence was marked as neutral: neither in adherence nor out of adherence.
Late for Work (s)	The time in seconds on day level that an agent is recorded as "Late for work". Which activities to track are set in the Adherence tool. Format in hh:mm:ss.
Late for Work Count	The number of days that an agent is recorded as "Late for work." Which

Data field	Definition
	activities to track are set in the Adherence tool.
Out of Adherence (h)	The time in hours marked as out of adherence for an agent on day level.
Out of Adherence (m)	The time in minutes marked as out of adherence for an agent on day level.
Out of Adherence (s)	The number of seconds agents spent not adhering to their schedules.
Shift Start Date	Time subject representing dates bound to the agent local time zone for shifts, absence days, days off, and schedule preferences.
Time in Shift (h)	The total time in hours scheduled in shift for an agent.
Time in Shift (m)	The total time in minutes scheduled in shift for an agent.
Time in Shift (s)	The time/duration in seconds for a scheduled activity and state group for an agent.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person First Name	The user's first name.
Person Last Name	The user's last name.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.

Data field	Definition
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Adherence Details dataset

The WFM Adherence Details dataset contains the following data:

Absence

Data field	Definition
Absence In Contract Time Name	The display name for the absence in contract time.
Absence In Paid Time Name	The display name for the absence in paid time.
Absence In Work Time Name	The display name for the absence in work time.
Absence Type	All absence types that could be added to schedules in the WFM system. Status property shows if the absence is active or deleted in the system.
Absence Type Code	The Webex WFO database GUID for the absence type.
Absence Type Short Name	An abbreviation for the absence type that is configured in WFM.

Data field	Definition
Absence Type Status	Whether the absence type is active or deleted.
Is Absence In Contract Time	Whether or not the absence is in contract time. 1 = yes, 0 = no.
Is Absence In Paid Time	Whether or not the absence is in paid time. 1 = yes, 0 = no.
Is Absence In Work Time	Whether or not the absence is in work time. 1 = yes, 0 = no.
Is Absence Type Deleted	Whether or not the absence type is deleted. 1 = yes, 0 = no.

Activity

Data field	Definition
Activity In Contract Time Name	The display name for the activity in contract time.
Activity In Paid Time Name	The display name for the activity in paid time.
Activity In Ready Time Name	The display name for the activity in ready time.
Activity in Work Time Name	The display name for the activity in work time.
Activity Type	All activity types that could be added to schedules in the system. Status property shows if the activity is active or deleted in the system.
Activity Type Code	The Webex WFO database GUID for the activity type.
Activity Type Status	Can be active or deleted.
Is Activity In Contract Time	Whether or not an activity is in contract time. 1 = yes, 0 = no.
Is Activity In Paid Time	Whether or not an activity is in paid time. 1 = yes, 0 = no.
Is Activity In Ready Time	Whether or not an activity is in ready time. 1 = yes, 0 = no.
Is Activity In Work Time	Whether or not an activity is in work time. 1 = yes, 0 = no.
Is Activity Type Deleted	Whether or not an activity type is deleted. 1 = yes, 0 = no.

Adherence

Data field	Definition
Activity End Date	The date when the activity ended in an agent's schedule.
Activity Start Date	The date when the activity started in an agent's schedule.
Adherence (%)	The percentage of time when agents were in adherence, calculated as in adherence time / (in adherence time + out of adherence time).
Adherence Change ID	Row ID for detailed adherence status.
Adherence Type	Type of adherence state for an agent: In, Out, or Neutral.
In Adherence Time (s)	The number of seconds when agents were adhering to their schedules.
Neutral Adherence Time (s)	The number of seconds agents spent in neutral adherence: neither in adherence nor out of adherence.
Out of Adherence Time (s)	The number of seconds agents spent not adhering to their schedules.
Shift Start Date	Time subject representing dates bound to the agent local time zone for shifts, absence days, days off, and schedule preferences.
State End Date	The date when an agent left a state in the ACD.
State Group ID	The Webex WFO database ID for the state group.
State Group Name	A group of related states from the ACD platform. The state groups are created in WFM Options.
State Start Date	The date when an agent entered a state in the ACD.
Time in State (s)	The time/duration in seconds for a scheduled activity and state group for an agent.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.

Data field	Definition
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
First Name	The user's first name.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.

Data field	Definition
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Agent Queue Stats dataset

The WFM Agent Queue Stats dataset contains the following data:

Agent Queue Stats

Data field	Definition
After Call Work (s)	After call work (ACW) is the total time in seconds the agent spends on a customer contact, after they have finished talking to the customer.
Agent Answered Volume	A call/chat/email/task that has been answered by an agent on a specific queue.
Agent Handling Time (s)	Total time that an agent spends on a call or task including the after call work.
Agent Hold Time (s)	Total time in seconds that calls are on hold for an agent and queue.
Agent Talk Time (s)	Total time agents spend talking to customers based on the states which are logged from the ACD/CTI platform.
Avg After Call Work (s)	The time agents spend on calls after they have finished talking to the customer, divided by all answered calls on queue.
Avg Handling Time (s)	The amount of time it takes on average to handle a contact to completion, including talk time plus after call work time calculated by total handling time/answered calls on queue.
Avg Hold Time (s)	The average hold time calculated as total hold time / total number of answered calls on queue level.
Avg Talk Time (s)	The average talk time calculated as total talk time / total number of answered calls.
Schedule Date Interval	The base level interval marker that underlies all schedules. Format is MMDDYYHHMM.
Transfer Rate (%)	The number of calls transferred as a percentage of the total number of answered calls.
Transferred Calls	Calls that an agent transferred to another agent or back to the skill.

External Logon

Data field	Definition
External Logon ID	External logon denotes login identities imported from external systems, used for single sign on, to access external data, or to synchronize user accounts and provide statistics. A single user can have several external logon accounts, providing separate statistics for each account. Several users can share the same external logon, but we do not recommend this because in this case no distinct statistics per user can be provided.
External Logon Log Data Source	Where the external logon details came from. For example, the ACD or other systems.
External Logon Name	External logon denotes login identities imported from external systems, used for single sign on, to access external data, or to synchronize user accounts and provide statistics. A single user can have several external logon accounts, providing separate statistics for each account. Several users can share the same external logon, but we do not recommend this because in this case no distinct statistics per user can be provided.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.

Data field	Definition
Person Timezone	The timezone associated with the user's WFM settings.

Queue

Data field	Definition
Queue ID	The Webex WFO database ID for the queue.
Queue Log Data Source	The source of data for the queue log details. For example, an ACD or other systems.
Queue Name	A queue is where calls are placed as they are handled by the ACD/CTI platform and holds the calls until an agent is available. Data from the platform is used by the WFM system as a basis for workloads.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Agent Skills dataset

The WFM Agent Skills dataset contains the following data:

Agent Skills

Data field	Definition
Agent Has Skill	Whether or not an agent is assigned to a skill. 1 = yes, 0 = no.

Data field	Definition
Forecast Method Code	The definition of how a skill works in Forecasts. Forecast methods that are available for skills in Forecasts are Back Office, Chat, Email, Fax, Inbound Telephony, Project, Retail, and Time.
Forecast Method Name	The definition of how a skill works in Forecasts. Forecast methods that are available for skills in Forecasts are Back Office, Chat, Email, Fax, Inbound Telephony, Project, Retail, and Time.
Is Active Agent Skill	Whether or not an agent skill is active. 1 = yes, 0 = no.
Is Skill Deleted	Whether or not a skill is deleted. 1 = yes, 0 = no.
Skill Code	The Webex WFO database GUID for a skill.
Skill Name	A skill is a staffing forecast that defines a resource need to be fulfilled during scheduling. In order to be scheduled, agents must be assigned to at least one skill. The Skill status shows if the skill is active or deleted in the system.
Skill Status	Whether the skill is Active or Deleted.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
First Name	The user's first name.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.

Data field	Definition
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Agent Stats dataset

The WFM Agent Stats dataset contains the following data:

Agent Stats

Data field	Definition
Admin Time (h)	The time agents spend on administrative tasks, in hours. The information is based on the states which are logged from the ACD/CTI platform.
Admin Time (m)	The time agents spend on administrative tasks, in minutes. The information is based on the states which are logged from the ACD/CTI platform.
Admin Time (s)	The time agents spend on administrative tasks, in seconds. The information is based on the states which are logged from the ACD/CTI platform.
Agents Ready	The number of agents who were in the state "ready." An agent is counted as "ready" as soon as he/she has any logged in time at any point during a

Data field	Definition
	period.
Direct Incoming Calls	Calls made directly to an agent, not through queue.
Direct Incoming Talk Time (s)	Total time that agents spend in calls made directly to an agent, not through queue.
Direct Outbound Calls	Number of outgoing calls made by an agent. Depending on the CTI platform used, this measure may not include outbound calls that were not completed. i.e. unanswered.
Direct Outbound Talk Time (s)	Total time agents spend talking in outbound calls made by an agent.
Idle Time (h)	The time agents spend idling, i.e. waiting for a customer call/chat etc. The information is based on the states which are logged from the ACD/CTI platform through an integration. Idle time is considered to be ready time.
Idle Time (m)	The time agents spend idling, i.e. waiting for a customer call/chat etc. The information is based on the states which are logged from the ACD/CTI platform through an integration. Idle time is considered to be ready time.
Idle Time (s)	The time agents spend idling, i.e. waiting for a customer call/chat etc. The information is based on the states which are logged from the ACD/CTI platform through an integration. Idle time is considered to be ready time.
Logged In Time (h)	The time when the agent is logged in to the ACD/CTI platform. All logged in time is either ready time or not ready time and this is defined by the states which the agents are in.
Logged In Time (m)	The time when the agent is logged in to the ACD/CTI platform. All logged in time is either ready time or not ready time and this is defined by the states which the agents are in.
Logged In Time (s)	The time when the agent is logged in to the ACD/CTI platform. All logged in time is either ready time or not ready time and this is defined by the states which the agents are in.
Not Ready Time (h)	The total time in hours when agents are logged in on the ACD/CTI

Data field	Definition
	platform but are in a not ready state. Not ready states are states where the agent is, for example, paused or doing some admin work which is not considered ready. Not ready time is consequently all time where the agents are in one of the not ready states.
Not Ready Time (m)	The total time in minutes when agents are logged in on the ACD/CTI platform but are in a not ready state. Not ready states are states where the agent is, for example, paused or doing some admin work which is not considered ready. Not ready time is consequently all time where the agents are in one of the not ready states.
Not Ready Time (s)	The total time in seconds when agent are logged in on the ACD/CTI platform but are in a not ready state. Not ready states are states where the agent is, for example, paused or doing some admin work which is not considered ready. Not ready time is consequently all time where the agents are in one of the not ready states.
Occupancy (%) (Ready Time - Idle Time / Ready Time)	The percentage of ready time that an agent spends actively handling contacts (incoming calls, after call work, outbound calls).
Readiness (%)	The percentage of the logged-in time the agents are in a ready state.
Ready Time (h)	Agents are considered to be ready if they are logged in on the ACD/CTI platform and are in a ready state. Ready states are states where the agent is, for example, ready to take a call, in a call, or doing after call work. Ready time is consequently all time where the agents are in one of the ready states.
Ready Time (m)	Agents are considered to be ready if they are logged in on the ACD/CTI platform and are in a ready state. Ready states are states where the agent is, for example, ready to take a call, in a call, or doing after-call work. Ready time is consequently all time where the agents are in one of the ready states.
Ready Time (s)	Agents are considered to be ready if they are logged in on the ACD/CTI platform and are in a ready state. Ready states are states where the agent is, for example, ready to take a call, in a call, or doing after call work.

Data field	Definition
	Ready time is consequently all time where the agents are in one of the ready states.
Schedule Date Interval	The base level interval marker that underlies all schedules. Format is MMDDYYHHMM.

External Logon

Data field	Definition
External Logon ID	External logon denotes login identities imported from external systems, used for single sign on, to access external data, or to synchronize user accounts and provide statistics. A single user can have several external logon accounts, providing separate statistics for each account. Several users can share the same external logon, but we do not recommend this because in this case no distinct statistics per user can be provided.
External Logon Log Data Source	Where the external logon details came from. For example, the ACD or other systems.
External Logon Name	External logon denotes login identities imported from external systems, used for single sign in, to access external data, or to synchronise user accounts and provide statistics. A single user can have several external logon accounts, providing separate statistics for each account. Several users can share the same external logon, but we do not recommend this because in this case no distinct statistics per user can be provided.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.

Data field	Definition
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
First Name	The user's first name.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.

Data field	Definition
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Forecast Skill vs Schedule dataset

The WFM Forecast Skill vs. Schedule dataset contains the following data:

Forecast Skill vs. Schedule

Data field	Definition
ESL (%)	The estimated service level percentage.

Data field	Definition
ESL incl Shrinkage (%)	The estimated service level percentage, taking shrinkage into account.
Forecasted Agents	The number of agents that the forecast indicates you will need.
Forecasted Agents incl Shrinkage	The number of agents that the forecast indicates you will need, taking shrinkage into account.
Forecasted Time (s)	Total contact time, in seconds, that will need to be scheduled for.
Forecasted Time incl Shrinkage (s)	Total contact time, in seconds, that will need to be scheduled for, taking shrinkage into account.
Forecasted Volume	The volumes on workloads, no matter what Forecast method type the workloads and skills you are using belong to.
Forecasted Volume incl Shrinkage	The forecasted volume of calls that you will need to schedule for, taking shrinkage into account.
Predicted Answered Within SL	The number of calls that WFM predicts will be answered within your organization's desired service level.
Predicted Answered Within SL incl Shrinkage	The number of calls that WFM predicts will be answered within your organization's desired service level, taking shrinkage into account.
Schedule Date Interval	The base level interval marker that underlies all schedules. Format is MMDDYYHHMM.
Schedule vs Forecast Intraday Deviation (m)	Deviation in absolute minutes between scheduled time and forecasted time.
Schedule vs Forecast Intraday Deviation (s)	Deviation in absolute seconds between scheduled time and forecasted time.
Schedule vs Forecast Relative Difference (%)	The difference between scheduled and forecasted time as a percentage value, counted as (Scheduled Time - Forecasted Time) / Forecasted Time.
Schedule vs Forecast Relative Difference incl Shrinkage (%)	The difference between scheduled and forecasted time as a percentage value, with shrinkage applied.

Data field	Definition
Scheduled Agents	The number of agents scheduled for a specific date or interval.
Scheduled Time (h)	All the scheduled time in hours, regardless if it is contract time, work time, or absence time.
Scheduled Time (m)	All the scheduled time in minutes, regardless if it is contract time, work time, or absence time.
Scheduled Time (s)	All the scheduled time in seconds, regardless if it is contract time, work time, or absence time.
Standard Deviation	The standard deviation is used to indicate how much scheduled hours deviates from forecasted hours during a particular time period (most often a single day).

Scenario

Data field	Definition
Is Default Scenario	Whether or not the scenario is the default. 1 = yes, 0 = no.
Is Scenario Deleted	Whether or not a scenario is deleted. 1 = yes, 0 = no.
Scenario Code	The Webex WFO database GUID for the scenario.
Scenario Name	Scenarios are used to test the consequences different factors have on staffing. A schedule can be created in any scenario, but for it to be published and visible for agents, it has to be in the default scenario. Requests by agents are only visible in the default scenario.
Scenario Name (Business Unit)	The name of the scenario with the name of the business unit in parentheses after it.
Scenario Status	Whether the scenario is Active or Deleted.

Skill

Data field	Definition
Forecast Method Code	The definition of how a skill works in Forecasts. Forecast methods that are available for skills in Forecasts are Back Office, Chat, Email, Fax, Inbound Telephony, Project, Retail, and Time.
Forecast Method Name	The definition of how a skill works in Forecasts. Forecast methods that are available for skills in Forecasts are Back Office, Chat, Email, Fax, Inbound Telephony, Project, Retail, and Time.
Is Skill Deleted	Whether or not a skill is deleted. 1 = yes, 0 = no.
Skill Code	The Webex WFO database GUID for a skill.
Skill Name	A skill is a staffing forecast that defines a resource need to be fulfilled during scheduling. In order to be scheduled, agents must be assigned to at least one skill. The Skill status shows if the skill is active or deleted in the system.
Skill Status	Whether the skill is Active or Deleted.

System

Data field	Definition
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Forecast Workload dataset

The WFM Forecast Workload dataset contains the following data:

Forecast Workload

Data field	Definition
Forecasted ACW (s)	The total forecasted time in seconds for how much time the agents will

Data field	Definition
	spend working on calls after they have ended the conversation with the customer.
Forecasted ACW excl Campaign (s)	The forecast in seconds for how much time the agents will spend working on calls, excluding campaign calls, after they have ended the conversation with the customer.
Forecasted Avg ACW (s)	The forecast in seconds for how much time the agents will spend working on calls after they have ended the conversation with the customer divided by the number of answered calls.
Forecasted Avg Handling Time (s)	The forecast in seconds for how much time the agents will spend talking and working on calls after they have ended the conversation with the customer divided by the number of answered calls.
Forecasted Avg Talk Time (s)	The forecast in seconds for how much time the agents will spend talking with the customer divided by the number of answered calls.
Forecasted Backoffice Tasks	The total number of forecasted backoffice tasks.
Forecasted Calls	The total number of forecasted incoming calls.
Forecasted Campaign After Call Work (s)	The forecasted after call work time when adjusted with campaign percentage to increase/decrease a forecast.
Forecasted Campaign Handling Time (s)	The forecasted handling time when adjusted with campaign percentage to increase/decrease a forecast.
Forecasted Campaign Talk Time (s)	The forecasted talk time when adjusted with campaign percentage to increase/decrease a forecast.
Forecasted Campaign Volume	An adjusted value to a forecast to increase/decrease the forecasted volume.
Forecasted Emails	The total number of forecasted emails.
Forecasted Handling Time (s)	The total forecasted time in seconds for how much time the agents will spend talking and working on calls after they have ended the conversation with the customer.

Data field	Definition
Forecasted Talk Time (s)	The total forecasted time in seconds for how much time the agents will spend talking with the customer.
Forecasted Volume	The volumes on workloads, no matter what Forecast method type the workloads and skills you are using belong to.
Forecasted Volume excl Campaign	The forecasted volume for a workload not considering campaign percentage added.
Schedule Date Interval	The base level interval marker that underlies all schedules. Format is MMDDYYHHMM.

Scenario

Data field	Definition
Is Default Scenario	Whether or not the scenario is the default. 1 = yes, 0 = no.
Is Scenario Deleted	Whether or not a scenario is deleted. 1 = yes, 0 = no.
Scenario Code	The Webex WFO database GUID for the scenario.
Scenario Name	Scenarios are used to test the consequences different factors have on staffing. A schedule can be created in any scenario, but for it to be published and visible for agents, it has to be in the default scenario. Requests by agents are only visible in the default scenario.
Scenario Name (Business Unit)	The name of the scenario with the name of the business unit in parentheses after it.
Scenario Status	Whether the scenario is Active or Deleted.

Skill

Data field	Definition
Skill Code	The Webex WFO database GUID for a skill.

Data field	Definition
Skill Name	A skill is a staffing forecast that defines a resource need to be fulfilled during scheduling. In order to be scheduled, agents must be assigned to at least one skill. The Skill status shows if the skill is active or deleted in the system.

System

Data field	Definition
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_tenant_id	The Webex WFO database ID for the tenant.

Workload

Data field	Definition
Forecast Method Code	The definition of how a skill works in Forecasts. Forecast methods that are available for skills in Forecasts are Back Office, Chat, Email, Fax, Inbound Telephony, Project, Retail, and Time.
Forecast Method Name	The definition of how a skill works in Forecasts. Forecast methods that are available for skills in Forecasts are Back Office, Chat, Email, Fax, Inbound Telephony, Project, Retail, and Time.
Is Workload Deleted	Whether or not a workload is deleted. 1 = yes, 0 = no.
Workload Calculation Percentage Abandoned	Of all abandoned calls, the percent that were in a specific workload.
Workload Calculation Percentage Abandoned After SL	Of all calls abandoned after service level, the percent that were in a specific workload.
Workload Calculation Percentage Abandoned Short	Of all abandoned short calls, the percent that were in a specific workload.

Data field	Definition
Calls	
Workload Calculation Percentage Abandoned Within SL	Of all calls abandoned within service level, the percent that were in a specific workload.
Workload Calculation Percentage Offered	Of all offered calls, the percent that were in a specific workload.
Workload Calculation Percentage Overflow In	Of all overflow in calls, the percent that were in a specific workload.
Workload Calculation Percentage Overflow Out	Of all overflow out calls, the percent that were in a specific workload.
Workload Code	The Webex WFO database ID for a workload.
Workload Name	A workload is a set of data (historical or simulated) indicating the volume of calls, emails, or other work that is to be performed by agents and scheduled in WFM. A workload may be associated with a number of queues that share the same open hours and follow a common pattern. A workload must be connected to a skill.
Workload Status	Whether the workload is Active or Deleted.

WFM Hourly Availability dataset

The WFM Hourly Availability dataset contains the following data:

Hourly Availability

Data field	Definition
Available Days	The number of days when agents recorded any available time.
Available Time (h)	The number of hours when agents were in a ready state.
Available Time (m)	The number of minutes when agents were in a ready state.
Scheduled Days	The number of days where an agent has scheduled activity.

Data field	Definition
Scheduled Time (h)	All the scheduled time in hours, regardless if it is contract time, work time, or absence time.
Scheduled Time (m)	All the scheduled time in minutes, regardless if it is contract time, work time, or absence time.
Shift Start Date	Time subject representing dates bound to the agent local time zone for shifts, absence days, days off, and schedule preferences.
Utilization (%)	The percentage of available time within scheduled time.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.

Data field	Definition
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
First Name	The user's first name.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

Scenario

Data field	Definition
Is Default Scenario	Whether or not the scenario is the default. 1 = yes, 0 = no.
Is Scenario Deleted	Whether or not a scenario is deleted. 1 = yes, 0 = no.
Scenario Code	The Webex WFO database GUID for the scenario.
Scenario Name	Scenarios are used to test the consequences different factors have on staffing. A schedule can be created in any scenario, but for it to be published and visible for agents, it has to be in the default scenario. Requests by agents are only visible in the default scenario.
Scenario Name (Business Unit)	The name of the scenario with the name of the business unit in parentheses after it.
Scenario Status	Whether the scenario is Active or Deleted.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM People dataset

The WFM People dataset contains the following data:

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.

Data field	Definition
Business Unit ID	The Webex WFO database ID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site ID	The Webex WFO database ID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Sites	The number of sites.
Team Code	The Webex WFO database GUID for a team.
Team ID	The Webex WFO database ID for the team.
Team Name	The display name for the collection of agents.

People

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.

Data field	Definition
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
People	A distinct count of Person IDs. The unique number of people (persons).
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person First Name	The user's first name.
Person ID	The Webex WFO database ID for the person. This field can be helpful if your organization has multiple people with the same name.
Person Last Name	The user's last name.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.
Person Period End Date	Time subject for the end date for a work period for an agent.
Person Period End Date (Agent Local)	The end date for the person period, as it appears in the agent's local time.
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Period Start Date	Time subject for the start date for a work period for an agent.
Person Period Start Date (Agent Local)	The start date for the person period, as it appears in the agent's local time.

Data field	Definition
Person Periods	A distinct count of person IDs.
Person Timezone	The timezone associated with the user's WFM settings.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Queue Stats dataset

The WFM Queue Stats dataset contains the following data:

Queue

Data field	Definition
Queue ID	The Webex WFO database ID for the queue.
Queue Log Data Source	The source of data for the queue log details. For example, an ACD or other systems.
Queue Name	A queue is where calls are placed as they are handled by the ACD/CTI platform and holds the calls until an agent is available. Data from the platform is used by the WFM system as a basis for workloads.

Queue Stats

Data field	Definition
Abandon Rate (%)	The percentage of the calls that are abandoned compared to calls offered.
Abandon Rate excl Short Calls (%)	The percentage of calls that were abandoned but waited in the queue for more than the threshold for short calls.
Abandoned Calls	A call where the caller hung up and abandoned the queue.
Abandoned Calls After SL	Calls that have been abandoned after the service level target set in the ACD/CTI platform.
Abandoned Calls Within SL	Calls that have been abandoned within the service level target set in the ACD/CTI platform.
Abandoned Short Calls	Short calls or abandoned short calls are calls that are abandoned (meaning the caller hangs up) when they have only been in queue for a very short time period. The threshold is set in the ACD/CTI platform.
After Call Work (s)	After call work (ACW) is the total time in seconds the agent spends on a customer contact, after they have finished talking to the customer.
Answer Rate (%)	Percentage value of answered calls / offered calls on queue.
Answered Volume	Total number of answered calls/chats/emails in a queue.
Answered Volume After SL	Total number of answered calls/chats/emails/backoffice tasks in a queue after a service level value set in ACD/CTI platform.
Answered Volume Within SL	Total number of answered calls/chats/emails/backoffice tasks in a queue before a service level value set in ACD/CTI platform.
Avg After Call Work (s)	The time agents spend on calls after they have finished talking to the customer, divided by all answered calls on queue.
Avg Handling Time (s)	The amount of time it takes on average to handle a contact to completion, including talk time plus after call work time calculated by total handling time/answered calls on queue.
Avg Hold Time (s)	The average hold time calculated as total hold time / total number of

Data field	Definition
	answered calls on queue level.
Avg Speed of Answer (s)	The time it takes in seconds for a call/task/email to be answered/handled in an ACD/CTI queue for a specified period.
Avg Talk Time (s)	The time in seconds agents spend talking to customers divided by the number of answered calls on queue.
Avg Time to Abandon (s)	The time in seconds a caller waits before hanging up on the call divided by the number of abandoned calls on queue.
Handling Time (s)	Total time that agents spend on a call or task including the after call work on queue level.
Hold Time (s)	Total time in seconds that calls are put on hold on queue level.
Longest Delay In Queue Abandoned (s)	The longest time a call has been in queue before being abandoned, for the selected time period.
Longest Delay In Queue Answered (s)	The longest time a call has been in queue before being answered, for the selected time period.
Offered Volume	Total number of calls/chats/emails that have been placed in a queue by the ACD/CTI platform, which can then either be answered by a resource (handled) or abandoned.
Overflow In Calls	The number of calls that have been routed in from another queue in the ACD/CTI platform.
Overflow Out Calls	The number of calls that have been routed out to another queue in the ACD/CTI platform.
Schedule Date Interval	The base level interval marker that underlies all schedules. Format is MMDDYYHHMM.
Service Level (%) - Ans in SL / Answered	The service level target is usually expressed as a combination of a percentage and a unit of time. Service level is the given percentage, and the Service time is the given unit of time. The percentage is calculated according to the formula in the name.

Data field	Definition
Service Level (%) - Ans in SL + Abd in SL) / (Answered + Abandoned)	The service level target is usually expressed as a combination of a percentage and a unit of time. Service level is the given percentage, and the Service time is the given unit of time. The percentage is calculated according to the formula in the name.
Service Level (%) - (Ans in SL + Abd in SL) / Offered	The service level target is usually expressed as a combination of a percentage and a unit of time. Service level is the given percentage, and the Service time is the given unit of time. The percentage is calculated according to the formula in the name.
Service Level (%) - Ans in SL / Offered	The service level target is usually expressed as a combination of a percentage and a unit of time. Service level is the given percentage, and the Service time is the given unit of time. The percentage is calculated according to the formula in the name.
Speed of Answer (s)	The total time it takes for a call/task/email to be answered/handled in an ACD/CTI queue for a specified period.
Talk Time (s)	The time agents spend talking to customers measured on queue level. Hold time is usually included in the talk time, but this depends on how the integration is set up.
Time to Abandon (s)	The time a caller waits before hanging up on the call.

Skill

Data field	Definition
Skill Code	The Webex WFO database GUID for a skill.
Skill Name	A skill is a staffing forecast that defines a resource need to be fulfilled during scheduling. In order to be scheduled, agents must be assigned to at least one skill. The Skill status shows if the skill is active or deleted in the system.

System

Data field	Definition
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_tenant_id	The Webex WFO database ID for the tenant.

Workload

Data field	Definition
Workload Code	The Webex WFO database ID for a workload.
Workload Name	A workload is a set of data (historical or simulated) indicating the volume of calls, emails, or other work that is to be performed by agents and scheduled in WFM. A workload may be associated with a number of queues that share the same open hours and follow a common pattern. A workload must be connected to a skill.

WFM Requests dataset

The WFM Requests dataset contains the following data:

Absence

Data field	Definition
Absence In Contract Time Name	The display name for the absence in contract time.
Absence In Paid Time Name	The display name for the absence in paid time.
Absence In Work Time Name	The display name for the absence in work time.
Absence Type	All absence types that could be added to schedules in the WFM system. Status property shows if the absence is active or deleted in the system.
Absence Type Code	The Webex WFO database GUID for the absence type.

Data field	Definition
Absence Type Short Name	An abbreviation for the absence type that is configured in WFM.
Absence Type Status	Whether the absence type is active or deleted.
Is Absence In Contract Paid Time	Whether or not the absence is in contract paid time. 1 = yes, 0 = no.
Is Absence In Paid Time	Whether or not the absence is in paid time. 1 = yes, 0 = no.
Is Absence In Work Time	Whether or not the absence is in work time. 1 = yes, 0 = no.
Is Absence Type Deleted	Whether or not the absence type is deleted. 1 = yes, 0 = no.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.

Data field	Definition
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
First Name	The user's first name.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

Request Status

Data field	Definition
Request Status ID	The Webex WFO database ID for the request's status.
Request Status Name	Request Status shows in which state a request is, such as "Approved," "Pending," "Denied," and so on. Requests are manually or automatically managed messages with absence, shift trade, or text requests.

Request Type

Data field	Definition
Request Type ID	The Webex WFO database ID for the request's type.
Request Type Name	Requests are manually or automatically managed messages with absence, shift trade, or text requests.

Requests

Data field	Definition
Request Application Date	The date that the request was made.
Request Code	The Webex WFO database GUID for the request.
Request Days	The days for which the agent made a request.
Request Period End Date	Time subject representing the last date requested in a request.
Request Period Start Date	Time subject representing the first date requested in a request.
Requested Time	The requested absence or overtime the agents have initiated. The agent makes the request in MyTime and the request can then be approved or denied either automatically or by an administrator.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Schedule Deviation dataset

The WFM Schedule Deviation dataset contains the following data:

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.

Data field	Definition
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
First Name	The user's first name.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

Schedule Deviation

Data field	Definition
Actual Ready Time (s)	Agents are considered to be ready if they are logged in on the ACD/CTI platform and are in a ready state. Ready states are states where the agent is, for example, ready to take a call, in a call, or doing after call work. Ready time is consequently all time where the agents are in one of the ready states.
Deviation Contract Time (s)	A deviation is if agents are not ready when they are scheduled to be ready. It is also affected when they are ready when they are scheduled to do something else. Only contracted time is included. Lunch is usually excluded, and overtime is always excluded.
Deviation Scheduled Ready Time (s)	Deviation if agents are not ready when they are supposed to be. If an agent is ready during a break, it will not affect adherence.
Deviation Scheduled Time (s)	Deviation affected if agents are not ready when they are scheduled to be ready. It is also affected when they are ready when they are scheduled to do something else, or if they are ready before or after their shift. By default only 2 hours before and after the scheduled shift are included.
Ready Time Adherence vs Scheduled Contract Time (%)	Shows how well an agent adheres to his/her schedule, measured interval by interval. Adherence is affected if agents are not ready when they are scheduled to be ready. Adherence is also affected if they are in ready state but scheduled to do something else.
Ready Time Adherence vs Scheduled Ready Time (%)	Shows how well an agent adheres to his/her schedule, measured interval by interval. The ready-time adherence compares the agent's total scheduled ready time to the total actual ready time for each interval. Adherence is only affected if agents are not ready when they are supposed to be. If an agent is ready during a break, it will not affect adherence.
Schedule Contract Time (s)	The time in hh:mm:ss for which the agent has been contracted to work. The amount is defined per agent using contract, contract schedule, part-time percentage, and schedule period. WFM administrators can specify per activity and absence whether it should be considered contract time or not.

Data field	Definition
Schedule Date Interval	The base level interval marker that underlies all schedules. Format is MMDDYYHHMM.
Scheduled Ready Time (s)	Time in seconds when agents are scheduled to be logged in and ready to handle customer contacts.
Shift Start Date	

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Schedule Preferences dataset

The WFM Schedule Preferences dataset contains the following data:

Absence

Data field	Definition
Absence In Contract Time Name	The display name for the absence in contract time.
Absence In Paid Time Name	The display name for the absence in paid time.
Absence In Work Time Name	The display name for the absence in work time.
Absence Status	Whether the absence type is Active or Deleted.
Absence Type	All absence types that could be added to schedules in the WFM system. Status property shows if the absence is active or deleted in the system.

Data field	Definition
Absence Type Code	The Webex WFO database GUID for the absence type.
Absence Type Short Name	An abbreviation for the absence type that is configured in WFM.
Is Absence In Contract Time	Whether or not the absence is in contract time. 1 = yes, 0 = no.
Is Absence In Paid Time	Whether or not the absence is in paid time. 1 = yes, 0 = no.
Is Absence In Work Time	Whether or not the absence is in work time. 1 = yes, 0 = no.
Is Absence Type Deleted	Whether or not the absence type is deleted. 1 = yes, 0 = no.

Day Off

Data field	Definition
Day Off ID	The Webex WFO database ID for the day off.
Day Off Name	All day-off types available in the system. A day off is a scheduled non-work day, or weekly resting day, for an agent during a period.
Day Off Short Name	An abbreviation for the day off that is configured in WFM.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
First Name	The user's first name.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.

Data field	Definition
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

Preference Type

Data field	Definition
Preference Type ID	The Webex WFO database ID for the preference type.
Preference Type Name	Preferences are used to allow agents to give input regarding their desired shifts. The preferences may concern work shifts within a shift category. It is also possible to allow the agents to enter preferences regarding days off or absences such as vacation.

Scenario

Data field	Definition
Is Default Scenario	Whether or not the scenario is the default. 1 = yes, 0 = no.
Is Scenario Deleted	Whether or not a scenario is deleted. 1 = yes, 0 = no.
Scenario Code	The Webex WFO database GUID for the scenario.
Scenario Name	Scenarios are used to test the consequences different factors have on staffing. A schedule can be created in any scenario, but for it to be published and visible for agents, it has to be in the default scenario. Requests by agents are only visible in the default scenario.
Scenario Name (Business Unit)	The name of the scenario with the name of the business unit in parentheses after it.
Scenario Status	Whether the scenario is Active or Deleted.

Schedule Preferences

Data field	Definition
Preference Must Haves	The number of preferences that are particularly important to the agent. Days that an agent have selected as must-have days are marked with a heart.
Preferences Fulfilled	The number of preferences fulfilled during a specific time period. The preference is counted as fulfilled when the agent is scheduled according to the preference.
Preferences Fulfilled (%)	The percentage of preferences fulfilled during a specific time period. The preference is counted as fulfilled when the agent is scheduled according to the preference.
Preferences Requested	The number of preferences made by agents during a specific time period.
Preferences Unfulfilled	The number of preferences that were unfulfilled when scheduling during a specific time period. The preference is counted as unfulfilled when the agent is scheduled and the shift scheduled is not according to the agent's preference.
Preferences Unfulfilled (%)	The percentage of preferences that were unfulfilled when scheduling during a specific time period. The preference is counted as unfulfilled when the agent is scheduled and the shift scheduled is not according to the agent's preference.
Shift Start Date	

Shift Category

Data field	Definition
Is Shift Category Deleted	Whether or not a shift category is deleted. 1 = yes, 0 = no.
Shift Category ID	A shift category is a group page for shifts. The shift categories are used for preferences, rotations, fairness, and shift category limitations.
Shift Category Name	A shift category is a group page for shifts. The shift categories are used

Data field	Definition
	for preferences, rotations, fairness, and shift category limitations.
Shift Category Short Name	The abbreviation for the shift category that your organization configures in WFM.
Shift Category Status	Whether the shift category is Active or Deleted.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Scheduled Agent Days dataset

The WFM Scheduled Agent Days dataset contains the following data:

Absence

Data field	Definition
Absence In Contract Time Name	The display name for the absence in contract time.
Absence In Paid Time Name	The display name for the absence in paid time.
Absence In Work Time Name	The display name for the absence in work time.
Absence Type	All absence types that could be added to schedules in the WFM system. Status property shows if the absence is active or deleted in the system.
Absence Type Code	The Webex WFO database GUID for the absence type.
Absence Type ID	The Webex WFO database ID for the absence type.

Data field	Definition
Absence Type Short Name	An abbreviation for the absence type that is configured in WFM.
Absence Type Status	Whether the absence type is active or deleted.
Is Absence In Contract Time	Whether or not the absence is in contract time. 1 = yes, 0 = no.
Is Absence In Paid Time	Whether or not the absence is in paid time. 1 = yes, 0 = no.
Is Absence In Work Time	Whether or not the absence is in work time. 1 = yes, 0 = no.
Is Absence Type Deleted	Whether or not the absence type is deleted. 1 = yes, 0 = no.

Day Off

Data field	Definition
Day Off ID	The Webex WFO database ID for the day off.
Day Off Name	All day-off types available in the system. A day off is a scheduled non-work day, or weekly resting day, for an agent during a period.
Day Off Short Name	An abbreviation for the day off that is configured in WFM.

Location

Data field	Definition
Location ID	1 = home, 2 = office.
Location Name	The agents scheduled work location. The agent can be scheduled to work from either home or office. If location is empty the location is not set.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.

Data field	Definition
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
First Name	The user's first name.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.

Data field	Definition
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

Scenario

Data field	Definition
Is Default Scenario	Whether or not the scenario is the default. 1 = yes, 0 = no.
Is Scenario Deleted	Whether or not a scenario is deleted. 1 = yes, 0 = no.
Scenario Code	The Webex WFO database GUID for the scenario.
Scenario Name	Scenarios are used to test the consequences different factors have on staffing. A schedule can be created in any scenario, but for it to be published and visible for agents, it has to be in the default scenario. Requests by agents are only visible in the default scenario.
Scenario Name (Business Unit)	The name of the scenario with the name of the business unit in parentheses after it.
Scenario Status	Whether the scenario is Active or Deleted.

Scheduled Agent Days

Data field	Definition
Absences Full Day	Absence for a number of hours covering the full shift.
All Agent Days	A sum of days where agents' location was set to home and days where their location was set to office.
Days Off	Total number of scheduled non-work days, or weekly resting days, for an agent.
Home Agent Days	The number of days when agents' location is set to home.
Office Agent Days	The number of days when agents' location is set to office.
Shift Start Date	

Shift Category

Data field	Definition
Is Shift Category Deleted	Whether or not a shift category is deleted. 1 = yes, 0 = no.
Shift Category ID	A shift category is a group page for shifts. The shift categories are used for preferences, rotations, fairness, and shift category limitations.
Shift Category Name	A shift category is a group page for shifts. The shift categories are used for preferences, rotations, fairness, and shift category limitations.
Shift Category Short Name	The abbreviation for the shift category that your organization configures in WFM.
Shift Category Status	Whether the shift category is Active or Deleted.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

WFM Scheduled Agent Time dataset

The WFM Scheduled Agent Time dataset contains the following data:

Absence

Data field	Definition
Absence In Contract Time Name	The display name for the absence in contract time.
Absence In Paid Time Name	The display name for the absence in paid time.
Absence In Work Time Name	The display name for the absence in work time.
Absence Type	All absence types that could be added to schedules in the WFM system. Status property shows if the absence is active or deleted in the system.
Absence Type Code	The Webex WFO database GUID for the absence type.
Absence Type Short Name	An abbreviation for the absence type that is configured in WFM.
Absence Type Status	Whether the absence type is active or deleted.
Is Absence In Contract Time	Whether or not the absence is in contract time. 1 = yes, 0 = no.
Is Absence In Paid Time	Whether or not the absence is in paid time. 1 = yes, 0 = no.
Is Absence In Work Time	Whether or not the absence is in work time. 1 = yes, 0 = no.
Is Absence Type Deleted	Whether or not the absence type is deleted. 1 = yes, 0 = no.

Activity

Data field	Definition
Activity In Contract Time Name	The display name for the activity in contract time.
Activity In Paid Time Name	The display name for the activity in paid time.
Activity In Ready Time Name	The display name for the activity in ready time.
Activity In Work Time Name	The display name for the activity in work time.
Activity Type	All activity types that could be added to schedules in the system. Status property shows if the activity is active or deleted in the system.
Activity Type Code	The Webex WFO database GUID for the activity type.
Activity Type Status	Can be active or deleted.
Is Activity In Contract Time	Whether or not an activity is in contract time. 1 = yes, 0 = no.
Is Activity In Paid Time	Whether or not an activity is in paid time. 1 = yes, 0 = no.
Is Activity In Ready Time	Whether or not an activity is in ready time. 1 = yes, 0 = no.
Is Activity In Work Time	Whether or not an activity is in work time. 1 = yes, 0 = no.
Is Activity Type Deleted	Whether or not an activity type is deleted. 1 = yes, 0 = no.

Organization

Data field	Definition
Business Unit Code	The Webex WFO database GUID for the business unit.
Business Unit Name	The organizational unit at the top of the business hierarchy. It can contain one or more sites.
Site Code	The Webex WFO database GUID for the site.
Site Name	A site is a unit in the business hierarchy, belonging to a business unit and

Data field	Definition
	containing one or more teams.
Team Code	The Webex WFO database GUID for a team.
Team Name	The display name for the collection of agents.

Overtime

Data field	Definition
Is Overtime Type Deleted	Whether or not an overtime type is deleted. 1 = yes, 0 = no.
Overtime ID	The Webex WFO database ID for the type of overtime.
Overtime Name	All overtime types available in the system.
Overtime Type Status	Can be active or deleted.

Person

Data field	Definition
Agent Skill Set Code	The Webex WFO database GUID for the agent skill set.
Agent Skill Set Name	A unique combination of assigned skills for an agent.
Employment End Date	The date when the person's employment ended in Webex WFO.
Employment Number	This number associated with the person appears if your Webex WFO system is connected to your Human Resources Management System (HRMS).
Employment Start Date	The date when the person's employment started in Webex WFO.
First Name	The user's first name.
Is Agent	Whether or not the person is an agent. 1 = yes, 0 = no.
Is Person Deleted	Whether or not a person is deleted. 1 = yes, 0 = no.

Data field	Definition
Is User	Whether or not a person is a user in WFM. 1 = yes, 0 = no.
Last Name	The user's last name.
Person Code	The unique ID of a WFM person.
Person Contract Code	The Webex WFO database GUID of the person contract.
Person Contract Name	The display name of the person contract.
Person Email	The user's email address.
Person Name	The full name of the agent in the WFM system. A person is considered to be an agent if he/she belongs to a team. The person code/ID connected is a unique identifier for the person in the WFM system regardless of person period.
Person Note	This data comes from an open-text field in the People module.
Person Parttime %	The percentage of a full-time schedule that a part-time agent works. For example, an agent who works half time has a parttime % of .5.
Person Period Note	A comment that is added to the person period. This data comes from an open-text field in the People module.
Person Timezone	The timezone associated with the user's WFM settings.

Scenario

Data field	Definition
Is Default Scenario	Whether or not the scenario is the default. 1 = yes, 0 = no.
Is Scenario Deleted	Whether or not a scenario is deleted. 1 = yes, 0 = no.
Scenario Code	The Webex WFO database GUID for the scenario.
Scenario Name	Scenarios are used to test the consequences different factors have on staffing. A schedule can be created in any scenario, but for it to be published and visible for agents, it has to be in the default scenario.

Data field	Definition
	Requests by agents are only visible in the default scenario.
Scenario Name (Business Unit)	The name of the scenario with the name of the business unit in parentheses after it.
Scenario Status	Whether the scenario is Active or Deleted.

Scheduled Agent Time

Data field	Definition
Absenteeism (%)	How much of the scheduled contract time the agents have been absent calculated as Scheduled contract absence time / Scheduled contract time.
Activity End Date	The date when the activity ended in an agent's schedule.
Activity Start Date	The date when the activity started in an agent's schedule.
Planned Overtime (m)	The originally planned overtime in minutes for an agent. If an agent was scheduled to work overtime but is absent, he/she will not be compensated for the overtime.
Schedule Date Interval	The base level interval marker that underlies all schedules. Format is MMDDYYHHMM.
Scheduled Contract Absence Time (h)	All contract time in hours for absence types. One may specify per absence type whether it should be considered contract time or not.
Scheduled Contract Absence Time (m)	All contract time in minutes for absence types. One may specify per absence type whether it should be considered contract time or not.
Scheduled Contract Absence Time (s)	All contract time in seconds for absence types. One may specify per absence type whether it should be considered contract time or not.
Scheduled Contract Time (h)	The time in hours for which the agent has been contracted to work. The amount is defined per agent using contract, contract schedule, part-time percentage, and schedule period. One may specify per activity and absence whether it should be considered contract time or not.

Data field	Definition
Scheduled Contract Time (m)	The time in minutes for which the agent has been contracted to work. The amount is defined per agent using contract, contract schedule, part-time percentage, and schedule period. One may specify per activity and absence whether it should be considered contract time or not.
Scheduled Contract Time (s)	The time in hh:mm:ss for which the agent has been contracted to work. The amount is defined per agent using contract, contract schedule, part-time percentage and schedule period. One may specify per activity and absence whether it should be considered contract time or not.
Scheduled Overtime (h)	All time in hours worked beyond the normal contract time.
Scheduled Overtime (m)	All time in minutes worked beyond the normal contract time.
Scheduled Overtime (s)	All time in seconds worked beyond the normal contract time.
Scheduled Paid Time (h)	All scheduled time in hours that is paid for, could be both absence and activity. Whether an activity or absence should be regarded as paid time is defined per activity and absence.
Scheduled Paid Time (m)	All scheduled time in minutes that is paid for, could be both absence and activity. Whether an activity or absence should be regarded as paid time is defined per activity and absence.
Scheduled Paid Time (s)	All scheduled time in seconds that is paid for, could be both absence and activity. Whether an activity or absence should be regarded as paid time is defined per activity and absence.
Scheduled Ready Time (h)	Time in hours when agents are scheduled to be logged in and ready to handle customer contacts.
Scheduled Ready Time (m)	Time in minutes when agents are scheduled to be logged in and ready to handle customer contacts.
Scheduled Ready Time (s)	Time in seconds when agents are scheduled to be logged in and ready to handle customer contacts.
Scheduled Time (h)	All the scheduled time in hours, regardless if it is contract time, work time, or absence time.

Data field	Definition
Scheduled Time (m)	All the scheduled time in minutes, regardless if it is contract time, work time, or absence time.
Scheduled Time (s)	All the scheduled time in seconds, regardless if it is contract time, work time, or absence time.
Scheduled Work Time (h)	The reported or calculated time used performing an activity (work-related tasks) or in absence. Whether an activity or absence should be regarded as work time is defined per activity and absence.
Scheduled Work Time (m)	The reported or calculated time used performing an activity (work-related tasks) or in absence. Whether an activity or absence should be regarded as work time is defined per activity and absence.
Scheduled Work Time (s)	The reported or calculated time used performing an activity (work-related tasks), or in absence. Whether an activity or absence should be regarded as work time is defined per activity and absence.
Shift End Date	The date when the shift ends.
Shift Start Date	

Shift Category

Data field	Definition
Is Shift Category Deleted	Whether or not a shift category is deleted. 1 = yes, 0 = no.
Shift Category ID	A shift category is a group page for shifts. The shift categories are used for preferences, rotations, fairness, and shift category limitations.
Shift Category Name	A shift category is a group page for shifts. The shift categories are used for preferences, rotations, fairness, and shift category limitations.
Shift Category Short Name	The abbreviation for the shift category that your organization configures in WFM.
Shift Category Status	Whether the shift category is Active or Deleted.

Shift Length

Data field	Definition
Shift Length (h)	The shift length is the total time of a shift. Use the Shift Length to sort or filter measures for Agent Schedule and Preferences.
Shift Length (m)	The duration of the shift in minutes.
Shift Length ID	The Webex WFO database ID for the shift length.

System

Data field	Definition
system_person_code	The unique ID of a WFM person.
system_realm_id	The Webex WFO database ID for the Cisco realm that the tenant is in.
system_team_code	The Webex WFO database GUID for a team.
system_tenant_id	The Webex WFO database ID for the tenant.

Configure Analytics

Use the Analytics Configuration page to set up account-wide Analytics parameters.

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise
  - Desktop Analytics
- You have at least one of these permissions:
  - Administer Speech Analytics
  - Administer Speech to Text Analytics

- Administer Desktop Analytics
- Administer Text Analytics

- You need Analytics dashboard(s) available if you choose to share them.

Page location

Application Management > Analytics > Analytics Configuration

Procedures

Share dashboards

Dashboards that are shared can be viewed by all users.

1. In the **Share Dashboard** section, select **Enable dashboard sharing**.
2. Click **Save**.

Configure the length of data retention

Use the **Analytics Data** fields to configure the length of time in days, months, or years that you want to retain Analytics data.

When the Index Maintenance task runs, Webex WFO clears Analytics data that is older than the retention period you set.

NOTE By default, the Index Maintenance task runs at 2:00 AM. The system administrator can reschedule the Index Maintenance task to run at a different time on the Task Management page.

Reducing a retention period after it has been initially set can result in the deletion of data. Increasing a retention period will result in a larger use of storage space. Changing this value should be considered carefully. The default maximum data retention period is 24 months. However, your system administrator can raise or lower this default value as required for your company.

Set desktop capture interval

Use the **Minutes** field under Desktop Capture Data Upload to choose the interval, in minutes, at which desktop capture data is uploaded. The default interval is 10 minutes.

NOTE Desktop capture data is uploaded at the specified interval even if the user is not logged in.

Set the amount of time required to mark agents as idle

PREREQUISITE

- Your organization has a WFM license.
- Agents have the Real Time Desktop Analytics permission.
- Your organization does not log in to Webex WFO through af1.calabriocloud.com. WFM with Real-Time Desktop Adherence is not available to organizations whose accounts are in Cisco's South Africa realm.

1. In the **Idle Time Threshold** section, enter the number of **Minutes** and **Seconds** that can pass before an agent is considered idle.
2. Click **Save**. When agents have no activity (no mouse clicks or keyboard typing) for this amount of time, they appear in an Idle state on the WFM Adherence page. See Monitor agent adherence.

Set the amount of time required to mark agents as productive or unproductive

Configure how much time must pass before agents who are using an approved app or website are considered productive. This setting also establishes how much time can pass before an agent using an unapproved app or website is considered unproductive. See Monitor agent adherence.

PREREQUISITE

- Your organization has a WFM license.
- Agents have the Real Time Desktop Analytics permission
- Apps and websites are marked as Approved or Unapproved on the Desktop Manager page. See Identify websites and apps to be tracked by Analytics.
- Your organization does not log in to Webex WFO through af1.calabriocloud.com. WFM with Real-Time Desktop Adherence is not available to organizations whose accounts are in Cisco's South Africa realm.

1. In the **Productive Time Threshold** section, enter the number of **Minutes** and **Seconds**.
2. Click **Save**.

Related topics

- Analytics dashboards overview
- Monitor agent adherence

- Identify websites and apps to be tracked by Analytics
- Configure WFM with Real-Time Desktop Adherence

Create and manage phrases and phrase categories

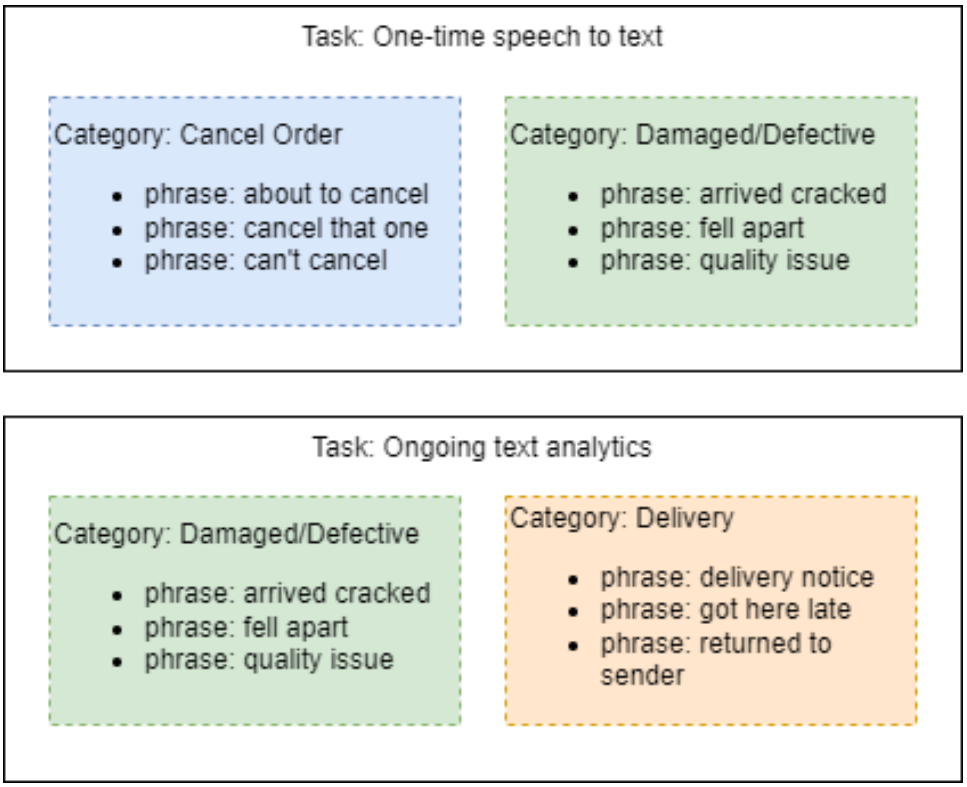
Use the Business Signal > Phrases page to create, manage, import, and export the phrases used in speech and text analytics tasks.

A **phrase** is a group of one or more words that Webex WFO can search for as a single grammatical unit in audio and text tasks. When you provide a phrase that is important to your business, Webex WFO searches for that phrase in the transcriptions of audio recordings and the text in emails and chats.

A **category** is a collection of phrases that you organize together because they have a similar business purpose or language. For example, a category called “Cancel Order” could contain phrases like “about to cancel,” “cancel that one,” and so on. Analytics tasks can process multiple phrase categories, and phrase categories can be used in multiple tasks. You can also use categories to group phrases by language. For example, you can create a “Happy Customer—English” category for agents who speak English and a “Client heureux—français” category for agents who speak French.

A **task** is a job that tells Webex WFO to search specific types of contacts for phrases within specific categories. You manage tasks on the Task Manager page. See Create Analytics tasksfor more information about tasks.

The diagram below illustrates the relationship between phrases, categories, and tasks.



Analytics phrases work together with AI Tags and Trending Topics to help you understand the voice of the customer, but these three features help you do different things when it comes to analyzing contacts. For an explanation of how and when to use these different features, go to About the differences between Analytics phrases, AI Tags, and Trending Topics.

Prerequisites

- Your organization has either the Analytics Essentials or Analytics Enterprise license.
- You have the Administer Analytics Phrases permission.

Page location

Application Management > Analytics > Business Signal > Phrases

Procedures

View the phrases in existing categories

1. (Optional) To view phrases for languages other than United States English, select a language from the drop-down list at the top of the **Phrase Categories** panel.
2. Click a category in the **Phrase Categories** panel. Phrases within that category appear in the **Phrases** panel.

View the tasks that use a category

- Click the options icon (the three dots) next to the category, and then select **Associated Tasks** from the drop-down list. The **Associated Tasks** window opens with a list of all the tasks that use this category, along with the task type and schedule (ongoing or ad hoc).

Get suggestions for new phrases

Webex WFO uses artificial intelligence to generate phrases to add to your categories. Phrase suggestions are based on "seed" phrases that are already in the category.

1. Click the category in the **Phrase Categories** panel.
2. In the **Phrases** panel, select the check box next to the "seed" phrases that you want Webex WFO to use to generate suggestions.

   BEST PRACTICE Select at least three phrases. Webex WFO can make suggestions based on only one phrase, but selecting more gives it more material to work with.

3. In the **Suggestions** panel, click **Make Suggestions**. A list of suggested phrases appears.
4. Click a suggestion to add it to the category.
5. (Optional) To get more suggestions, select the check box next to the seed phrases and click **Make Suggestions** again.
6. When you are finished adding phrases, click **Save**.

Add a new phrase

NOTE A phrase can exist in only one category per language. If you need to add an existing phrase to a new category in the same language, first delete the phrase from its old category.

NOTE You can use the same phrase in multiple languages.

1. Click the category that the new phrase will go into in the **Phrase Categories** panel. Phrases that are already in the category appear in the **Phrases** panel.
2. In the **Phrases** panel, enter the new phrase in the **Type to create a phrase** field.
3. Press the Enter key. The new phrase is added to the list of phrases. By default, the new phrase is active.
4. Click **Save**.

Add a new category

1. In the **Phrase Categories** panel, enter the category name in the **Create a phrase category** field.

   > **NOTE** The category name must be unique. You cannot use the same category name in different languages.

2. (Optional) Enter a description for the category in the **Description** field.
3. Click **Save**. The category and its description appear in the list of categories.

Edit a phrase

> **IMPORTANT** Be careful when editing phrases. Editing a phrase can create a mismatch between previous phrase hits and new hits.

1. Click the phrase you want to edit.
2. Edit the phrase.
3. Press the Enter key.

Edit a category

You can edit a category's name and description.

1. Click the options icon (the three dots) next to the category and then select **Edit** from the drop-down list.
2. Edit the category.
3. Click **Save**.

Disable a phrase

Disabling a phrase removes it from all speech-to-text (transcription) tasks. Webex WFO does not identify hits for disabled phrases.

1. Click the phrase.
2. Select **Inactive** from the **Active** drop-down list.
3. Click **Save**.

Enable a phrase

Enabling a phrase causes Webex WFO to search for it in all speech-to-text (transcription) tasks.

1. Click the phrase.
2. Select **Active** from the **Inactive** drop-down list.
3. Click **Save**.

Delete a phrase

You can delete a phrase only when any contacts that contain hits for that phrase have reached the end of their data retention period and are deleted.

1. Select the check box next to the phrase.
2. In the upper-right corner of the **Phrases** panel, click **Delete**. The phrase is deleted immediately.

Delete a category

IMPORTANT Deleting a category also deletes all the category's phrases. Deleting a category cannot be undone.

1. Click the options icon (the three dots) next to the category and then select **Delete** from the drop-down list. A confirmation window opens.
2. Click **Delete**. The window closes.

Import categories and phrases

You can use a CSV file to import new categories and phrases and update existing categories and phrases. The file you import must include the columns listed in the table below, in the order shown (top to bottom = order left to right in the file). If there is a format error, the import fails.

NOTE A phrase can exist in only one category per language.

EXAMPLE You try to import Phrase A into English (U.S.) Category B, but Phrase A already exists in English (U.S.) Category C. Webex WFO does not add Phrase A to English (U.S.) Category B.

EXAMPLE You want to import Phrase A into English (U.K.) Category D. Phrase A already exists in English (U.S.) Category C. Webex WFO successfully adds Phrase A to English (U.K.) Category D. Phrase A now exists in both English (U.K.) Category D and English (U.S.) Category C.

1. Click the options icon (the three dots) at the top of the **Phrase Categories** panel and select **Import** from the drop-down list. Your device's file explorer opens.
2. Locate the CSV file and then click **Open**.

BEST PRACTICE We are in the process of removing the Phonetic, Soundslike, and Confidence fields. We recommend that you not use these columns in your imported CSV file.

Column	Description
Category	(required) The name of the category.
Phrase	(required) The phrase text.
Phonetic	This column is no longer used.
Soundslike	This column is no longer used.
Confidence	This column is no longer used.
State	(required) **0** (zero) if the phrase is disabled for Analytics, or **1** if the phrase is enabled for Analytics.
LanguageID	(required) The 2-character language code and 2-character country code for the phrase, in the format **nn-nn**.The table below lists the supported languages.

Language	**Code**
Arabic	ar-ar
Bahasa (Malaysia)	ms-ms
Danish	da-dk
Dutch (Netherlands)	nl-nl
English (Australia)	en-au
English (Euro)	en-eu

Column	Description

Language	Code
English (Singaporean)	en-sg
English (South Africa)	en-za
English (U.K.)	en-uk
English (U.S.)	en-us
Finnish	fi-fi
French (Canada)	fr-ca
French (France)	fr-fr
German (Germany)	de-de
Italian	it-it
Norwegian	no-no
Portuguese (Brazil)	pt-br
Spanish (Euro)	es-eu
Spanish (North America)	es-mx
Swedish	sv-se

Export categories and phrases

You can export all Phrases data to a CSV file.

- Click the options icon (the three dots) at the top of the **Phrase Categories** panel and select **Export All** from the drop-down list. A file named phrases.csv downloads to your device.

Related Topics

- Create Analytics tasks—Configure Webex WFO processes that search audio and text contacts for phrases.

- View phrase analytics for a contact—View a single contact's phrase hits on the Interactions page.
- About the differences between Analytics phrases, AI Tags, and Trending Topics

Export contact metadata

You can export metadata for all the contacts in your filter results as a CSV file.

NOTE Webex WFO administrators determine which metadata can be exported. Webex WFO includes only exportable metadata in the CSV file.

Prerequisites

- You have the View Contacts permission.
- You have recordings within your scope.

Page location

Interactions

Procedures

Export contact metadata

1. Filter contacts as desired. See .
2. (Optional) Add or remove columns from the page. The CSV download contains information from only the columns that are visible on the page. See Customize the columns on the Interactions page.
3. Click the **List options** icon.
4. Click **Export table data to CSV**. The file downloads to your device.

Related topics

- Customize the columns on the Interactions page—Information about the columns you can include in the export
- —How to locate the contacts that have data you want to download.

- Export contacts in bulk—Export recordings, metadata, and transcriptions for multiple contacts to an external storage location.
- Delete or update multiple contacts at once—Update or clear metadata fields from multiple contacts at once.

Configure predictions

With predictions, you can configure Webex WFO to estimate a contact's net promoter score or evaluation score. Based on the predicted score, you can then create an automated workflow that sends the contact to an evaluator. Predictions help your evaluators focus on contacts that are most likely to result in agent coaching.

The predictive engine combines the scores from contacts over the past six months with Analytics data and creates a new model each week. The default day to create a new model is Sunday, but a system administrator can select a different day.

Prerequisites

- Your organization has an Analytics Essentials or Analytics Enterprise license.
- You have the Administer Predictive Analytics permission.
- You have scope over the agent group that the prediction is for. You must have scope over the group, not just teams within the group.
- For predictive net promoter scores, you have at least 1,000 contacts with associated net promoter scores.
- For predictive evaluations, you have at least 1,000 contacts evaluated with the same form.

Page location

Varies. See the procedures below for more information.

Procedures

There are two steps to configuring the predictive features in Webex WFO: creating a model and applying the model. To create the model, you must first supply the predictive engine with scores for existing contacts.

Predictive Net Promoter Scores

The Predictive Net Promoter Score model uses customer contacts, agent performance, speech hits, and other factors to determine a likely net promoter score for the contact. The scores that the model creates appear in the Predictive Net Promoter Score field on the Interactions page and in the Predictive Net Promoter Score

dashboard in Data Explorer. You can also add them to dashboards in both Data Explorer and Cisco Data Management.

Webex WFO creates predictive net promoter scores for audio contacts only. Other kinds of contacts do not support predictive net promoter scores.

Configure the Predictive Net Promoter Score model

1. On the Metadata Manager page (Application Management > QM > QM Configuration > Metadata Manager), create a new metadata field. See Manage custom metadata fields for more information.

   IMPORTANT Enter “Net Promoter Score” in the **Metadata Label** field. This label is not case sensitive.

2. Configure the Net Promoter Score metadata field that you just created with the Net Promoter Score information from your customers.

   NOTE See Add post-call surveys to contacts to integrate net promoter scores captured in post-call surveys.

   The predictive engine will pull the necessary information and create a model on the following Sunday.

Apply the Predictive Net Promoter Score model

- On the Task Manager page (Application Management > Analytics > Task Manager), create a new task. Select **Predictive Net Promoter Score** from the **Type** drop-down list. See Create Analytics tasks for more information.

Predictive Evaluation Scores

The Predictive Evaluation Score model uses a variety of factors to determine a likely evaluation score (on a specific evaluation form) for the contact. Predicted scores appear in the Predictive Evaluation Score field on the Interactions page and in the Predictive Evaluations dashboard in Data Explorer. You can also add them to dashboards in both Data Explorer and Cisco Data Management.

Webex WFO creates predictive evaluation scores for audio contacts only. Other kinds of contacts do not support predictive evaluation scores.

Each evaluation form needs its own model. To create models for multiple forms, follow the steps below for each form.

Configure the Predictive Evaluation Score model

1. On the Evaluation Form Management page (Application Management > QM > QM Configuration > Evaluation Form Manager), create an active evaluation form. See and Advice for evaluation forms for more information.
2. On the Phrases page (Application Management > Analytics > Business Signal > Phrases), create phrases and categories that closely relate to the questions that the evaluation form asks. See Create and manage phrases and phrase categoriesfor more information.

   EXAMPLE The evaluation form asks, “Did the agent properly greet the caller?” You have an Analytics phrase category called “Greeting” with phrases like “thank you for calling,” “my name is,” and “how may I help you today.”
3. Use the evaluation form to manually evaluate at least 1,000 contacts.
4. On the Workflow Administration page (Application Management > QM > QM Contact Flows), create a workflow that applies the form to incoming calls.

   IMPORTANT The workflow must apply the evaluation form either before or at the same time as the contact audio is uploaded to Webex WFO. Contacts do not receive predictive evaluation scores if the evaluation form is applied after the audio is uploaded. See Automate QM workflows for more information.

Apply the Predictive Evaluation Score model

- On the Task Manager page (Application Management > Analytics > Task Manager), create a new task. Select **Predictive Evaluation Score** from the **Type** drop-down list. Select the **Ongoing** check box. See Create Analytics tasksfor more information.

Best practices

General

Predictive scores are intended to supplement (not replace) manually scored contacts.

While there is no ideal number of scores that will create a perfect model, maintaining a large number of scored contacts (at least 1,000) is necessary for the model to become more accurate over time. The predictive model continues to learn as it receives more data, but it does not use data that is older than six months. To keep the model accurate, you must continue giving it data, either by pulling in more net promoter scores or by continuing to use the evaluation form for manual evaluations. If the number of available scores falls below 50, the model will stop working.

You can create an ad hoc Analytics task using the predictive features. However, the predictive models use data from only the past six months. If you run an ad hoc task on contacts older than six months, you are less likely to get accurate data.

For best results, the Analytics retention time (set on the Analytics Configuration page) should be at least six months. See Configure Analytics.

Tune your phrases and categories periodically. Tuning helps ensure your categories and phrases are relevant and return the calls you need for analysis. Follow tuning best practices.

Predictive Net Promoter Scores

WFM data greatly improves the accuracy of the Predictive Net Promoter Score model.

Predictive evaluations

Create phrases and categories using the language that agents are callers are most likely to use.

Create phrases and categories that cover a variety of possible phrases that agents could say. Agents typically do not repeat scripts verbatim. Using multiple phrases helps increase the probability that Webex WFO will return a phrase hit.

In addition to creating phrases and categories related to the questions the evaluation form asks, consider creating phrases and categories for the answers that callers are likely to provide. For example, in answer to the question, “Have you had any accidents in the past five years?” callers’ replies are likely to be something like, “No, I haven’t had any accidents” or “Yeah, I’ve had one accident.” If the agent deviates significantly from the script, the caller’s answer might help Webex WFO to recognize a phrase hit.

If you need to revise the evaluation form that Webex WFO is using to create a Predictive Evaluation Score model, create a new form instead of editing the existing form. If the evaluation form is changed and the form’s ID remains the same, the model will not update to account for the change. As a result, the predicted scores will be less accurate. See

Calibrate your evaluators using the evaluation forms that are used for predictive scores. The Predictive Evaluation Score model will become more accurate over time if the data that it is based on is accurate and consistent. For example, if there is a 10% to 15% difference in your manual evaluation scores, your predictive evaluation scores will have an even larger difference. See Calibrate evaluators.

In many contact centers, it’s common for a contact to earn either a very high score or a very low score. However, a lack of mid-range scores can result in less accurate predictions because the model doesn’t have enough information to learn what a mid-range contact looks like. Coach your evaluators to give mid-range scores whenever they are appropriate instead of scoring a contact either very high or very low.

For a contact to receive a predictive evaluation score, it must be processed with a QM workflow that assigns an evaluation form either before or at the same time as it uploads the audio. If a contact's audio is uploaded to Webex WFO before the contact receives an evaluation form, you must use ad-hoc Predictive Evaluation Score tasks to generate a predictive scores for this contact. See Create Analytics tasks.

Differences between predictive scores and manual scores

If you see significant differences between predictive scores and scores given by human evaluators, the cause might be one of two issues.

Differences among human evaluators

Because the Predictive Evaluation Score model uses scores from human evaluators to learn over time, inconsistencies in scores among evaluators can confuse the model. To correct this inconsistency, we recommend the following:

- As an organization, decide what amount of variation among human evaluators is acceptable. Keep in mind that the Predictive Evaluation model will vary more.
- Calibrate your evaluators regularly to maintain consistency in scoring.
- Check to see that categories and phrases align with evaluation questions. Look for commonly occurring false positives or negatives and adjust as needed.

Differences in calls evaluated

Webex WFO creates a predictive evaluation score for all calls that are associated with the evaluation form(s) used to create the model(s). If your human evaluators manually evaluate specific kinds of calls instead of random calls, you might see differences in scores because the two groups of calls being compared are different. In other words, you're comparing apples and oranges. Consider these examples:

- You use workflows to select calls with long or short handle times and calls handled by new agents for manual evaluation. These are all different from average calls and are scored differently.
- Your evaluators do not evaluate very long or very short calls. These calls would have very different scores from average calls.
- When there are many calls in the queue, team leaders or supervisors handle calls to reduce hold time. Evaluators do not evaluate calls handled by team leaders or supervisors.
- You recently retrained your agents or your evaluators. Manual scores are different right away in response to the training, but predictive scores might take some time to catch up. To see the impact of the retraining, adjust the date range for the predictive scores to match the date when the retraining took effect.

To accurately compare manual and predictive scores, make sure you are comparing scores for similar dates and call types.

Related topics

- Manage custom metadata fields
- Add post-call surveys to contacts
- Configure Analytics
- Create Analytics tasks
-

- Advice for evaluation forms
- Create and manage phrases and phrase categories
- Automate QM workflows
- Calibrate evaluators

Turn on Interaction Summary

Interaction Summary automatically summarizes a call based on its transcript. These summaries help agents, team leaders, and evaluators save time. Agents don’t need to write summaries at the end of each call, and team leaders and evaluators can understand the purpose of a call without needing to listen to the call or read the transcript.

You can also export Interaction Summaries to your organization’s customer relationship management (CRM) system with the Interaction Summary Read API . Combining Interaction Summary with the API export saves agents the time they would otherwise spend adding after-call work notes into your organization’s CRM.

Interaction Summary is included with Cisco Analytics, but it does need to be turned on.

Prerequisites

- You have the Administer Speech to Text Analytics permission.

Page location

Application Management > Analytics > Task Manager

Procedures

Enable Interaction Summary on existing Analytics tasks

If your organization is already transcribing calls, follow these steps to turn on Interaction Summary on calls that are handled by existing transcription tasks.

1. On the Task Manager page, click **Filters** (the funnel icon, upper left of the page). The **Filters** panel opens.
2. Select **Speech to Text (Transcription)** from the **Type** drop-down list.
3. Select **Ongoing** from the **Schedule** drop-down list.
4. Click **Apply**.
5. Double-click a task to open it.
6. In the **AI Interaction Summary** section, select **Enable**.
7. Click **Save**.
8. Repeat steps 5—7 for the rest of the tasks.

Create a new Interaction Summary task

Follow these steps if your organization isn't currently transcribing calls or if you want to use Interaction Summary on calls that aren't handled by an existing transcription task.

PREREQUISITE To create a task, you need to have scope over at least one group. (See for more information about scope.) If you have scope only for a team and not the group the team belongs to, you cannot create a task for that team.

1. On the Task Manager page, click **Create Task**.
2. Enter a unique name for the task in the **Name** field.
3. Select **Speech to Text (Transcription)** from the **Type** drop-down list.
4. Select the language associated with the task from the **Language** drop-down list. The language you choose determines what appears in the list of available phrase categories.

   NOTE Some languages in this drop-down list might require additional configuration for your Webex WFO implementation. Consult with Support to ensure the language you want to transcribe is configured for you.

5. (Optional, Analytics Enterprise and Analytics Enterprise Plus licenses only) To remove sensitive information from transcripts, select **Enable** in the **Transcription Redaction** section. Select **Disable** to leave this information in the transcripts. For a list of the type of information that Transcription Redaction removes from transcripts, see About Analytics tasks.

   IMPORTANT
   There is no way to retrieve information that Webex WFO has redacted from a transcript. Redacted information is not available in any system or to any level of user. You cannot re-process contacts with an Ad-Hoc transcription task to recover the redacted information.

   Because Transcription Redaction removes words from transcripts, enabling this feature might affect results from Analytics features that rely on the contact's transcript, such as Interaction Summary, Phrase Hits, and Auto QM.

6. Select **Enable** in the **Phrase hits** section to have Webex WFO search transcripts for all of your organization's active predefined phrases. Select **Disable** to conserve system resources.

   BEST PRACTICE Enable phrase hits. Phrase hits are an important component of many Analytics features.

7. Select an existing **Index tag**, or create a new index tag for the task.
8. Select **Ongoing** in the **Running the task** section.
9. Select **Enable** in the **AI Interaction summary** section.
10. In the **Percentage** field, enter the approximate percentage of calls to transcribe. Webex WFO gives each call this much of a chance to be transcribed. Webex WFO does not transcribe this percentage of the total calls received over a set time period. This results in a representative sample of the calls transcribed as the calls come in. There will be some deviation from the percentage, but that deviation becomes less significant over time.

    EXAMPLE You enter **50** in the **Percentage** field. Each call that meets the criteria for this transcription task has a 50% chance of being transcribed.

11. (Optional) Configure the **Conditions** that must be met for the call to be transcribed. Depending on which condition you choose, additional fields for an operand and a value or a time range appear.

    NOTE If you use this section, calls that do not meet the filter conditions are not transcribed.

12. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams within your scope are available.

    > **NOTE** If you assign a group but don't assign a team, Webex WFO assigns this task to all teams within that group.

13. Click **Save**.

Related topics

- Create Analytics tasks
- View AI insights for a contact—Learn how to access Interaction Summaries in the media player.

Turn on Advanced Sentiment

Advanced Sentiment identifies the emotions expressed by the agent and customer on a call and explains how it identified those emotions. With advanced sentiment, you can quickly understand how both parties were feeling and use what you learn to improve the experience for everyone involved.

Prerequisites

- Your organization has an Analytics or Analytics Enterprise license.
- You have the Administer Roles permission.
- You have scope over at least one group in Webex WFO.
- Sentiment Analysis is currently available for audio contacts only. It is not available for other types of contacts.
- Sentiment Analysis is available as an ongoing task only. It is not available as an ad-hoc task.

Page location

Various. See the procedures below for page locations.

Procedures

Step 1: Assign the Sentiment Analysis permissions to people in your organization

1. Go to **Application Management** > **Global** > **User Configuration** > **Roles**.
2. In the **Permissions** table, scroll down to the **Sentiment Analysis** section and select the check boxes to assign these permissions to appropriate roles in your organization:
   - **View Sentiment**—This permission lets people see Advanced Sentiment information in the Media Player. See View AI insights for a contact and View changes in sentiment for a contact for details about what this information looks like.
   - **Run Sentiment Task**—This permission lets people work with Sentiment Analysis tasks on the Analytics Task Manager page.

     IMPORTANT Assign this permission to a role that you have. You will need this permission to complete Step 2.
3. Click **Save**.

Step 2: Create a Sentiment Analysis task

1. Go to **Application Management** > **Analytics** > **Task Manager**.
2. Click **Create Task**.
3. Enter a unique name for the task in the **Name** field.
4. Select **Sentiment Analysis** from the **Type** drop-down list.
5. Select the language that is spoken in the contact from the **Language** drop-down list.
6. (Optional) Configure the **Conditions** that must be met for the call's sentiment to be analyzed.

   NOTE If you use this optional section, calls that do not meet the conditions are not analyzed for sentiment.
7. (Optional) To analyze how sentiment changes throughout the course of the contact, select **Customer sentiment trend**, **Agent sentiment trend**, or both in the **Sentiment trend** section. When you enable sentiment trend, the **AI Sentiment** panel appears in the Media Player for the contact (see View changes in sentiment for a contact).

> **NOTE** Your organization needs the Analytics Enterprise or Analytics Enterprise Plus licenses to enable sentiment trend.

8. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams that you have scope over are available.

> **NOTE** If you assign a group but don't assign a team, Webex WFO assigns the task to all teams within that group.

9. Click **Save**.

Related topics

- Manage roles and permissions for QM, Analytics, and Insights
- Create Analytics tasks
- About Analytics tasks
- View AI insights for a contact
- View changes in sentiment for a contact

Create Analytics tasks

Use the Task Manager page to collect and process data with Analytics tasks. These tasks analyze current or previously captured data. This data can include audio recordings, email text, and desktop and event data.

Analytics tasks can be ongoing (run whenever new data comes into the system) or ad hoc (run once at a scheduled time and date).

When scheduling Analytics tasks, remember the following points.

- If a speech-to-text task fails, Webex WFO retries at a later time to complete the task.
- The time zone in Task Manager is your organization's default time zone.

Prerequisites

- Your organization has one of these licenses:
  - Analytics Essentials
  - Analytics Enterprise

  - Analytics Enterprise Plus
  - Desktop Analytics (lets you create Desktop Analytics tasks)
- You have at least one of the following permissions:
  - Administer Desktop Analytics
  - Administer Speech Analytics
  - Administer Speech to Text Analytics
  - Administer Text Analytics
  - Administer Predictive Analytics
  - Run Auto QM Task
  - Run Trending Topics Task
  - Run Sentiment Task
  - Run AI Tags Task
- To create a task, you have scope over at least one group. If you have scope only for a team and not the group the team belongs to, you cannot create a task for that team.
- (For desktop analysis) Applications and websites are configured on the Desktop Manager page.
- (For desktop analysis) Application and website fields are configured on the Field Manager page.
- (For audio and text analysis) Phrases and phrase categories are configured on the Business Signal > Phrases page.
- (For Auto QM) You have the Edit Auto QM permission and create a form for AI evaluation. For more information, see Create forms for AI evaluation.
- (For AI Tags) Tags and tag categories are configured on the Business Signal > AI Tags page.

Page location

Application Management > Analytics > Task Manager

Procedures

Create a new task

1. Click **Create Task**.
2. Enter a unique name for the task in the **Name** field.

3. Select the type of task you want to create from the **Type** drop-down list. The fields that display vary based on the type of task you select. Click the task type below for the rest of the steps.

   Desktop Analytics

   Speech to Text (Transcription)

   Text Analytics

   Predictive Evaluation Score

   Predictive Net Promoter Score

   Auto QM

   Trending Topics

   Sentiment Analysis

   AI Tags

Desktop Analytics

This task processes uploaded desktop analytics data and merges that information with the agents' audio and screen recording data. You need the Administer Desktop Analytics permission to work with Desktop Analytics tasks.

1. In the **Running the task** section, configure when the task should run and the date range of the data the task should analyze.

Ongoing and **Ad-Hoc** buttons	To run the task whenever new data comes into the system, select **Ongoing**. This disables the date, time, and range fields. To run the task only once, select **Ad-Hoc**.
Schedule task	Select the start date and time of the task. The date can be today's date or a future date. The time must be in the future. It cannot be the current time.
Selecting calls	Select the start date and end date of the range of data you

want the task to process. The start date must be in the past by at least one day. It cannot be today's date. The end date must be later than the start date but before today's date.

2. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams within your scope are available.

   > **NOTE** If you assign a group but don't assign a team, Webex WFO assigns the task to all teams within that group.

3. Click **Save**.

Speech to Text (Transcription)

This task transcribes audio recordings and then searches the text for predefined phrases (which you configure on the Business Signal > Phrases page) and stores the results in a searchable database. You need the Administer Speech to Text Analytics permission to work with Transcription tasks.

1. Select the language associated with the task from the **Language** drop-down list. The language you choose determines what appears in the list of available phrase categories.

   > **NOTE** Some languages in this drop-down list might require additional configuration for your Webex WFO implementation. Consult with Support to ensure the language you want to transcribe is configured for you.

2. (Optional, Analytics Enterprise and Analytics Enterprise Plus licenses only) To remove sensitive information from transcripts, select **Enable** in the **Transcription Redaction** section. Select **Disable** to leave this information in the transcripts. For a list of the type of information that Transcription Redaction removes from transcripts, see About Analytics tasks.

   > **IMPORTANT**
   > There is no way to retrieve information that Webex WFO has redacted from a transcript. Redacted information is not available in any system or to any level of user. You cannot re-process contacts with an Ad-Hoc transcription task to recover the redacted information.

Because Transcription Redaction removes words from transcripts, enabling this feature might affect results from other Analytics features that rely on the contact's transcript, such as Interaction Summary, Phrase Hits, and Auto QM.

NOTE Transcription Redaction is available for Ongoing tasks only. It is not available for Ad-Hoc tasks.

3. Select **Enable** in the **Phrase hits** section to have Webex WFO search transcripts for all of your organization's active predefined phrases. Select **Disable** to conserve system resources.

   BEST PRACTICE Enable phrase hits. Phrase hits are an important component of many Analytics features.

4. Select an existing **Index tag**, or create a new index tag for the task.
5. In the **Running the task** section, configure when the task should run and the date range of the data the task should analyze.

Ongoing and **Ad-Hoc** buttons	To run the task whenever new data comes into the system, select **Ongoing**. This disables the date, time, and range fields. To run the task only once, select **Ad-Hoc**.
Schedule task	Select the start date and time of the task. The date can be today's date or a future date. The time must be in the future. It cannot be the current time.
Selecting calls	Select the start date and end date of the range of data you want the task to process. The start date must be in the past by at least one day. It cannot be today's date. The end date must be later than the start date but before today's date.

6. (Optional) To create summaries of the transcribed calls, select the **Enable** radio button in the **AI Interaction summary** section.
7. In the **Percentage** field, enter the approximate percentage of calls to transcribe. Webex WFO gives each call this percentage of a chance to be transcribed. Webex WFO does not transcribe this percentage of the total calls received over a set time period. This results in a representative sample of the calls transcribed as the calls come in. There will be some

deviation from the percentage, but that deviation becomes less significant over time.

> **EXAMPLE** You enter **50** in the **Percentage** field. Each call that meets the criteria for this transcription task has a 50% chance of being transcribed.

8. (Optional) Configure the **Conditions** that must be met for the call to be transcribed. Depending on which condition you choose, additional fields for an operand and a value or a time range appear.

   > **NOTE** If you use this optional section, calls that do not meet the filter conditions are not transcribed.

9. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams within your scope are available.

   > **NOTE** If you assign a group but don't assign a team, Webex WFO assigns the task to all teams within that group.

10. Click **Save**.

Text Analytics

This task searches captured email or chat text for predefined phrases (which you configure on the Business Signal > Phrases page) and stores the results in a searchable database. You need the Administer Text Analytics permission to work with Text Analytics tasks.

1. Select an existing **Index tag**, or create a new index tag for the task.
2. In the **Running the task** section, configure when the task should run and the date range of the data the task should analyze.

Ongoing and **Ad-Hoc** buttons	To run the task whenever new data comes into the system, select **Ongoing**. This disables the date, time, and range fields. To run the task only once, select **Ad-Hoc**.
Schedule task	Select the start date and time of the task. The date can be today's date or a future date. The time must be in the future. It cannot be the current time.

Selecting calls	Select the start date and end date of the range of data you want the task to process. The start date must be in the past by at least one day. It cannot be today's date. The end date must be later than the start date but before today's date.

3. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams within your scope are available.

   NOTE If you assign a group but don't assign a team, Webex WFO assigns the task to all teams within that group.

4. In the **Phrase categories** section, assign phrase categories to the task.
5. Click **Save**.

NOTE For ad-hoc Text Analytics tasks that process more than 200 contacts, it might take a few minutes for the full number of **Processed**, **Failed**, and **Total** contacts to appear, even after the task **Status** is **Finished**.

Predictive Evaluation Score

This task uses machine learning models to predict a contact's evaluation score. You need the Administer Predictive Analytics permission to work with Predictive tasks.

IMPORTANT Predictions are complex and require work in multiple spots within Webex WFO. See Configure predictions for more information.

NOTE Predictive Evaluation Score tasks can analyze only audio contacts. Other types of contacts do not support predictive evaluation scores.

1. In the **Running the task** section, configure when the task should run and the date range of the data the task should analyze.

Ongoing and **Ad-Hoc** buttons	To run the task whenever new data comes into the system, select **Ongoing**. This disables the date, time, and range fields. To run the task only once, select **Ad-Hoc**.

Schedule task	Select the start date and time of the task. The date can be today's date or a future date. The time must be in the future. It cannot be the current time.
Selecting calls	Select the start date and end date of the range of data you want the task to process. The start date must be in the past by at least one day. It cannot be today's date. The end date must be later than the start date but before today's date.

2. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams within your scope are available.

   NOTE If you assign a group but don't assign a team, Webex WFO assigns the task to all teams within that group.

3. Click **Save**.

Predictive Net Promoter Score

This task uses machine learning models to predict a contact's net promoter score. You need the Administer Predictive Analytics permission to work with Predictive tasks.

IMPORTANT Predictions are complex and require work in multiple spots within Webex WFO. See Configure predictions for more information.

NOTE Predictive Net Promoter Score tasks can analyze only audio contacts. Other types of contacts do not support predictive net promoter scores.

1. In the **Running the task** section, configure when the task should run and the date range of the data the task should analyze.

Ongoing and **Ad-Hoc** buttons	To run the task whenever new data comes into the system, select **Ongoing**. This disables the date, time, and range fields. To run the task only once, select **Ad-Hoc**.
Schedule task	Select the start date and time of the task. The date can be

	today's date or a future date. The time must be in the future. It cannot be the current time.
Selecting calls	Select the start date and end date of the range of data you want the task to process. The start date must be in the past by at least one day. It cannot be today's date. The end date must be later than the start date but before today's date.

2. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams within your scope are available.

   NOTE If you assign a group but don't assign a team, Webex WFO assigns the task to all teams within that group.

3. Click **Save**.

Auto QM

You need the Run Auto QM Task permission to work with Auto QM tasks.

1. Select a name from the **Form name** drop-down list.

   BEST PRACTICE Auto QM can score each contact with up to three forms. If you are creating multiple overlapping Auto QM tasks, make sure Auto QM is using the best forms for each contact. If a contact is eligible to be evaluated by more than three Auto QM tasks, Auto QM will score the contact using only the three most recently created tasks.

2. Select a language associated with the task.
3. (Optional) Select **Call Direction** or **Contact Duration (seconds)** from the **Call detail** drop-down list. If you use this optional section, calls that do not meet the filter conditions are not transcribed.
   - For **Call Direction**, select **Inbound** or **Outbound** from the **Detail value** drop-down list.
   - For **Contact Duration (seconds)**, select **Greater than**, **Less than**, **Equal to**, or **Range** from the **Operator** drop-down list, and then enter the number(s).

4. Search for and select the required **Groups** and **Teams** and click either **Add all** or **Remove all**.
5. Click **Save**.

Trending Topics

This task mines entire conversations to determine each conversation's overall topic. You need the Run Trending Topics Task permission to work with Trending Topics tasks.

1. Select a language associated with the task.
2. (Optional) Configure the **Conditions** that must be met for the call's topics to be analyzed.

   NOTE If you use this optional section, calls that do not meet the conditions are not analyzed for topics.

3. (Optional, Analytics Enterprise Plus license only) To give the AI direction in identifying topics, use the **Define call topics** section.
   1. Select **Enable** in the **Define call topics** section.
   2. Click **Add new topic**. The **Add new topic** window opens.
   3. Enter the **Topic name** and **Topic description**. For example topic names and descriptions, see the "Example topics and descriptions for Trending Topics tasks" section here: About Analytics tasks. The topic name will appear on the Trending Topics dashboard (see Monitor Trending Topics) and in the Data Insights panel in the Media Player (see View AI insights for a contact).

      IMPORTANT You cannot edit the topic name after you save the topic.

   4. Click **Save**. The window closes.
   5. (Optional) Repeat steps 2—4 to add more topics if needed. You can also add topics to a task by importing a CSV file. See Import contact topics for a Trending Topics task for instructions.
4. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams within your scope are available.

> **NOTE** If you assign a group but don't assign a team, Webex WFO assigns the task to all teams within that group.

5. Click **Save**.

Sentiment Analysis

This task uses AI to analyze the sentiment displayed by the agent and the customer. You need the Run Sentiment Task permission to work with Sentiment Analysis tasks.

> **NOTE** Sentiment Analysis tasks can analyze only audio contacts. Sentiment analysis is not available for other types of contacts.

> **NOTE** Sentiment Analysis is available as an ongoing task only. It is not available as an ad-hoc task.

1. Select the language that is spoken in the contact from the **Language** drop-down list.
2. (Optional) Configure the **Conditions** that must be met for the call's sentiment to be analyzed.

   > **NOTE** If you use this optional section, calls that do not meet the conditions are not analyzed for sentiment.

3. (Optional) To analyze how sentiment progresses throughout the course of the contact, select **Customer sentiment trend**, **Agent sentiment trend**, or both in the **Sentiment trend** section. When you enable sentiment trend, the AI Sentiment panel appears in the Media Player for the contact (see View changes in sentiment for a contact).

   > **NOTE** Your organization needs the Analytics Enterprise or Analytics Enterprise Plus licenses to enable sentiment trend.

4. (Optional, Analytics Enterprise Plus license only) To define what sentiment looks like for your organization, use the **Custom AI sentiment definitions** section.

   1. Select **Enable** in the **Custom AI sentiment definitions** section.
   2. Use the **Apply custom sentiment to:** and **Apply same** settings to select whether your custom definitions should apply to the agent, the customer, or both.
   3. Enter descriptions in the **Define positive sentiment**, **Define negative sentiment**, and **Define neutral sentiment fields**. For example definitions, see the "Example

sentiment definitions for Sentiment Analysis tasks" section here: About Analytics tasks.

5. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams within your scope are available.

   NOTE If you assign a group but don't assign a team, Webex WFO assigns the task to all teams within that group.

6. Click **Save**.

AI Tags

You need the Analytics Enterprise Plus license and the Run AI Tags Task permission to work with AI Tags tasks.

1. Select the language associated with the task from the **Language** drop-down list.
2. (Optional) Configure the **Conditions** that must be met for the contact to receive AI tags.

   NOTE If you use this optional section, Webex WFO analyzes only contacts that meet the filter conditions for AI tags. Contacts that do not meet the conditions are not analyzed.

   BEST PRACTICE Limit AI Tags processing to calls that are longer than thirty seconds—or to a length that is meaningful for your organization. Tags that are applied to very short calls usually have limited value. Adding this condition helps ensure higher-quality insights and conserves the amount of data your organization dedicates to AI processing.

3. Select **Customer**, **Agent**, or both in the **Speakers** section. This selection tells Webex WFO which parties on the contact to analyze for tags.
4. In the **AI Tag Categories section**, click the categories to use for this task. You can assign up to three categories to a task.
5. In the **Groups and teams** section, assign groups and teams to the task. Only groups and teams within your scope are available. Webex WFO can process up to three tasks for a team. If you assign a team to more than three tasks, Webex WFO processes that team's contacts based on the three most recently created tasks only.

> **NOTE** If you assign a group but don't assign a team, Webex WFO assigns the task to all teams within that group.

6. Click **Save**.

Filter existing tasks

1. Click **Filters** (the funnel icon, upper-left corner of the page). The **Filters** panel opens.
2. Configure your search criteria.
3. Click **Apply**. The list of tasks updates. Click **Reset** to see all tasks.

Show or hide columns

1. Click **Show/Hide columns** (the gear icon, upper-right corner of the page). The **Show/Hide columns** window opens.
2. Select or clear the check boxes as desired.
3. Click **Apply**. The window closes.

View the history for a task

1. Double-click the task. The task page opens.
2. Click **History Tracking** (upper-right corner of the page). The **Version History** panel opens to show information about the task, including who last updated it and when.
3. Select a previous version of the task from the **Version History** drop-down list.
4. When you're finished viewing the task history, click **Back** to close the panel.

Edit an existing task

> **NOTE** You cannot edit a task if processing has started.

1. Double-click the task. The task page opens.
2. Edit the task as desired.
3. Click **Save**.

Cancel a task in progress

You can cancel a task only if its **Status** is **Running**. You cannot cancel tasks with other statuses.

1. Double-click the task. The task page opens.
2. In the **Task processing** section, click **Cancel processing**. A confirmation window opens.

3. Click **Yes**. The window closes.

Delete a task

> **NOTE** You cannot delete an ad-hoc task after it has run. This restriction maintains historical data and an audit trail.

1. Click **Delete** (the trash can icon). A confirmation window opens.
2. Click **Delete**. The window closes.

Add a topic to a Trending Topics task

If you add topics to a task that is already running, your changes apply only to contacts that are analyzed after the change. Contacts that have already been analyzed are not affected. You need the Analytics Enterprise Plus license to do this.

You can also add topics to a task by importing a CSV file. See Import contact topics for a Trending Topics task for instructions.

1. Double-click the task. The task page opens.
2. Select **Enable** in the **Define call topics** section.
3. Click **Add new topic**. The **Add new topic** window opens.
4. Enter the **Topic name** and **Topic description**. The topic name will appear on the Trending Topics dashboard (see Monitor Trending Topics) and in the Data Insights panel in the Media Player (see View AI insights for a contact).

   > **IMPORTANT** You cannot edit the topic name after you save the topic.

5. Click **Save**. The window closes.
6. (Optional) Repeat steps 2—4 to add more topics if needed.

Edit the contact topics for a Trending Topics task

You can edit the topic description. You need the Analytics Enterprise Plus license to do this.

> **NOTE** If you edit the description for a topic that has already been applied to contacts, your changes apply only to contacts that are analyzed after the change. Contacts that have already been analyzed are not affected. If you change the description dramatically, there might be inconsistency between how the topic is applied before and after the change.

1. Double-click the task. The task page opens.
2. In the **Define call topics** section, click the pencil icon next to the topic. The **Edit topic** window opens.
3. Edit the topic description as needed.
4. Click **Save**. The window closes.
5. Click **Save**.

Delete a contact topic from a Trending Topics task

If you delete a topic, any contacts that are already associated with this topic are not affected. You need the Analytics Enterprise Plus license to do this.

1. Double-click the task. The task page opens.
2. In the **Define call topics** section, click the garbage can icon next to the topic. The topic is deleted immediately.
3. Click **Save**.

Import contact topics for a Trending Topics task

If your organization has the Analytics Enterprise Plus license, you can add topics to a Trending Topics task by uploading a CSV file. You can upload topics to tasks both while you are creating the task and while it is running.

NOTE If you add topics to a task that is already running, your changes apply only to contacts that are analyzed after the change. Contacts that have already been analyzed are not affected.

The CSV file you import must have the following column headers:

Column header	Description
topicName	The name for the topic. This name will appear on the Trending Topics dashboard and in the Data Insights panel in the Media Player.
topicDescription	Information that helps AI identify contacts that contain this topic. [for advice on writing names and descriptions, see XXX]

BEST PRACTICE To ensure that your CSV file is formatted correctly, first export the file from a task that already has topics, edit the exported file, and then import the file. See Export contact topics for a Trending Topics task.

1. Double-click the task. The task page opens.
2. In the **Define call topics** section, select **Enable**.
3. Click **Import**.
4. Locate and import the CSV file. The new topics appear in a table below the Import button.
5. Click **Save**.

Export contact topics for a Trending Topics task

You need the Analytics Enterprise Plus license to do this.

1. Double-click the task. The task page opens.
2. In the **Define call topics** section, click **Export**. The file named **trending-topics export yyyy-mm-dd** downloads to your device.

Related topics

- About Analytics tasks
- Turn on Interaction Summary—A simplified version of this page dedicated specifically to enabling Interaction Summary.
- Turn on Advanced Sentiment—A simplified version of this page dedicated specifically to enabling Advanced Sentiment.
- Create and manage desktop items—Use the Desktop Manager page to configure websites and apps as approved or not approved for agent use.
- View agent actions for a contact—View a single contact's desktop analytics results on the Interactions page.
- Identify website fields to be tracked by Analytics—Use the Field Manager page to identify fields on webpages that agents use.
- Manage custom metadata fields—Use the Metadata Manager page to configure the metadata that tells Webex WFO to analyze a contact.
- Read the transcription of an audio recording—View a single contact's transcription on the Interactions page.
- Create and manage phrases and phrase categories—Configure phrases for phonetics, transcription, and text jobs.

- View phrase analytics for a contact—View a single contact's phrase hits on the Interactions page.
- Read a text contact—View a single text contact on the Interactions page.
- Configure predictions—Learn how to set up predictive evaluation scores and predictive net promoter scores.
- Create forms for AI evaluation
- Monitor automated evaluation scores
- About the Auto QM evaluation criteria
- Manage AI Tags
- Monitor the trends in AI Tags
- View AI insights for a contact—View the summary of an audio contact on the Interactions page.
- View AI insights for a contact—View the summary and sentiment of an audio contact on the Interactions page.
- View changes in sentiment for a contact—View sentiment trend on the Interactions page
- Monitor Trending Topics
- About the differences between Analytics phrases, AI Tags, and Trending Topics

About Analytics tasks

Information removed from transcripts with Transcription Redaction

If you enable Transcription Redaction in a Speech-to-Text (Transcription) task, the following types of information appear as ##### in transcripts. Transcription Redaction removes all of the below information types from transcripts. Currently, you cannot customize which types of information are removed.

Information type	Description	Example
Account number	Customer account or membership identification number	Policy No. 10042992 Member ID: HZ-5235-001
Banking information	Banking information, including account and routing numbers	

Information type	Description	Example
Blood type	Blood type	O- AB positive
Credit card CVV	Credit card verification code	CVV: 080
Credit card expiration	Expiration date of a credit card	
Credit card number	Credit card number	
Date	Specific calendar date	December 18
Date of birth	Date of birth	Date of Birth: March 7, 1961
Drivers license	Driver's license number	DL# 356933-540
Drug	Medications, vitamins, or supplements	Advil Acetaminophen Panadol
Email address	Email address	support@company.com
Event	Name of an event or holiday	Olympics Yom Kippur
Gender sexuality	Terms indicating gender identity or sexual orientation, including slang terms	Female Bisexual Trans
Healthcare number	Healthcare numbers and health plan beneficiary numbers	Policy No: 5584-486-674-WM
Injury	Bodily injury	I broke my arm. I have a sprained wrist.
IP address	Internet IP address, including IPv4 and IPv6 formats	192.168.0.1

Information type	Description	Example
Language	Name of a natural language	Spanish French
Location	Any location reference including mailing address, postal code, city, state, province, country, or coordinates	Lake Victoria 145 Windsor St 90210
Medical condition	Name of a medical condition, disease, syndrome, deficit, or disorder	Chronic fatigue syndrome Arrhythmia Depression
Medical process	Medical process, including treatments, procedures, and tests	Heart surgery CT scan
Money amount	Name and/or amount of currency	15 pesos $94.50
Nationality	Terms indicating nationality, ethnicity, or race	American Asian Caucasian
Number sequence	Numerical personally identifying information (including alphanumeric strings) that doesn't fall under other categories	

Information type	Description	Example
Occupation	Job title or profession	Professor Actors Engineer CPA
Organization	Name of an organization	CNN McDonalds University of Alaska Northwest General Hospital
Passport number	Passport numbers, issued by any country	PA4568332 NU3C6L86S12
Password	Account passwords, PINs, access keys, or verification answers	27%alfalfa temp1234 My mother’s maiden name is Smith
Person age	Number associated with an age	27 75
Person name	Name of a person	Bob Doug Jones Dr. Kay Martinez, MD
Phone number	Telephone or fax number	
Political affiliation	Terms referring to a political party, movement, or ideology	Republican Liberal

Information type	Description	Example
Religion	Terms indicating religious affiliation	Hindu Catholic
URL	Internet addresses	https://www.company.com/
US Social Security number	Social Security Number or equivalent	
Username	Usernames, login names, or handles	@Company
Vehicle ID	Vehicle identification numbers (VINs), vehicle serial numbers, and license plate numbers	5FNRL38918B111818 BIF7547

Example topics and descriptions for Trending Topics tasks

If your organization has an Analytics Enterprise Plus license, you can define your own contact topics as part of creating a Trending Topics task. Below are some examples of topics and descriptions.

Topic name	Topic description
Order cancellation: Delayed delivery	The customer is requesting to cancel their order because the delivery has been delayed beyond the expected timeframe.
Schedule appointment	The patient is booking a new appointment for a clinical visit, procedure, or consultation.
Missed appointment follow-up	The contact was initiated after a patient no-showed their appointment. The purpose of the contact is to reschedule or discuss next steps.
Prescription refill request	The patient is requesting a refill for an existing prescription.
Open new account	The customer is requesting to open a new checking, savings, or other account.

Example sentiment definitions for Sentiment Analysis tasks

If your organization has an Analytics Enterprise Plus license, you can define what positive, negative, or neutral sentiment looks like for your organization as part of creating a Sentiment Analysis task. Below are some example definitions.

Sentiment	Sample definition
Positive	The patient expresses clear satisfaction with the contact center experience. This includes feeling helped or reassured; thanking the agent; describing the interaction as helpful, easy, or professional; or expressing relief, gratitude, or appreciation. Example phrases: “Thank you so much for your help.” “You were very kind and explained everything clearly.” “This was really easy. I appreciate it.”
Neutral	The patient shows no strong emotion, either positive or negative. This includes simply acknowledging information, responding factually or briefly without praise or complaints, or ending the call politely but indifferently. Example phrases: “Okay, got it.” “Thanks.” (without additional emotion or context) “That answers my question.”
Negative	The patient expresses frustration, confusion, or dissatisfaction with the interaction, even if the medical issue is unrelated. This includes feeling ignored, misunderstood, or rushed; expressing irritation, sarcasm, or disappointment; or indicating unresolved issues or the need to call again. Example phrases: “This was a waste of time.” “You’re not listening to me.” “I’ve called three times and still no help.”

Changes to Analytics licenses

If your organization downgrades from an Analytics Essentials, Analytics Enterprise, or Analytics Enterprise Plus license to a Desktop Analytics license, Webex WFO automatically disables all existing non-desktop tasks. This disabling does not affect any tasks that are in progress—for example, ad-hoc tasks that have already started or ongoing tasks that are scheduled or started.

Email and chat text

You can set up an ongoing Text Analytics task to analyze emails for predefined phrase hits. If no ongoing task is configured, then all emails are still indexed and saved as email contacts. You can process those emails as ad hoc tasks.

You must set up a Text Analytics task to analyze emails or chats for predefined phrase hits. If no task is configured, here is what happens when text is imported:

- The text is not analyzed in Analytics.
- The contact is still available on the Interactions page.
- Sentiment is not analyzed on the Interactions page.

NOTE If Webex WFO detects a generic email address that is not associated with an agent during an email import to the Mail server, Webex WFO creates a new user and associates the user with that email address. This user then appears on the user list and adds a user to the user count.

Languages and teams

For a complete list of supported languages in Webex WFO, see “Localization and supported languages” in the *Webex WFO Installation Guide*.

IMPORTANT Languages require server configuration. Before using a language in a task, make sure your system administrator has configured the language.

When you run a speech task, results are based exclusively on the selected language. There is an implied relationship between teams and languages. For example, if you choose French from the Language drop-down list when configuring a task, the task processes all calls in French for the selected teams. Any secondary language spoken during those calls produces bad results.

BEST PRACTICE

If your contact center supports multiple languages, each team should be associated with a specific language.

It is not unusual for one or more agents in a team to be bilingual. In that case, bilingual agents switch between languages during a call or from one call to another. If agents on a team are known to use a secondary language during a call, create a metadata tag using the Metadata Manager page (Application Management > QM > QM Configuration > Metadata Manager) and assign the possible language values to a metadata tag. When an agent uses a secondary language during a

call, the agent can assign that metadata tag to identify the language used. You can then run a task to search for all calls associated with the team that are tagged with that specific language metadata tag.

EXAMPLE

Agent A is on the Sales team and speaks French as a primary language and English as a secondary language. When Agent A switches to English for a call, she tags the call with a metadata tag called **VoiceLanguage** and a value of **English**.

To analyze Agent A's English language calls, you create a Speech to Text (Transcription) task configured with the following settings:

- Language: English
- Team: Sales

If you select French from the Language drop-down list, the task will not yield any results.

Language transcription for gateway recording

Gateway recording creates a root recording for the whole call from beginning to end. If the call is transferred, this root recording has multiple segments, one for the initial call and another for the transfer. (If a call is transferred multiple times, each transfer is a separate segment.)

When this recording is reconciled, Webex WFO transcribes the call using the language of the last segment, which is the language associated with the last segment's speech-to-text task. A speech-to-text task can be associated with only one language. If the people on the call speak a different language after the call is transferred, Webex WFO will still try to transcribe the call in the language used in the last segment.

EXAMPLE The agent and caller speak English for the first call segment, which is associated with an English speech-to-text task. The agent transfers the caller to a Spanish-speaking agent. This second segment is associated with a Spanish speech-to-text task. Webex WFO transcribes both segments of this call in Spanish after the recording is reconciled.

If a call segment is not associated with a speech-to-text task, Webex WFO will not transcribe the segment. If the last segment of a call is not associated with a speech-to-text task, Webex WFO will not transcribe the call.

EXAMPLE The agent and caller speak English for the first call segment, which is associated with an English speech-to-text task. The agent transfers the caller to a Spanish-speaking agent. This second segment is not associated with a speech-to-text task. Webex WFO does not transcribe the call.

Identify website fields to be tracked by Analytics

The Field Manager page lists fields associated with websites that have been marked for use in Smart Desktop.

> **NOTE** The Field Manager page manages only website fields. Windows application fields are managed on the Desktop Manager page.

Once a field is marked it is listed on the Field Manager page. From there you can configure the field with the strings that you want to match when running desktop events and actions.

The page's left pane displays the website and its associated fields that have been marked. Enabled fields are highlighted in green. When you select a field in the left pane, its settings appear in the right pane.

When a field first appears in the list, its name is the timestamp when it was marked. When you configure the field, you have to option to replace the timestamp with a name of your choosing to help identify it.

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise
  - Desktop Analytics

    > **NOTE** The Desktop Analytics license lets you identify fields so that you can monitor agents' activity. It does not allow you to configure automated actions like pausing and resuming the recording of a call.
- You have the Administer Desktop Analytics permission.
- You have Smart Desktop installed.
- Your browser must be configured correctly before you can use the field marking shortcut keys. See Enable the Desktop Analytics extension in your browser for details.

Page location

Application Management > Analytics > Analytics > Field Manager

Procedures

NOTE If you delete a field from the Field Manager page that is used in the Desktop Manager page, you must log out of Webex WFO and then log in again for the change to take effect.

Mark a field on a website

1. With the Field Manager page displayed, open a new tab in your browser.
2. Navigate to the website whose fields you want to mark.
3. Click in the desired field and press **Ctrl+M**. The field appears in the left pane of the Field Manager page with a timestamp in place of a name.

Filter the list of websites and fields

- Enter a search string in the **Search Fields** field. The list is immediately updated with fields that meet your search criteria. The search does not filter on website names.
- Use the **View** buttons (**All**, **New**, and **Configured**) to limit the list to fields displayed. New fields are those that have not yet been configured.

Configure a marked field

1. Click the field in the left pane. The right pane displays the field's settings and properties in the right pane.
2. Edit the field settings.
    - The **Website** field contains the URL of the website where the field is located. Click  to open the website in a new browser tab.
    - The **Name** field initially contains the timestamp of when the field was marked. You can replace the timestamp with a name that describes the field for easy identification.
3. Edit the field properties. The properties are the data captured by the field marker and can vary from field to field.
    - Select the **Enabled** check box to enable the searching of strings that match the specified field and value when configured in Desktop Manager. If the check box is not selected, the field is ignored.

- The **Field** column contains the read-only name of the property associated with the marked field.
- By default, the **Value** field contains the property's value at the time the field was marked. Any value entered in this field must be a supported value for the property. You can use the asterisk wildcard (*) in this field.

4. Click **Save**.

Related topics

- Identify websites and apps to be tracked by Analytics
- "Installing Webex WFO Smart Desktop" in the *Webex WFOInstallation Guide*

Enable the Desktop Analytics extension in your browser

Smart Desktop must be installed on your computer and activated before you can mark fields. Users who have permission to administer fields for Desktop Analytics using the Field Manager page and on the agents' desktops where Smart Desktop is installed must have the appropriate Desktop Analytics browser plug-in configured for the browser they use.

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise
  - Desktop Analytics
- Smart Desktop is installed and activated on your computer.

Procedures

Enable the Desktop Analytics extension in Firefox

The first time you log in to Webex WFO using Firefox, you see a dialog box telling you to install the Calabrio Browser Extension. Select **Allow this installation** and click **Continue**. No further action is required.

Enable the Desktop Analytics plug-in in Microsoft Edge Chromium

In Edge Chromium, go to https://chrome.google.com/webstore/detail/calabrio-analytics-plugin/hecgknieibccghjmmhhckdfeobjoffdf and click **Add to Chrome**.

Enable the Desktop Analytics plug-in in Chrome

The Chrome extension can be downloaded or installed through GPO settings. Download and install the Calabrio Analytics Plug-in, version 0.2.0.4. The plug-in is located at:

https://chrome.google.com/webstore/detail/calabrio-analytics-plugin/hecgknieibccghjmmhhckdfeobjoffdf

NOTE If clicking the link does not work, copy the URL and paste it into your browser.

Related topics

"Installing Webex WFO Smart Desktop" in the *Webex WFO Installation Guide*

Analytics dashboards overview

The Analytics page is a dashboard that displays data about your desktop, speech, and text contacts. You can use the default dashboard, another user's shared dashboard, or your own custom dashboards. Each dashboard's widgets display data based on your role and the data sets you define. Your access to dashboards depends on your assigned permissions.

If your administrator has configured Analytics to allow dashboard sharing, you can designate any dashboard you create as one that can be shared by other users. Those users can view your dashboard (populated with data that pertains to them) but they cannot edit it. Only you can edit your shared dashboard.

The general process for configuring a dashboard is as follows:

1. Create a new dashboard.
2. Create data sets for the dashboard.
3. Create and add widgets to the dashboard.
4. (Optional) Share your new dashboard with others.

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise

    - Desktop Analytics
- You have at least one of the following permissions:
    - View Analytics
    - View Desktop Analytics
    - View Speech Analytics
    - View Speech to Text Analytics
    - View System Analytics
    - View System Metrics
    - View Text Analytics
- Desktop sharing is enabled (optional)
- Analytics data collection is configured in Application Management on the Task Manager, Business Signal > Phrases, Desktop Manager, Field Manager, and Analytics Configuration pages.

Page location

Analytics > Analytics Dashboard

Procedures

Select an existing dashboard to view

- Click the **Dashboards** button on the Analytics toolbar and select an existing dashboard from the resulting list.

Create and work with dashboards

- Create and manage an Analytics dashboard
- Create and manage a data set
- Create and manage an Analytics widget
- Filter data on the Analytics dashboard
- Configure predictions

Related topics

Customize your Analytics dashboard

Create and manage a data set

Data sets determine what appear in the widgets on the Analytics Dashboard page. They must be configured before you create a widget.

Data sets are unique to a specific dashboard. When you create a data set for one dashboard, that data set will not appear in any other dashboards.

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise
  - Desktop Analytics
- Some data sets are not available with the Desktop Analytics license. See Data sources below for the data sets that are not included with this license.
- You have the View System Analytics permission.

Page location

Analytics > Analytics Dashboard

Procedures

Create a new data set

1. On the Analytics toolbar, click **Data Set Manager** and then **Create New Data Set**.

   NOTE You might have to click **Unlock** to enable the Data Set Manager button.

2. Select a data source from the Data Source list. The available data sources are described below.

3. In the Data Set Manager - Create New dialog box, configure the filters for the data source you chose. These filters determine what data appears on your dashboard. There is a different dialog box for each data source, with different data filters. The available data filters are described below.
4. When you are finished configuring the filters, click **Submit** to see a preview of the data that is included in the new data set. The column headers shown can be truncated. Click **Show All Data** to see all the columns.

   If the columns shown are not what you want, click **Back** to return to the previous dialog box and reconfigure the filters.
5. When you are satisfied with the data set, click **Save**.
6. On the toolbar, click **Save**.

Edit a data set

1. On the Analytics toolbar click **Data Set Manager**.

   NOTE You might have to click **Unlock** to enable the Data Set Manager button.
2. Click **Edit** next to the data set you want to edit.
3. When you are finished editing the data set, click **Submit** to see a preview of the data that is included in the data set. The column headers shown might be truncated. Click **Show All Data** to see all the columns.

   If the columns shown are not what you want, click **Back** to return to the previous dialog box and reconfigure the filters.
4. When you are satisfied with the data set, click **Save**.
5. On the Analytics toolbar, click **Save**.

Delete a data set

1. On the Analytics toolbar, click **Data Set Manager**.

   NOTE You might have to click **Unlock** to enable the Data Set Manager icon.
2. Click **Delete** next to the data set you want to delete, and then confirm the deletion. When you delete a data set, changes on the dashboard are saved immediately.
3. Click **Cancel** to close the Data Set Manager dialog box.

Data sources

The following table describes the available data sources. You can filter items with an asterisk (*) using Data filters.

The two primary types of data sets are count data sets and trend data sets.

- Count data sets report the number of times the defined action occurs.
- Trend data sets report how the specified action changes over time.

Data Set	Description
Application Count Application Statistics	Metrics on accessing applications on a user's desktop. Application Statistics displays the access statistics for specific applications.
Application Usage Count Application Usage Trend	Metrics on how many users have used the application. This includes information on the number of users who have used the Webex WFO user interface as well as the number of desktop clients that have connected.
Audit Count Audit Trend	Metrics for audits in your recordings. **NOTE** Your organization needs the Analytics Essentials or Analytics Enterprise license in order to use this data set. This data set is not available with the Desktop Analytics license.
Call Summary Count Call Summary Trend	Metrics for your total, missed, and answered calls.
Event Count Event Statistics	Event Count shows aggregation of an event's duration by agent, team, or group. Event Statistics shows the distribution of the average event duration.
Outstanding Uploads Count Outstanding Uploads Trend	Metrics for files that still need to be uploaded. This is a measure of calls that have taken place but the corresponding media files have not yet been uploaded.
Phrase Count* Phrase Trend*	Metrics for phrase usage hits in contacts. This includes phonetic hits only.

Data Set	Description
	NOTE Your organization needs the Analytics Essentials or Analytics Enterprise license in order to use this data set. This data set is not available with the Desktop Analytics license.
Recycling Count Recycling Trend	Metrics for files that are in the recycle bin. Data is collected every five minutes.
Storage Details Count Storage Details Trend	Metrics for files stored on disk. This includes call audio files and screen capture video files, as well as logical groups such as recordings (call audio and screen capture video) as well as total size (all files on disk).
Support Count Support Trend	Upload and disk storage metrics for packet capture (PCAP) and log files.
Text Contact Count* Text Contact Trend*	The total number of email and text contacts. **NOTE** Your organization needs the Analytics Essentials or Analytics Enterprise license in order to use this data set. This data set is not available with the Desktop Analytics license.
Text Hit Count* Text Hit Trend*	The total number of individual text hits in email and text contacts. **NOTE** Your organization needs the Analytics Essentials or Analytics Enterprise license in order to use this data set. This data set is not available with the Desktop Analytics licenses.
Transcribed Call Count* Transcribed Call Trend*	Metrics for your transcribed contacts. **NOTE** Your organization needs the Analytics Essentials or Analytics Enterprise license in order to use this data set. This data set is not available with the Desktop Analytics license. **NOTE** The number of calls you see in an Analytics dashboard that uses this data set might vary from the number of calls you see using the Has Transcription criterion in the Contact Content

Data Set	Description
	filter on the Interactions page, for a variety of reasons: ■ Analytics data and QM data update at different times. ■ Analytics marks a call as transcribed after the call has been indexed, but QM marks a call with Has Transcription if a transcription file for the call is uploaded. Indexing happens after the transcription file is uploaded, so reports of transcribed calls might show a higher number in QM than in Analytics if indexing has not happened yet. ■ Analytics and QM could have different retention policies.
Upload Details Count Upload Details Trend	Upload metrics for media files broken down by file type. This includes call audio files, screen capture video files, desktop application and website usage files, and email text files.
Upload Summary Count Upload Summary Trend	Upload metrics for media files aggregated into logical groupings. This includes recording uploads (call audio and screen capture video) and total uploads (all file types from upload details).

Data filters

The following table describes the available filters that can be configured for the available data sources. Not all filters apply to every type of data source.

Name	Description
Agents	Select one or more agents to filter data by. If you do not select one or more agents, all agents are selected by default.
Aggregate by	Select the unit by which you want to aggregate event counts or statistics.
Application States	Choose the application states you want to display in the widget.
Assume All Groups	Select this check box to bypass the groups list in the drill-down

Name	Description
	details for widgets associated with this data set.
Assume All Teams	Select this check box to bypass the teams list in the drill-down details for widgets associated with this data set.
Categories	Select one or more categories to filter data by.
Confidence	Enter the minimum confidence value for a hit. Valid values are 1–100. **EXAMPLE** When you specify a value of 60, Speech Analytics returns hits where the confidence value is 60 or greater.
Date Range	Select the date range for which you want the widgets to display historical information. **NOTE** If the date range exceeds the analytics data retention period, values outside the retention period will appear as 0 in a widget. **NOTE** The number of calls you see when using this filter might vary from the number of calls you see when using the Date Range filter on the Interactions page, for a variety of reasons: ■ Analytics data and QM data update at different times. ■ Analytics and QM could have different retention policies.
Enable Application States Filtering	Select this check box to allow a user to modify the selected application states from the Analytics toolbar. When this box is cleared, changes to the selected application states from the Analytics toolbar do not affect the widget.
Enable Confidence Filtering	Select this check box to allow a user to modify the selected confidence value from the Analytics toolbar. When this box is

Name	Description
	cleared, changes to the confidence value from the Analytics toolbar do not affect the widget.
Enable Date Filtering	Select this check box to enable users to modify the date range from the Analytics toolbar. When this box is cleared, changes to the global date range in the Analytics toolbar do not affect the widget.
Enable Interaction State Filtering	Select this check box to allow a user to modify the selected interaction states from the Analytics toolbar. When this box is cleared, changes to the selected interaction states from the Analytics toolbar do not affect the widget.
Enable Text Search	Select this check box to allow a user to search for phrases from the Analytics toolbar. When this box is cleared, searching for phrases from the Analytics toolbar does not affect the widget.
Event Type	Select the event type for the data set.
File Group by	Select how you want to file the group.
Filter Out Multiple Hits	Select this check box to count the phrase with the higher confidence level and filter out similar phrases with a lower confidence level. When this box is cleared, all phrase hits appear. Analytics can generate multiple phrase hits for similar phrases with different confidence levels that occur near the same time within a recording. **EXAMPLE** If you add phrases for “ambulance” and “ambulance service,” multiple hits can appear when Analytics locates the phrase “ambulance service.”
From Date	The starting date for the date range.
Group By	Select the way you want to group data. The options available in

Name	Description
	this field are determined by the type of data set you are creating.
Groups	Select one or more groups to filter data by. If you do not select one or more groups, all groups are selected by default. If you select one or more groups, all teams for those groups are selected by default. Groups are limited by your assigned permissions.
Histogram Bins	Enter the number of intervals to appear in the histogram. Valid values are integers 3–100. The default is 10.
Interaction States	Choose the interaction states you want to display in the widget.
Limit to Predefined Phrases	Select this check box to filter contacts in the data set to include only ones that have predefined phrase hits. The phrases are defined in the Business Signal > Phrases.
Name	The name of the data set.
Phrases	Select one or more phrases to filter data by.
Ranking Size	Enter how many top-ranking applications display results. Valid values are 10–100. The default is 10.
Result	Select whether you want to return results that do or do not contain the specified phrases for this data set. ■ If you select **Return contacts with the selected phrases**, Webex WFO reports the total number of phrase matches among all contacts. ■ If you select **Return contacts without the selected phrases**, Webex WFO reports the number of contacts that do not contain the specified phrases.
Show Websites Only	Select this check box to display statistics only for websites accessed. When this box is cleared, statistics are displayed for both

Name	Description
	applications and websites.
Tags	Select one or more tags to filter data by.
Teams	Select one or more teams to filter data by. If you do not select one or more teams, all teams are selected by default.
Text Types	Select one or more text types to filter data by.
To Date	The ending date for the date range.
Type	Select the type of trend.
Types	Select one or more types to filter data by.

Create and manage an Analytics widget

There are four types of Analytics widgets: chart, data grid, text, and phrase cloud. Each type of widget displays the data defined in a data set. You can customize your Analytics dashboards by creating and arranging widgets to your liking.

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise
  - Desktop Analytics
- You have the View System Analytics permission.
- You have created a data set (see Create and manage a data set).

Page location

Analytics > Analytics Dashboard

Procedures

Add a widget to your dashboard

1. Display the dashboard to which you want to add a widget.
2. Click **Unlock** to enable the Add Widget button, and then click **Add Widget**.
3. Choose which type of widget to add.
4. Configure the settings for your selected widget type (see Chart Settings, Data Grid Settings, Text Settings, and Phrase Cloud Settings).
5. Click **Save**.

You can move and resize the widgets on your dashboard. When you move them (click and hold while the mouse pointer is positioned in the widget toolbar), red lines appear to help you align the widget you are moving with other widgets nearby. Resize widgets by clicking and dragging the lower right corner of the widget.

Each widget has a toolbar:



1—Settings. Edit the widget settings

2—CSV Export. Export the data from the widget to a CSV format file

3—Print. Print an image of the widget

4—Delete. Delete the widget

5—Full Screen. Toggles the widget between its normal size and full-screen size

Chart Settings

When you select the Chart type for a widget, you must configure the following fields in the Chart Settings dialog box.

Container Settings

Setting	Description
Title	The name of the widget.
Hide Title	Select this check box to hide the widget title bar. The tools from the title bar are moved to the body of the widget.
Hide Background	Select this check box to remove the widget border.

Chart Options

Setting	Description
Title	The name of the chart.
Type	The type of chart you want to appear in this widget. ■ Line charts and area charts are typically used to demonstrate how an item changed over time. Line charts display information as a series of points connected by straight line segments. Area charts display data graphically and are based on a line chart. The area between the axis and a line is emphasized with colors. It is commonly used to compare two or more quantities within a chart. ■ Bar charts are charts with rectangular bars that have lengths proportional to the data they represent. Bar charts can be plotted vertically or horizontally. Stacked bar charts are useful when you get multiple hits in one or more categories. Stacked bar charts can be used to depict trends. ■ Pie charts are circular charts divided into sectors, illustrating numerical proportion. A pie chart allows you to select two intersections of data: the series (the data you want to plot) and the value. A slice in a pie chart represents the series, and the size of a slice represents the value.
Legend	The position of the legend on the chart.
Label Step	The frequency of labels drawn on the x-axis. **EXAMPLE** **1** displays a label on the x-axis for each data point. **2**

Setting	Description
	displays a label on the x-axis for every other data point.
Enable Labels	Select this check box to display labels on the chart.
Show Data Point Labels	Select this check box to display data point labels in the chart.

Data set Selection & Reference Grid

Setting	Description
Select Data Set	Choose one of the data sets you created from the drop-down list. The column headers associated with the data set are displayed.
Show All Data	Click this button to display an expanded version of the column headers.

Chart Options

Setting	Description
X-Axis	Select the information to appear on the chart's x-axis. The options are based on the selected data set.
Y-Axis	Select the information to appear on the chart's y-axis. The options are based on the selected data set.
Series	The data that you want to measure on the x-axis. **NOTE** Trending data must be sorted by date. If you want to create a trending chart, choose From Date or To Date from the Series drop-down list. The trending chart will not be sorted logically if you choose Agent ID, Agent Name, Phrase, or Category.

Data Grid Settings

When you select the Data Grid type for a widget, you must configure the following fields in the Data Grid Settings dialog box.

Container Settings

Setting	Description
Title	The name of the widget.
Hide Title	Select this check box to hide the widget title bar. The tools from the title bar are moved to the body of the widget.
Hide Background	Select this check box to remove the widget border.

Data Set Selection & Reference Grid

Setting	Description
Select Data Set	Choose one of the data sets you created from the drop-down list. The column headers associated with the data set are displayed.
Show All Data	Click this button to display an expanded version of the column headers.

Chart Options

This section displays the fields that appear in the Data Grid widget. The available fields depend on the selected data set. All available fields are displayed in the data grid by default. To remove a field from the data grid, click the field name. The field will be disabled. Click the field name again to enable the field, or select All to enable all fields.

Text Settings

When you select the Text type for a widget, you must configure the following fields in the Text Settings dialog box.

Container Settings

Setting	Description
Title	The name of the widget.
Hide Title	Select this check box to hide the widget title bar. The tools from the title bar are moved to the body of the widget.
Hide Background	Select this check box to remove the widget border.

Text Editor

Use the text editor to create and edit the text that appears in your text widget. The text you enter can be set in bold, italic, or underlined. You cannot control the size of the text.

Phrase Cloud Settings

A phrase cloud is a visual representation of phrases. This format is useful for quickly identifying the most prominent phrases by font size and color.

Container Settings

Setting	Description
Title	The name of the widget.
Hide Title	Select this check box to hide the widget title bar. The tools from the title bar are moved to the body of the widget.
Hide Background	Select this check box to remove the widget border.

Data Set Selection & Reference Grid

Setting	Description
Select Data Set	Choose one of the data sets you created from the drop-down list. The column headers associated with the data set are displayed. **NOTE** A phrase cloud supports any data set that has a phrase option (for example, Group by Phrase). If the phrase count data set uses Group by Category, you cannot create a phrase cloud with

Setting	Description
	that data set.
Show All Data	Click this button to display an expanded version of the column headers.

Displaying widget details

The widget Details pane displays a data grid that contains the data that is the source of the graphic representation. You open the Details pane by clicking on an item or data point within the widget, or by clicking the Full Screen Toggle button in the toolbar and then the Details button at the top of the widget pane.

NOTE A data grid widget displays the same information that the Details pane contains. You can drill down into that information just as you can in the Details pane.

The initial data grid displays general details. To view more specific details, double-click a row to drill down into the information. Breadcrumbs are added at the top left of the Details pane to help you navigate back to where you started. The Home icon brings you to the initial data grid view.

The Setting icon next to the breadcrumb trail opens a configuration window where you can select the data you want displayed in the Details pane.

Notifying users of non-approved application usage

You can send an email notifying one or more people regarding the use of a non-approved application or website. When you drill down far enough in the Details pane to show the agent detail grid containing the Application Label column, there is an email icon next to a link naming the application or website in question.

Click the Email icon to display an email form. The body of the email contains the following information:

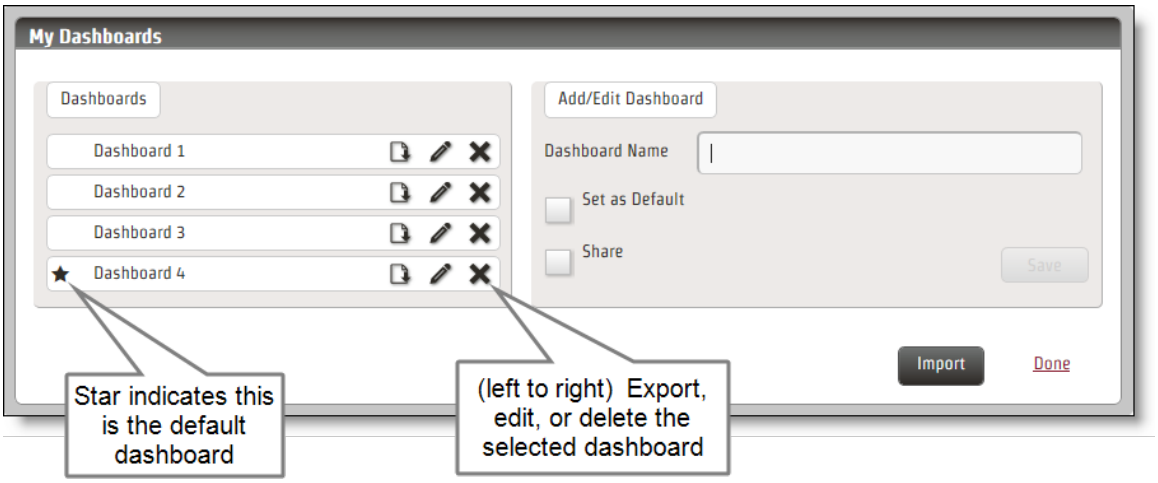
- A statement indicating that an unapproved application or document was used
- The name of the agent
- The date and time that the application was accessed
- The names of the application and document
- A URL to the application usage issue in Agent Explorer
- (Optional) Your comments

NOTE Click the link in the Application Label column to navigate to Agent Explorer for the date and time the application was accessed.

Enter one or more email addresses, append any comments you might have to the end of the message, and then click OK to send the notification out.

Create and manage an Analytics dashboard

Selecting, creating, and managing dashboards is done from the **Dashboards** icon on the Analytics toolbar. Click the icon to select an existing dashboard to view from the list displayed. Click the **Manage** button at the top of the list of dashboards to open the **My Dashboards** dialog box. From there you create and manage dashboards. This feature is available only if you have the appropriate permissions.



NOTE Shared dashboards are indicated with a lock symbol in My Dashboards. This means you can view those dashboards but you cannot edit them. Only the owner of the shared dashboard can do that.

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise
  - Desktop Analytics
- You have the View System Analytics permission.

Page location

Analytics > Analytics Dashboard

Procedures

Create a dashboard

1. Open **My Dashboards**.
2. Type a name for your new dashboard in the **Dashboard Name** field. Optionally, you can set this dashboard to be your default dashboard, or to share your dashboard with other users.
3. (Optional) Select the **Set as Default** check box if you want to use this dashboard as your default Analytics dashboard.
4. (Optional) Select the **Share** check box if you want to share this dashboard with other users. This feature is available only if your administrator has enabled dashboard sharing on the Analytics Configuration page.
5. Click **Save** and then **Done**.

Edit a dashboard

1. Open **My Dashboards**.
2. Select the dashboard you want to edit and click **Edit** (the pencil icon).
3. Make your changes. You can change the dashboard's name, set or remove it as the default dashboard, and share or unshare it with other users.
4. Click **Save** and then **Done**.

Delete a dashboard

1. Open **My Dashboards**.
2. Click **Delete** (the X icon) next to the dashboard you want to delete.

   NOTE When you delete a dashboard, you also delete all data sets and widgets associated with the dashboard.

3. Click **Save** and then **Done**.

Export a dashboard

1. Open **My Dashboards**.
2. Click **Export** next to the dashboard you want to export.

3. Click **Save** to save the dashboard as a file named “dashboard.json” to your default download location, or **Save As** to rename the file and save it to a different location.

Import a dashboard

1. Open **My Dashboards**.
2. Click **Import**.
3. Browse to the location where the desired dashboard is saved and select the file. The file has a JSON extension.
4. Click **Submit** to import the dashboard.

   NOTE If you import a dashboard with the same name as one of your existing dashboards, an asterisk is appended to the imported dashboard’s name.

5. Click **Save**.

Filter data on the Analytics dashboard

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise
  - Desktop Analytics
- You have the View System Analytics permission

Page location

Analytics > Analytics Dashboard

Filter the data in all the widgets that appear on your dashboard using the Data Filters tool. You can choose one or more filters to apply. When you do create more than one filter, the results must match all the filter criteria.

NOTE Not all types of data can be filtered. See Create and manage a data set for a list of data that can be filtered.

Any data filters that you set apply to any dashboard you view during a session. However, if you log out and then log in again, you must configure your filters again. They do not persist from session to session.

Procedure

Add a data filter

1. Click **Data Filters**.
2. Click **Add Filter**.
3. In the Add Filter dialog box, select the filter. There are four filter types:
    - Analysis—filter by call statistics and events
    - Contact—filter by the recording contact information
    - Date—filter by time zone
    - Organization—filter by agent, group, or team
4. Select the operator (such as greater than, less than, contains, and so on) and enter a value. The value can include wild cards (* or ?). The asterisk wild card stands for any number of characters, and the question mark wild card stands for one character.

    EXAMPLE A filter to find calls that include more than three talkover events is “Talk Over Events Greater than 3.”
5. Click **OK**.

Customize your Analytics dashboard

Prerequisites

- Your organization has one of the following licenses:
    - Analytics Essentials
    - Analytics Enterprise
    - Desktop Analytics
- You have the View System Analytics permission.

Page location

Analytics > Analytics Dashboard

There are two toolbars available on the Analytics Dashboard page.

Analytics toolbar

The Analytics toolbar lets you manage the contents of your dashboard.



1—Search field

The Search field filters the text in widgets that use the Contact Count, Content Trend, Text Contact Count, and Text Contact Trend data sets. This field appears only if the Enable Text Search check box is selected in a Contact Count data set.

2—Global Date Range field

The Global Date Range field filters historical information in widgets by date range. Your selection affects all widgets in the dashboard whose data sets have the Enable Date Filtering check box selected. This field is available when the dashboard is locked.

3—Confidence field

The Confidence field is used to set the minimum confidence value for a hit. Valid values are 1–100.

EXAMPLE When you specify a value of 20, Analytics returns hits where the confidence value is 20 or greater.

This value affects all widgets in the dashboard whose data set is configured with the Allow Override Confidence check box selected. This value does not persist from session to session.

4—Data filters

Click the Data Filters button to display the Data Filters dialog box. Use this dialog box to add filters that determine the recording data that appears in your widgets (see Filter data on the Analytics dashboard).

NOTE Data filters are supported only with Speech Analytics.

5—Interaction State

Click the Interaction States button to select the interaction states (active, inactive, after call work, and on hold) you want data about displayed in your widgets. By default, all interaction states are selected.

6—Application State

Click the Application State button to select the application states (approved, not approved, ignore, and new) you want data about displayed in your widgets. By default, all application states are selected except for the Ignore state.

7—Dashboards

Click the Dashboards button to display a list of the dashboards available to you. If you have the appropriate role and permissions, you can access the My Dashboards dialog box by clicking the Manage link (see Create and manage an Analytics dashboard).

8—Print

Click the Print button to print a snapshot of the Analytics dashboard.

9—Lock/Unlock

This button toggles between Locked and Unlocked.

- When locked, you cannot change the widgets on the dashboard or their layout.
- When unlocked, you can add, edit, and delete widgets and change their layout.

> **NOTE** Shared dashboards cannot be unlocked. They can be changed only by their owners.

10—Save

Click the Save button to save changes you made to an unlocked dashboard.

11—Data Set Manager

The Data Set Manager allows you to create, modify, and delete data sets associated with the displayed dashboard (see Create and manage a data set). This button is enabled when the dashboard is unlocked.

12—Add Widget

Click the Add Widget button to choose a widget type and configure the content of that widget (see Create and manage an Analytics widget). This button is enabled when the dashboard is unlocked.

13—Tile Widgets

Click the Tile Widgets button to stack the widgets in the upper left corner. This button is enabled when the dashboard is unlocked.

14—Select Tool

Click the Select Tool to select widgets and then align them on the dashboard. You select widgets by either dragging a rectangular selection area around them or pressing Ctrl + Click to select them one by one. Selected widgets are outlined in red. This button is enabled when the dashboard is unlocked. When you

select widgets with this tool, the Widget Alignment toolbar is opened and displayed in the upper left corner of the page.

You can select widgets as long as the Select Tool button is enabled (it turns dark gray). It stays enabled until you click it again to disable it. When it is disabled you cannot select widgets.

Widget Alignment toolbar

The Widget Alignment toolbar appears when you select widgets on your dashboard using the **Select Tool** on the Analytics toolbar. By default the toolbar appears in the upper left corner of the dashboard.



1—Align to Canvas check box

When you select the Align to Canvas check box, widgets are snapped to one of the outer edges of the dashboard when you use the alignment control buttons.

> **EXAMPLE** If the check box is selected and you click Align Bottom, all your selected widgets snap to the bottom edge of the dashboard. If the check box is cleared and you click Align Bottom, all your selected widgets align their bottom edges to the bottom edge of the widget that is positioned lowest on the dashboard.

2—Align Left

Click the Align Left button to align the left sides of all selected widgets.

3—Align Right

Click the Align Right button to align the right sides of all selected widgets.

4—Align Top

Click the Align Top button to align the tops of all selected widgets.

5—Align Bottom

Click the Align Bottom button to align the bottoms of all selected widgets.

6—Match Width

Click the Match Width button to size the width of all selected widgets to the width of the widest widget.

7—Match Height

Click the Match Height button to size the height of all selected widgets to the height of the tallest widget.

8—Distribute Horizontally

Click the Distribute Horizontally button to spread the selected widgets evenly and horizontally across the dashboard. They are resized to the same width with their side edges touching.

9—Distribute Vertically

Click the Distribute Vertically button to spread the selected widgets evenly and vertically across the dashboard. They are resized to the same height with their top and bottom edges touching.

10—Move Toolbar

Click and hold the Move Toolbar button to drag the toolbar to any location you wish on the dashboard. The toolbar stays in this location for the duration of your session.

Monitor Trending Topics

AI trending topics help you tackle unknown unknowns in contact centers by uncovering what's actually happening in your contact center. A conversation topic is the specific reason why a customer contacted you. Trending Topics mine an entire conversation to determine the overall conversation topic.

Trending Topics work together with Analytics phrases and AI Tags to help you understand the voice of the customer, but these three features help you do different things when it comes to analyzing contacts. For an explanation of how and when to use these different features, go to About the differences between Analytics phrases, AI Tags, and Trending Topics.

Prerequisites

- Your organization has an Analytics Enterprise or Analytics Enterprise Plus license.
- You have the View Trending Topics permission.
- (To work with topics) You have the Edit Trending Topics permission.
- (To view the Notifications panel) You have the View Trending Topics Notification permission.
- (To set and manage usage alerts for Trending Topics) You have the Edit Trending Topics Notification permission.
- An administrator has created a Trending Topics task (see Create Analytics tasks).

Page location

Analytics > Trending Topics

Procedures

View the metrics for a topic

The **AI-Generated Topics** tab displays AI-generated topics and topic-level metrics, letting you swiftly comprehend the reasons behind customer inquiries.

- Click a topic in the table. The topic details page opens showing the following information:

Metric	Description
Volume	The number of single contacts and new contacts. If a call is transferred to another agent, it is a new contact.
Average Call Handle Time	The length of time between the start of the interaction and the end of the interaction.
Average Agent Response Time	The average length of time between the end of each customer utterance and the start of each agent utterance. **EXAMPLE** A customer stops speaking when the time stamp is 1:04, and they remain silent until they speak again when the time stamp is 1.15. The response time is 11 seconds.

- To see details for a date, hover over a point on the charts.
- To adjust the level of detail in the chart, select a different date period from the **View by day** drop-down list.

Customize the columns on the page

1. Click **Columns**. The **Columns** window opens.
2. To add a column, select its check box. To remove a column, clear its check box.

The table below describes the columns on the Trending Topics dashboard.

Column name	Description
Name	The topic that Webex WFO automatically identifies based on the conversation context.

Column name	Description
Volume	
Total	The number of contacts that are associated with the topic.
Trend	How the number of contacts associated with this topic has changed over time.
% of total	Of all the contacts that are associated with *any* topic, the percentage that are associated with *this* topic.
% change	How the number of contacts that are associated with this topic has changed. The time frame for the comparison is based on what you select from the **Date range** filter.
Call Handle Time	
Average	The average handle time for calls that are associated with this topic, not including after-call work time.
% change	How the handle time for contacts that are associated with this topic has changed. The time frame for the comparison is based on what you select from the **Date range** filter.
Agent Response Time	
Average	The average length of time between the end of each customer utterance and the start of each agent utterance. **EXAMPLE** A customer stops speaking when the time stamp is 1:04, and they remain silent until they speak again when the time stamp is 1.15. The response time is 11 seconds.
% change	How the agent response time for calls that are associated with this topic has changed over time. The time frame for the comparison is based on what you select from the **Date range** filter.
First Found	
Date	When Webex WFO first identified this topic among your organization's contacts.

Filter topic information

1. Select an option under the **Date range**, **Direction**, **Languages**, **Tasks**, or **Organization** drop-down lists.
2. Click **Apply**.

The table below describes the filters on the AI Tags dashboard.

Filter name	Description
Date range	Filters topics based on when the contact that is associated with the topic was recorded.
Direction	Filters topics based on the direction of the contact that is associated with the topic.
Languages	Filters topics based on the language of the contact.
Tasks	Filters topics based on the Analytics task that identified the topic. (See Create Analytics tasks.)
Organization	Filters topics by the group, team, or agent who handled the contact.

Search for a topic

- Enter the name or part of the name in the **Search topics** field. The page updates automatically.

Rename a topic

1. Click the pencil icon next to the topic name.
2. Edit the topic name and then press the Enter key.

View the Analytics tasks that identified a topic

- Hover over a topic name and click **Associated tasks** ⓘ. The **Associated tasks** window lists the Analytics tasks that found this topic in contacts. (See Create Analytics tasks for more information about Analytics tasks.)

Save a new topic

When Webex WFO first identifies a conversation topic, the topic appears in the table with NEW next to it. Follow these steps to save the new topic without making any changes to it.

1. From the **Tasks** drop-down list, select the Analytics task that identified the topic. If you're not sure which task to select, hover over the topic and click **Associated tasks**.
2. Select the new topic.
3. Click **Save selected topics**. A confirmation message appears.

Hide a topic

Follow these steps if Webex WFO identifies a minor or unimportant topic that you don't want to analyze.

1. From the **Tasks** drop-down list, select the Analytics task that identified the topic. If you're not sure which task to select, hover over the topic and click **Associated tasks**.
2. Select the topic.
3. Click **Add to existing topic**. The **Add selected topics into an existing topic** window opens.
4. Select **Others** from the **Add into** drop-down list.
5. Click **Save**. The window closes, and a confirmation message appears. Webex WFO adds the topic to the **Others** category.

View hidden topics

Follow these steps to see topics that were removed from the main topics page following the instructions under Hide a topic.

1. In the list of topics, click **Others**.
2. Click the **Grouped Topics** tab. The **Group includes** list contains all the hidden topics.

Add a topic to an existing topic

This process is especially helpful for new topics, but you can also do this for topics that are not new. When Webex WFO first identifies a conversation topic, the topic appears in the table with NEW next to it. If a new topic is similar to one that already exists, follow these steps to add it to the older topic. Both the new and existing topics must be from the same Analytics task. To view metrics for the individual child topics, see View metrics for sub-topics that are grouped inside a topic.

1. From the **Tasks** drop-down list, select the Analytics task that identified the topics. If you're not sure which task to select, hover over a topic and click **Associated tasks**.
2. Select the new topic.
3. Click **Add to existing topic**. The **Add selected topics into an existing topic** window opens.
4. Select the existing topic that will contain the new topic from the **Add into** drop-down list.
5. Click **Save**. The window closes, and a confirmation message appears.

Combine topics into a new topic

The topics you combine must be from the same Analytics task. To view metrics for the individual child topics, see View metrics for sub-topics that are grouped inside a topic.

1. From the **Tasks** drop-down list, select the Analytics task that identified the topics. If you're not sure which task to select, hover over a topic and click **Associated tasks**.
2. Select the topics.
3. Click **Merge into new topic**. The **Merge selected topics into a new topic** window opens.
4. Enter the name for the new topic in the **Enter group name** field.
5. Click **Save**. The window closes, and a confirmation message appears.

View metrics for sub-topics that are grouped inside a topic

As part of managing topics, you can group topics together into parent topics (see Monitor Trending Topics). Follow these steps to see information about these child topics.

1. Click a topic in the table. The topic details page opens.
2. Click the **Grouped Topics** tab. A list of child topics appears, along with a list of individual contacts that are associated with each child topic. Click a contact to view its transcript.

View topics that co-occur with a topic

A contact can be associated with more than one topic.

1. Click a topic in the table. The topic details page opens.
2. Click the **Related Topics** tab. The **Topic Category** panel lists all the other topics that Webex WFO identified in contacts with this topic. The **Contact ID** panel lists the contacts that have both topics.
3. (Optional) To open a contact that has both topics, click a topic in the topics list and then click a number in the **Contact ID** panel. The contact opens in a new tab.

View individual contact transcripts for a topic

1. Click a topic in the table. The topic details page opens.
2. Click the **Transcripts** tab. This tab shows transcripts for individual contacts that are associated with the topic.

- To filter transcripts, select options from the **Call Handle Time**, **Agent Response Time**, or **Organization** drop-down lists and click **Apply**.

- To favorite a transcript, click the star icon. Click **View saved transcripts** to view all of your saved transcripts.
- To view additional contact information, click the **Transcript information** icon .
- To open the contact in the Media Player, click the **Media player** icon .
- To export the transcripts in bulk to a CSV file, click **Export**.
- To use **Advanced Search Options**, click the filter icon. You can filter by **Transcripts** or **Contact ID** from the **Search** drop-down list and, if you select **Transcripts**, you can filter by **All messages**, **Agent messages**, or **Customer messages** from the **Find results** drop-down list. After you select the filters, click **Apply**.

Compare the occurrence of different topics

The **Impact Analysis** tab is a comparative view that contrasts behaviors across distinct time frames, letting you rapidly assess the effectiveness of interventions, such as pre-performance and post-performance coaching initiatives.

1. Click **Impact Analysis**.
2. (Optional) Select the appropriate **Direction** or **Organization** filters, and then click **Apply**.
3. In the **Comparison period A** tab, select a time frame that you want to compare and click **Next**.
4. In the **Comparison period B** tab, select a time frame that you want to compare and click **Next**.
5. In the **AI-generated topics** tab, search for and select the conversation topics that you want to focus on, click **Add**, and then click **Show results**.

View metrics for all topics

The **Aggregated metrics** tab is a unified view that facilitates rapid trend analysis across all topics, letting you effortlessly track key performance indicators, such as average call handle time, agent response time, and so on, for entire agent teams or custom time periods. Low handle time calls are excluded from the metrics. However, the calls are still available in the **Low Handle Time Calls** category.

1. Click **Aggregated metrics**.
2. Select a **Date range**.
3. (Optional) Select the appropriate **Direction** and **Organization** filters, and then click **Apply**.
4. Click **Volume**, **Avg. Call Handle Time**, or **Avg. Response Time** to view results.

View a record of changes to topics

You need the View Trending Topics Notification permission to view this change record.

1. Click **Notifications** (the alert icon in the upper-right corner of the page). The notifications panel opens.
2. Click the **Activities** tab to see changes that were made, who made them, and when.

View your monthly usage rate for Trending Topics

Your organization has purchased a specific amount of usage for Analytics features like Trending Topics that run on AI. If your organization exceeds this level, Cisco will charge extra for the additional usage. You need the View Trending Topics Notification permission to view the usage rate.

- Click **Notifications** (the alert icon in the upper-right corner of the page). The **Alerts** panel opens. If an administrator has set up usage notifications (see Get notified about usage level for Trending Topics), this panel contains details about how many contacts Analytics AI has processed in the current billing cycle.

Get notified about usage level for Trending Topics

Your organization has purchased a specific amount of usage for Analytics features like Trending Topics that run on AI. If your organization exceeds this amount, Cisco will charge extra for the additional usage. Follow these steps to stay on top of your usage. You need the Edit Trending Topics Notification permission to do this.

> **NOTE** The settings you enter here also apply to other AI-based Analytics features that your organization uses, such as Auto QM and AI Tags. See Monitor automated evaluation scores and Monitor the trends in AI Tags.

1. Click **Configuration**. The **Configuration** window opens.
2. In the **Monthly billing cycle** section, select your contract start date.
3. In the **Monthly usage limit** section, enter the number of interactions included in your license.
4. In the **Alert threshold** field, enter the percentage of usage at which you want to be notified.

   > **EXAMPLE** You want to be notified when your organization reaches 90% of your contracted usage rate. You enter **90** in the **Alert threshold** field.

5. Click **Update**.

Export Trending Topics data

1. Filter Trending Topics data as desired.
2. (Optional) Add or remove columns on the page. The CSV download contains information only from the columns that are visible on the page. See Customize the columns on the page.
3. Click **Export**. The file downloads to your device.

Related topics

- About the differences between Analytics phrases, AI Tags, and Trending Topics

Monitor automated evaluation scores

Auto QM uses AI to evaluate conversations and provide scores for standard agent performance questions. The scores are automatically generated and available at both individual and aggregated levels. For further information about the Auto QM evaluation criteria, go to About the Auto QM evaluation criteria

Prerequisites

- Your organization has an Analytics Enterprise or Analytics Enterprise Plus license.
- You have the View Auto QM Dashboard permission.
- (To view usage alerts for Auto QM) You have the View Auto QM Notification permission.
- (To set and manage usage alerts for Auto QM) You have the Edit Auto QM Notification permission.
- An administrator has created an Auto QM task (see Create Analytics tasks).

Page location

Analytics > Auto QM

Procedures

Navigate the dashboard

1. Click **Home**.
2. Select a form and click **Apply**.
3. Click **Date range**

4. Select a filter check box or manually select a date range and click **Apply**.
5. Click **Organization**.
6. Click **Direction**, select **Inbound** or **Outbound**, and click **Apply**. Click **Reset all** to reset the direction.
7. If required, select a group, team, and agent, and click **Apply**.
8. View the following metrics:
    - **Average auto evaluation score** - The overall average score of all interactions evaluated by Auto QM.
    - **Total auto evaluated contacts** - The total number of interactions evaluated by Auto QM.
    - **Total auto evaluated agents** - The number of unique agents whose interactions are evaluated by Auto QM.
    - **Auto evaluation score trend** - A graphical representation showing how auto evaluation scores have changed over time, helping identify improvements or declines in performance.
    - **Auto evaluation sections** - Specific categories within the auto evaluation (for example, empathy, professionalism, greeting, and so on), each assessing different aspects of agent performance.
    - **Performance score chart** - A visual representation (for example, a graph or bar chart) comparing the performance scores of agents, teams, or overall auto evaluation scores over time, facilitating easy identification of top performers, areas for improvement, and progress tracking.
9. To view detailed information, click a group, team, or agent name.

View the evaluation metrics for a group

1. Click **Evaluation**.
2. On the **Groups** tab, select a **Group** filter.
3. View the **Evaluation score trend**. Select **View by year**, **View by month**, **View by week**, or **View by day**.
4. View **Auto evaluation sections**.
5. Click a team name to view detailed information about the team metrics.

Navigate the evaluation metrics for a team

1. Click **Evaluation**.
2. On the **Teams** tab, select a **Team** filter.
3. View the **Evaluation score trend**. Select **View by year**, **View by month**, **View by week**, or **View by day**.
4. View **Auto evaluation sections**.
5. Click an agent name to view detailed information about the agent metrics.

Navigate the evaluation metrics for an agent

1. Click **Evaluation**.
2. Click the **Teams** tab.
3. Click an agent's name.
4. View the **Evaluation score trend**. Select **View by year**, **View by month**, **View by week**, or **View by day**.
5. View **Auto evaluation sections**.
6. To view more information about the agent's conversation with the customer, click a contact ID. For further information, go to .

> **NOTE** In the **Evaluation** tab, you can view the **Auto evaluation** scores and the **Manual evaluation** scores. To override a score generated by AI in the **Auto evaluation** tab, click **Edit score**, select **Yes 100%**, **No 0%**, or **N/A**, add a comment, and click **Save score**. This will also update the overall score. You can only use this feature if you have edit permissions.

View your monthly usage rate for Auto QM

Your organization has purchased a specific amount of usage for Analytics features like Auto QM that run on AI. If your organization exceeds this level, Cisco will charge extra for the additional usage. You need the View Auto QM Notification permission to view the usage rate.

- Click **Notifications** (the alert icon in the upper-right corner of the page). The **Alerts** panel opens. If an administrator has set up usage notifications (see Get notified about usage level for AI-based features), this panel contains details about how many contacts Analytics AI has processed in the current billing cycle.

Get notified about usage level for AI-based features

Your organization has purchased a specific amount of usage for Analytics features like Auto QM that run on AI. If your organization exceeds this amount, Cisco will charge extra for the additional usage. Follow these steps to stay on top of your usage. You need the Edit Auto QM Notification permission to do this.

> **NOTE** The settings you enter here also apply to other AI-based Analytics features that your organization uses, such as Trending Topics and AI Tags. See Monitor Trending Topics and Monitor the trends in AI Tags.

1. Click **Configuration**. The **Configuration** window opens.
2. In the **Monthly billing cycle** section, select your contract start date.
3. In the **Monthly usage limit** section, enter the number of interactions included in your license.
4. In the **Alert threshold** field, enter the percentage of usage at which you want to be notified.

   > **EXAMPLE** You want to be notified when your organization reaches 90% of your contracted usage rate. You enter **90** in the **Alert threshold** field.

5. Click **Update**.

Related Topics

- Use Auto QM to create forms
- About the Auto QM evaluation criteria
- View AI insights for a contact

About the Auto QM evaluation criteria

Auto QM uses AI to evaluate conversations. The percentage-based evaluation is based on set of questions that you select for your evaluation form. The evaluation scores are automatically generated and available at both individual and aggregated levels. When you build an Auto QM evaluation form, you can select questions from the following list:

Question category	Evaluation questions	Answer options
Active listening	▪ Did the agent successfully keep the conversation on track to focus on the primary issue and avoid diverging to other issues?	Yes, No, N/A

Question category	Evaluation questions	Answer options
	■ Did the agent ask clarifying and relevant questions to better understand the customer's needs? ■ Did the agent proactively guide the conversation, keeping it focused on the issue at hand? ■ Did the agent summarize or paraphrase the customer's issue to ensure they correctly understood it? ■ Did the agent actively commit to finding a solution and take ownership of the solutioning process for the customer's issue?	
Authentication	■ Did the agent authenticate the caller’s identity?	Yes, No, N/A
Churn management	■ If the customer requested a cancellation, did the agent make an effort to retain their business?	Yes, No, N/A
Closing	■ Did the agent ask for the customer’s permission before transferring the call? ■ Did the agent ask if there was anything else the customer needed help with before closing the conversation? ■ Did the agent encourage the customer to participate in the post-interaction survey? ■ Did the agent recap the outcome of the conversation to ensure the customer's understanding? ■ Did the agent set clear expectations for the next steps or follow-up actions?	Yes, No, N/A

Question category	Evaluation questions	Answer options
	■ Did the agent provide a polite and courteous goodbye message?	Yes, No
Custom	If your organization has an Analytics Enterprise Plus license, you can also add your own custom questions to an evaluation form. For more information about custom questions, go to the "Create a custom question" procedure in the Create forms for AI evaluation article.	
Customer effort	■ Did the customer express frustration with the agent? ■ Did the customer request an escalation to someone in a higher position? ■ Was the customer put on hold for more times than permitted? ■ Did the call time exceed the call duration limit that is acceptable to a customer? ■ Did the customer experience silence on the call for longer than the acceptable total silence time? ■ Was the customer put on hold for longer than the acceptable hold time limit? **NOTE** For further information about the acceptable number of holds, call duration, and so on, see Thresholds.	Yes, No, N/A
	■ Did the customer have to repeat themselves to convey their issue or provide the same information to the agent multiple times?	Yes, No
Empathy	■ Did the agent avoid dismissing the customer's emotions or complaints?	Yes, No, N/A

Question category	Evaluation questions	Answer options
	■ Did the agent express empathy at the right time and appropriate to the emotions shared by the customer? ■ Did the agent express empathy and provide reassurance to the customer?	
Greeting	■ Did the agent ask about how the caller heard about the company or service? ■ Did the agent clarify whether the caller was calling for themselves or on behalf of another person? ■ Did the agent confirm the best contact number to use in case of a disconnect?	Yes, No, N/A
	■ Did the agent clearly state their name and where they are calling from? ■ Did the agent ensure they were speaking with the correct person before proceeding? ■ Did the agent establish the purpose of the call clearly and concisely? ■ Did the agent inform the customer that the call is being recorded? ■ Did the agent personalize the conversation by introducing themselves with their name? ■ Did the agent use a polite greeting when starting the conversation?	Yes, No
Intelligent phrase matching	Intelligent phrase matching lets you provide examples of specific phrases that should affect the evaluation score if they appear in the contact. For information about intelligent phrase matching, go to Create forms for AI evaluation.	

Question category	Evaluation questions	Answer options
Objection handling	■ Did the agent effectively address any objections or concerns raised by the customer?	Yes, No, N/A
Professionalism	■ Did the agent address the customer by name at least once during the conversation? ■ Did the agent avoid displaying a negative attitude which can consist of sarcasm, frustration, annoyance, or any other negative emotions? ■ Did the agent avoid using profanity or inappropriate language? ■ Did the agent avoid using unnecessary jargon when providing support or explaining the situation to the customer? ■ Did the agent demonstrate flexibility by adapting to the customer's needs and exploring alternative solutions when necessary? ■ Did the agent maintain a positive and optimistic attitude when providing information and solutioning during the conversation? ■ Was the agent courteous and polite throughout the conversation? ■ Did the agent avoid talk-overs?	Yes, No, N/A
Resolution	■ Did the customer demonstrate satisfaction with the resolution, either through explicit statements, affirmative responses, or by indicating they can proceed without further assistance?	Yes, No, N/A

Question category	Evaluation questions	Answer options
	■ Did the agent accurately identify and address the primary issue or query raised by the customer, demonstrating a clear understanding of the problem? ■ Did the agent actively lead the resolution process by proposing a solution, clarifying doubts, or answering the customer's inquiry?	
Sales	■ Did the agent correctly identify an opportunity and attempt to promote relevant products or services from the company? ■ Did the agent effectively address the customer's sales objections? ■ If this is a sales call, was the agent able to introduce the product/service/offer in a concise and engaging way?	Yes, No, N/A

Thresholds

Webex WFO currently presets the following thresholds in the standard evaluation form.

- Individual hold time - more than 2 minutes
- Number of hold events - more than 3 holds
- Total silence time - more 10 seconds (exclude silences of less than 2 seconds)
- Conversation duration - more than 6 minutes

NOTE These thresholds are also configurable in the Auto QM Evaluation Form Manager. For more information, see Create forms for AI evaluation.

Related Topics

- Create forms for AI evaluation
- Monitor automated evaluation scores

Performance Manager tool

Create your own reports in the Performance Manager tool to analyze the WFM results and review the goals in the contact center. The report content is based on a set of dimensions and measures available in the cube. Choose the dimensions and measures to work with and customize the pivot tables, charts and scorecards to display them. Use filters to narrow the data you want to analyze. The reports can be exported to Excel.

Performance Manager is based on a multidimensional database cube. It makes it possible to view data from different perspectives, in different combinations and drill down to details in different areas of interest.

The tool uses multidimensional storage through OLAP (On-Line Analytical Processing) technology. The data is based on the same data mart as the data in the standard reports. This data is processed into an OLAP multidimensional data cube.

The Performance Manager main view has different panels. On the left is a list of the available reports. Next to that is the schema tree that displays all accessible data; dimensions, measures, and KPIs. The report toolbar is at the top of view. It gives access to various functions. The report area in the middle shows the currently selected report, normally a pivot table. On the right you'll find the object panel area, where you can define your own formulas.

NOTE The Performance Manager module requires the optional Performance Manager license and is available for on premise installations only.

Related topics

- Create reports in Performance Manager
- How Performance Manager works
- Add measures and dimensions in Performance Manager
- How measures and dimensions can be combined
- Export reports from Performance Manager
- Work with filters in Performance Manager
- Work with formulas in Performance Manager

Create reports in Performance Manager

The report tree shows a list of all the available reports created in Performance Manager. Create your own reports based on the available WFM data or delete existing reports.

Prerequisites

- You have the Performance Manager > Create Performance Manager report permission

Page location

Client > Performance Manager > View reports

Procedures

Create report

1. Click **Create report** in the report tree.
2. Enter a report name.
3. Click **New report** in the report toolbar.
4. The new report is displayed with a schema tree to the left. An empty pivot table is automatically shown in the report area.

   See Add measures and dimensions in Performance Manager for more information on how to add dimensions and measures to a report.

Copy a report

1. Select the report to copy.
2. Click **Save as** in the **Report** toolbar.
3. Enter the name of the new report and click **OK**.
4. You are now in edit mode of the new report. Edit the report and **Save** your changes. The new report is listed in the report list to the right.

NOTE When using the **Save as** option, you can either choose to save the report in the **Shared reports** folder or in the **My reports** folder. The reports in both the **Shared reports** folder and the **My reports** folder are available for all Performance Manager users. Reports saved in the **My reports** are indicated by a * after the report name.

Delete a report

NOTE It is not possible to undo the deletion.

1. Click **Delete mode** to switch to delete mode **ON**. All report links are shown in red.
2. Select the report to delete.
3. When you are done deleting reports, click **Delete mode OFF**.

Related topics

- Add measures and dimensions in Performance Manager
- Work with filters in Performance Manager
- Work with formulas in Performance Manager
- Export reports from Performance Manager

Export reports from Performance Manager

You can export the reports you create in Performance Manager to Excel, PowerPoint, PDF, HTML or CSV file format.

Prerequisites

- You have the Performance Manager > Create Performance Manager report permission

Page location

Client > Performance Manager > View reports

Procedures

Export a table or a chart to Excel, PDF or PowerPoint

1. Click the object to export.
2. Click the Excel, PDF or PowerPoint button in the toolbar.

Export a table as a Excel, PDF, HTML or CSV file

1. Click the arrow on the left side of the pivot table to export and select **Export...**
2. Select the export format you prefer: Excel, PDF, HTML or CSV.
3. Click **Export**.

Related topics

- Create reports in Performance Manager

How Performance Manager works

A report area typically contains a sheet where you add pivot tables and optionally a pivot chart representing the selection of data from the schema tree.

You can add many components to the same sheet or in a new sheet. There are different component types: Pivot table, Chart, KPI Viewer, Quick chart, Scorecard or a Report filter. Click on the report frame and choose the component type to add. There are detail settings that vary depending on what type of component it is. This is where you for example name your component. Click the arrow next to the component to open the detail settings.

A report can contain several sheets, much like in worksheets in MS Excel. You can easily copy the contents from one sheet to another

Below you'll find more information about the most commonly used components.

Pivot table

A pivot table is built by selecting filters, dimensions and measures.

The general settings for pivot tables are in the detail settings.

- Name and description.
- What to display—To show or not show rows or columns where the value is zero.
- How to calculate totals—Calculation based on visible members only or based on all members, including filtered members.
- Format the measures—Select the unit, number of decimals, and whether to use the thousands comma delimiter.
- Color and style.

Dimensions

The dimensions are subjects that you can use to define how you want to view your data. Date, organization, skill and activity are examples of dimensions. Dimensions are grouped into categories where some dimensions have a hierarchy with several levels such as **Year**-**Month**-**Date**, and some have just one level. In a pivot table, you can add dimensions to be shown on rows or columns or use them as a top filter.

When working with lots of data it is always wise to initially add important filters to the filter area above a pivot table. That will filter all the dimensions you add as columns or rows later. See Work with filters in Performance Manager for more information about filtering.

NOTE Always set filters for these dimensions: date period, scenario, and time zone.

There are several ways to further customize the report, like sorting, filtering, removing levels or moving dimensions. You can find all the settings by clicking the arrow next to the dimension.

EXAMPLE

A user wants to focus on the months of the past year.

- Add a **Year** dimension to the filter area at the top of the pivot table, by using the advanced filter, stating **Past 1 year**.
- Add **Month**, **Date**, and **Intervals** as row dimensions. The viewer can now focus on the values for the months and dates from the past year but can also drill down from a month to a date, and to a specific interval.

Named sets

A named set is a set of dimension members or a dynamic expression that is created for reuse of queries. In Performance Manager there are named sets related to the date dimension, such as **Yesterday**, **Last Week** or **Current Year**. Use a named set to make your reports dynamic without making changes in your report template.

Measures

Measures are the numeric values that you include in a report. They are the numbers you measure your business with. The measures are always added to the data area of a pivot table. There are several ways to present measures and some of the measures are dependent on specific dimensions. See How measures and dimensions can be combined for more information.

Measures have several options for formatting and sorting. You can add alerts, icons and use customized rules. Click the arrow next to the measure to find the menus.

Charts

Click the arrow next to the pivot table's name to add a chart corresponding to your pivot table. The menu contains pivot table related functions, like **Create chart**. The **Create chart** option enables you to create charts to visualize the pivot table data. You can choose the type of chart and how the chart is placed in relation to the pivot table.

You can create multiple charts for each report. Each chart can be customized in several ways by using the chart menu and by clicking and right-clicking in chart area. Click the arrow next to the chart name to open the chart menu.

Quick chart

A quick chart is a component that is created directly without doing a pivot table. Drag the dimensions to the filter area and the measures to the data area. Go to the detail settings to define the chart further.

KPI Viewer

The KPI Viewer component allows you to view all KPIs available in the WFM Analytics Cube. The KPI Viewer shows status, trends, actual values and goals for each selected KPI. The KPI targets are set in Options in the WFM client.

You can add filters to your KPI viewer, for example on date and teams. You can also view your KPI measures in an ordinary pivot table.

Report filter

A report filter is a specific component where you can define filters that controls the whole report, or you can use it to filter selected components. In most cases, the report filter component is placed on its own sheet, but you can place it on any sheet in your report.

Related topics

- Create reports in Performance Manager
- How measures and dimensions can be combined
- Add measures and dimensions in Performance Manager
- Work with filters in Performance Manager
- Work with formulas in Performance Manager

Add measures and dimensions in Performance Manager

Select the dimensions, measures and KPIs from the schema tree. The available dimensions and measures are arranged in groups.

Add data from the schema tree to a pivot table or other report components in the report area. This can be done in two ways: drag them to the correct location or click a member and select an action from the menu.

Click the plus sign to expand the dimension and measure groups in the schema tree.

Use the dimensions to filter your report. See Work with filters in Performance Manager for more information about how to use the filters.

NOTE You must save all changes manually.

Prerequisites

- You have the Performance Manager > Create Performance Manager report permission

Page location

Client > Performance Manager > View reports

Procedures

Add a measure to a report

1. Right-click a measure.
2. Select **Add to data area**. The measure is added as the last column in the data area.
3. Click **Save** in the report toolbar.

Remove a measure from a report

1. Click the small arrow next to the measure.
2. Select the **Measure** tab.
3. Click **Remove measure**.
4. Click **Save** in the report toolbar.

Move the position of a measure

1. Click the small arrow next to the measure.
2. Select the **Measure** tab.
3. Click **Move right** or **Move left**.
4. Click **Save** in the report toolbar.

Replace a measure in a report

1. Right-click a measure.
2. Select **Replace data area**. The selected measure replaces all other measures in the data area.
3. Click **Save** in the report toolbar.

Add a dimension to a report

1. Right-click a dimension and select where to apply the dimension.
   - **Add to column axis**.
   - **Add to row axis**.
   - **Add to filter condition**.

   The dimension is added as the last row, column or as a filter condition.
2. Click **Save** in the report toolbar.

Remove a dimension from a report

1. Click the small arrow on the right side of the dimension.
2. Select the **Dimension** tab.
3. Click **Remove dimension**.
4. Click **Save** in the report toolbar.

Move the position of a dimension

1. Click the small arrow next to the dimension.
2. Select the **Dimension** tab.
3. Select to move dimension to column, row or filter.
4. Click **Save** in the report toolbar.

Replace a dimension in a report

1. Right-click a dimension and select where to replace the dimension.

    1. **Replace column axis**.
    2. **Replace row axis**.
    3. **Replace filter condition**.

    The selected dimension replaces all other dimensions on either row, column or filter condition.

2. Click **Save** in the report toolbar.

Related topics

- How measures and dimensions can be combined
- Create reports in Performance Manager

How measures and dimensions can be combined

A measure is a property with aggregated data that you can present in the reports you create in Performance Manager.

The measures are used in conjunction with dimensions. All measures are divided into measure groups depending on which area they address, such as queue data, agent schedule data or forecast data. These measures can be sliced and diced in numerous ways, by for example date, team or skill.

This topic explains what measures each measure group contains, and the dimensions that these measures can be combined with.

NOTE

- Not all measures can be sliced by all dimensions. See the listed dimensions for each measure group.
- When using forecast and scheduled data, use the **Scenario** dimension to get data from a specific scenario.
- When using the **Service level** measure, use the **Service level calculation type** dimension to define how to calculate the service level.
- When using **Ready-time adherence** measure, use the **Ready-time adherence calculation type** dimension to define how to calculate ready-time adherence.

Agent

The **Agent** measure group contains measures available from the ACD platform related to the agents' states. For example, logged in time, idle time and ready time.

These dimensions can be used with the measures in the **Agents** measure group.

- Agent skill
- Business unit
- Date
- External logon
- Group page
- Interval
- Organization

Agent queue

Use the measures in the **Agent queue** measure group to create reports from the agents' point of view. For example, to show how many calls a specific agent has answered and the talk time or handling time for these calls.

> **NOTE** Calls can be routed to and answered by an agent even if the agent does not have the specific skill.

These dimensions can be used with the measures in the **Agent queue** measure group.

- Agent skill
- Business unit
- Date
- External logon
- Group page
- Interval
- Organization

Agents ready

This measure group contains measures available from the ACD platform related to the number of agents in ready state.

These dimensions can be used with the measures in the **Agents ready** measure group.

- Agent skill
- Business unit
- Date
- External logon
- Group page
- Interval
- Organization

Forecast

This measure group contains measures related to forecasts. Use the **Scenario** dimension to get data from a specific scenario.

These dimensions can be used with the measures in the **Forecast** measure group.

- Business unit
- Date
- Interval
- Scenario
- Skill
- Skill workload

Hourly availability

The **Hourly availability** measure group contains measures related to the availability entered by hourly staff in MyTime.

These dimensions can be used with the measures in the **Hourly availability** measure group.

- Agent skill
- Business unit
- Date
- Group page
- Organization
- Scenario

Quality scores

This measure group contains measures related to the quality questionnaire scores for agents.

These dimensions can be used with the measures in the **Quality scores** measure group.

- Business unit
- Date
- External logon
- Group page
- Organization
- Quality questionnaire

Queue

This measure group contains queue data measures available from the ACD platform. For example, Answered calls, Talk time and Service level.

These dimensions can be used with the measures in the **Queue** measure group.

- Business unit
- Date
- Interval
- Queue
- Skill
- Skill workload

Request

This measure group contains measures related to the agents' requests.

These dimensions can be used with the measures in the **Request** measure group.

- Absence type
- Agent skill
- Business unit
- Date
- Group page

- Organization
- Request details
- Request status
- Request type

Requested days

This measure group contains measures related to the days with agent requests.

These dimensions can be used with the measures in the **Requested days** measure group.

- Absence type
- Agent skill
- Business unit
- Date
- Group page
- Organization
- Request status
- Request type

Schedule deviation

The **Schedule deviation** measure group contains the deviation in minutes between ready time and scheduled ready time, and the ready-time adherence measures.

These dimensions can be used with the measures in the **Schedule deviation** measure group.

- Agent skill
- Business unit
- Date
- External logon
- Group page
- Interval
- Organization

Schedule preferences

The **Schedule preferences** measure group contains measures related to the agents' entered schedule preferences. Use the **Scenario** dimension to get data from a specific scenario.

These dimensions can be used with the measures in the **Preferences** measure group.

- Absence type
- Activity type
- Agent skill
- Business unit
- Date
- Day off
- Group page
- Organization
- Preference type
- Scenario
- Shift category
- Shift length

Schedule vs forecast skill

This measure group contains measures related to the scheduled time per skill vs the forecasted time per skill. Use the **Scenario** dimension to get data from a specific scenario.

These dimensions can be used with the measures in the **Schedule vs forecast skill** measure group.

- Business unit
- Date
- Interval
- Scenario
- Skill

Scheduled absence day

This measure group contains measures related to all days with scheduled absences for each agent. Use the **Scenario** dimension to get data from a specific scenario.

These dimensions can be used with the measures in the **Scheduled absence day** measure group.

- Absence type
- Agent skill
- Business unit
- Date
- Day off
- Group page
- Organization
- Scenario
- Shift category

Scheduled Agent

This measure group contains measures related to the scheduled time for each agent. For example, Scheduled contract time and Scheduled ready time. Use the **Scenario** dimension to get data from a specific scenario.

These dimensions can be used with the measures in the **Scheduled agent** measure group.

- Absence type
- Activity type
- Agent skill
- Business unit
- Date
- Group page
- Interval
- Organization
- Overtime
- Scenario
- Shift category
- Shift length
- Shift start date local

Scheduled agents ready

This measure group shows on interval level how many agents that are scheduled as ready.

These dimensions can be used with the measures in the **Scheduled agents ready** measure group.

- Agent skill
- Business unit
- Date
- Group page
- Interval
- Person (agent)
- Scenario
- Team
- Time zone

Scheduled day off

This measure group shows the number of scheduled days off per day.

These dimensions can be used with the measures in the **Scheduled day off** measure group.

- Agent skill
- Business unit
- Date
- Day off
- Group page
- Person (agent)
- Scenario
- Team
- Time zone

Scheduled shift category

This measure group shows the number of shifts per day.

These dimensions can be used with the measures in the **Scheduled shift category** measure group.

- Agent skill
- Business unit
- Date
- Group page
- Person (agent)
- Scenario
- Shift category
- Shift length
- Team
- Time zone

Related topics

- How Performance Manager works
- Add measures and dimensions in Performance Manager

Work with filters in Performance Manager

When working with lots of data, it is always wise to initially add important filters. There are several ways to handle filters. You can use the basic filter selections or set you own advanced filter.

You can use any of these options.

- Report filter component to set filters to be used on all sheets in the entire report or just used for selected parts.
- Filters in the **Filter** area at the top of each pivot table or other component.
- Filter on any added dimension in rows or columns.

EXAMPLE

A user wants to create a report with many sheets. They want to always focus on the months of the past year, only view data from the Default scenario and only view the intervals between 08:00-20:00 even if there are data outside of these intervals.

- In the report filter component:
  - Add a **Year** dimension and set it.
  - Add a **Scenario** dimension.
  - Define on what level to use the filter: the current sheet, the entire report, or selected parts.
- In the pivot table filter area, at the top of a pivot table, add a dimension as the filter.
- Add **Month**, **Date**, and **Intervals** as row dimensions in the pivot table. Set at filter on the interval row and define what intervals to show.

The user can now focus on the values for the months and dates from the past year, but also drill down from a month to a date, and to a specific interval.

Prerequisites

- You have the Performance Manager > Create Performance Manager report permission

Page location

Client > Performance Manager > View reports

Procedures

Set filters in the filter area

Use the filter area at the top of the pivot table to filter all the other dimensions you add as columns or rows.

1. Click the pivot table to work with.
2. Right-click on the dimension. If there is a hierarchy, use the highest level.
3. Select **Add to filter condition**.
4. In the components filter area, click the arrow next to the dimension and select **Set filter** or **Advanced Filter**.
5. Make your selection and click **OK**.

Set a filter on a column or row dimension

You can set filters to a specific dimension placed as a column or a row.

1. Click the component to work with.
2. Right-click on the dimension on any level and select **Add to column axis** or **Add to row axis**.
3. Click the arrow next to the dimension and select **Set filter** or **Advanced filter**.
4. Make you selection and click **OK**.

Use a report filter component

Very often the report filter component is placed on its own sheet, but you can place it on any sheet in your report.

1. Right-click the name of the sheet and select **Insert** and **Report filter**.
2. Click the arrow next to the **Report filter** and select **Detail settings**.
3. Select if you want the report filter to scope the current sheet, the entire report, or selected parts. If using selected parts, select which parts in the box below. Click **OK**.
4. Click and drag a dimension you want to use into the **Report filter** area.
5. Click the arrow next to the dimension and select **Choose members**.
6. Select the members you want to display and to use as active filters. Click **OK** to confirm. All selected members shows up in the report filter.
7. Click the name of the dimension. Select whether to use **Single** or **Multiple** mode for member selections. Click **OK**.
8. Click on a member to activate the filter, click again to inactivate it. The filtering starts immediately.

Related topics

- How Performance Manager works
- Create reports in Performance Manager

Work with formulas in Performance Manager

Create custom formulas to use in Performance Manager. The main step is to create a definition that consists of a description, settings, and the calculation itself. It is possible to select in what format to display the results.

Prerequisites

- You have the Performance Manager > Create Performance Manager report permission

Page location

Client > Performance Manager > View reports

Procedures

Create new formula

1. Click **Show/hide object panel** in the Report toolbar.
2. Click **Add formula** at the bottom of the object panel area. The create formula view opens.
3. Select the **Definition** tab.
4. Add a definition:
    1. Set a description.
        - Add a measure name.
        - Select the **Active** check box.
        - Add a display name for the formula.
        - Set the solve order.
        - Select **Treat NULL as zero** if this applies.
    2. Define the calculation.
        - In the formula field, select the first measure to add to your formula in the drop-down list.
        - Select the type of calculation; add, subtract, divide or multiplicate.
        - Select the second measure, member property or constant to use.
        - Continue to add measures and types of calculation until the formula is done.
        - When the formula is done, select **(none)** in the next calculation box.

        NOTE Calculations involving member properties might not return expected results.

3. Set the format.
    - Select the **Format** tab.
    - Select from the various settings. For example, how many decimals the formula should have or if you want a $ or % sign.
4. Select a font.
    - Select the **Font** tab.
    - Select font, size, and colors for the foreground and background.
5. Click **OK**. The formula appears in the report and in the object panel area.

Edit a formula

- In the object panel area, right-click the formula and select **Edit**.

Delete a formula

- In the object panel area, right-click the formula and select **Delete**.

Deactivate a formula

- In the object panel area, clear the check box next to the formula to deactivate (but not delete). The formula is then no longer visible in the report area

Related topics

- How Performance Manager works
- Create reports in Performance Manager

Administrators

Administrators configure and maintain the system and contact center infrastructure.

Configure Webex WFO for QM and Analytics

Application Management is used to configure Webex WFO. You have access only to the Webex WFO applications for which you are licensed and the features your role and permissions allow.

Global

User Configuration

- Manage teams for QM and Analytics (Teams)
- (Users)
- Manage roles and permissions for QM, Analytics, and Insights (Roles)
- Manage views for QM (Views)
- Merge users for QM and Analytics (Merge Users)
- Configure Legacy API Access (Legacy API Access)
- Assign landing pages to users (Landing Page)

Administration

- Configure global settings (Global Settings)
- Restrict access to specific IP addresses (Network Access)
- Configure an authentication method (Authentication)
- Set up IAM authentication (IAM Authentication)
- Configure the password policy (Password Policy)
- Download Smart Desktop and Webex WFO Data Server installers (Downloads)

- Configure KPIs (KPI Configuration)

System Configuration

- Configure an ACD (ACD Configuration)
- Connect to an Active Directory server for QM and Analytics (Active Directory Configuration)
- Configure the Data Server for QM and Analytics (Data Server Configuration)
- Configure storage profiles for QM and Analytics (Storage Profiles)
- Add external storage locations (External Storage)

Performance Management

- Configure gamification points for QM (Points)
- Configure gamification levels for QM (Levels)
- Manage gamification performance categories for QM (Performance Categories)
- Collect QM performance data for gamification (Collect Performance Data)

Monitoring

- Monitor agents in real time (Agent Monitoring)
- Audit user and system changes for QM and Analytics (Audit)
- Download Data Server logs (Data Server Logs)
- Monitor connections to the Webex WFO server (Desktop Monitoring)
- Configure notifications (Notifications)
- Monitor scheduled bulk contact exports (Bulk Contact Export Audit)
- Review Active Directory sync results for QM and Analytics (Active Directory Sync)
- Monitor Data Server status (Data Server Status)

QM

QM Configuration

- Configure QM global settings (Global Settings)
- Manage custom metadata fields (Metadata Manager)
- Configure telephony groups for QM and Analytics (Telephony Groups)
- Manage telephony servers (Telephony Monitoring)
- Associate phones with agents, recording groups, and recording types (Device Associations)
- (Evaluation Form Manager)

QM Contact Flows

- Automate QM workflows (Workflow Administration)
- Manage data retention policies for QM and Analytics (Retention)
- Add post-call surveys to contacts (Post Call Survey)
- Assign reviews, evaluations, and calibrations automatically (classic page) (Contact Queue Administration)
- Assign evaluations, calibrations, and reviews automatically (Contact Queue Administration)
- Manage what contacts are recorded (Inclusion/Exclusion)
- Delete or update multiple contacts at once (Bulk Contact Operations)

Auto QM

Auto QM Configuration

Manage the Auto QM Evaluation Form Manager

Analytics

Analytics

- Create Analytics tasks (Task Manager)
- Create and manage phrases and phrase categories (Business Signal > Phrases)
- Identify websites and apps to be tracked by Analytics (Desktop Manager)
- Identify website fields to be tracked by Analytics (Field Manager)

- Configure Analytics (Analytics Configuration)

Data Management

Data Management

- Configure Data Management agents and tasks (Data Task Management)
- Create and manage tenants in the UDM (Unified Data Mart Administration)
- Create and manage on-demand report jobs (Real-Time [RT] Job Management)
- Create groups to share information (Sharing Groups)

Licensing overview

Webex WFO uses licensing models that grant users access to the Webex WFO product. QM, Analytics, and Data Explorer use a licensing model with subscription billing and uncommitted licenses. For this licensing model, a set number of seats are bought for a "minimum monthly commitment." Uncommitted licenses apply when more seats are used than were purchased; then your organization is billed for those additional seats. View How licenses work for QM, Analytics, and Insights to learn about the licensing model with subscription billing and uncommitted licenses, examples of users with multiple roles, and the connection between licenses, roles, and permissions.

WFM uses a licensing model related to the number of named agents for your organization. Users who are not scheduled within Webex WFO WFM do not count as named agents. For licensing information related to WFM, view How the WFM licensing model works.

How licenses work for QM, Analytics, and Insights

Licenses grant you legal access to use Webex WFO. You use licenses to link the functionality of Webex WFO with its roles and permissions.

Licensing model

Cisco has a licensing model with subscription billing and uncommitted licenses for Webex WFO-hosted deployments.

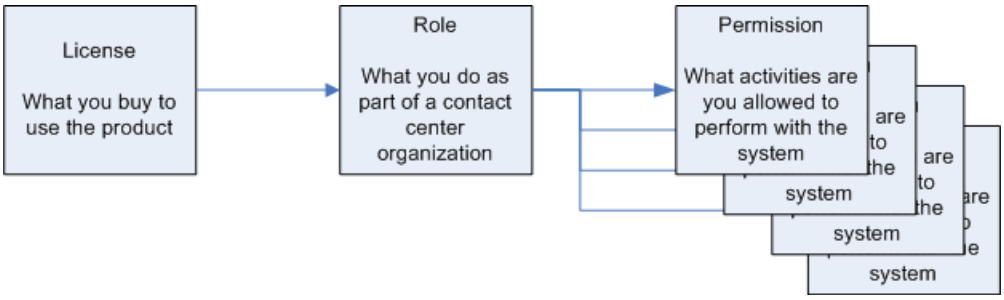
When you purchase a subscription to Webex WFO, you agree to what Cisco calls a "minimum monthly commitment": a minimum number of seats bought at a particular price. If you use more seats than you agree to in your monthly commitment, Cisco bills you for each of them. This is called an "uncommitted license."

Cisco bills you periodically, on a monthly, quarterly, or annual basis.

EXAMPLE You have a minimum monthly commitment of 100 QM seats, which satisfies your requirements from February to October. Your contact center is busier during the holiday season (November through January). During this time, you use 150 QM seats, and for these three months you are billed for 100 seats at the committed license rate and for 50 seats at the uncommitted license rate.

Licensing, roles, and permissions

Licenses are linked to the roles that users have in the system. The access that users have to Webex WFO functionality is based on their role and the permissions associated with their role. For more information about assigning roles and permissions, see Manage roles and permissions for QM, Analytics, and Insights.



Each active Webex WFO user is associated with one or more licenses and can have one or more roles. Each individual license is called a seat. License seats are counted by the number of active users with that licensed role. All customers must have a set number of seats and licenses for each active user.

Active users can be licensed and have access to Webex WFO. Inactive users cannot be licensed or have access to Webex WFO. When you switch an active user to inactive, their license becomes available, and you can reassign it to other users.

The following types of licenses are available:

- Data licenses
- Webex WFO Access licenses
- Administration licenses
- Usage licenses
- Bot Analytics licenses
- Insights licenses

Data licenses

Webex WFO users who have capture functions (primarily contact center agents) are associated with a data license. The default agent role is automatically associated with this license type. Data licenses include the following:

- Compliance Recording (CR)—Users can be audio recorded and can review their own contacts.
- Quality Management (QM)—Users can be recorded and evaluated and can review their own contacts and evaluations (QM Data licenses include CR).
- Analytics Essentials—Users can be analyzed and can review analytics data created by their contacts. Users' audio contacts are transcribed and automatically summarized with Interaction Summary. Users can see agent and customer sentiment and AI reasoning.
- Analytics Enterprise—Includes all Analytics Essentials, and users also have access to Trending Topics. Additionally users have trend analysis, which allows you to track changes in sentiment during an interaction.
    - Processing for Trending Topics is linked to transcription tasks. If you choose to run a transcription task on historical data, then Trending Topics will process that task, regardless of the date. Usage is independent of the date of the data. For example, if you bought 200 interactions, then you can use that for any time period. If you re-run transcription tasks, then the re-run process only regards the missing transcripts. This means, if you re-run a transcription task, then Trending Topics only regard the missing transcripts.
- Desktop Analytics—Users can monitor agents' desktop activity and application usage. This license is available as an add-on to Cisco Compliance Recording (CR), Quality Management (QM), or Workforce Management (WFM).
- Monitoring—Users can view agents' screens live. This license is available as an add-on to Cisco Compliance Recording (CR) or Workforce Management (WFM).
- Data Management—This license is no longer sold.

NOTE Users with data licenses have limited access to Webex WFO functionality. They are restricted to reviewing their own data.

Webex WFO access licenses

The Webex WFO access license provides a majority of permissions that allow these roles to have access to the full application.

BEST PRACTICE Webex WFO access licenses provide full access to the business-facing components of the application. Access licenses are intended for users who have elevated business functions, such as team leaders and administrators. Access licenses allow users to discern key takeaways from interactions, schedules, and analytics data captured by Webex WFO.

Bot Analytics license

With a Bot Analytics license, users can monitor and improve the performance and quality of their conversational AI products.

Insights licenses

Insights is Cisco's premier business intelligence product. Insights licenses give users access to Insights. Anyone who needs to create or view Insights content must have an Insights license. A single role needs only one of the two Insights licenses listed below, but each license must be assigned to at least one role.

- Insights Reader—Users can view Insights dashboards that are created and shared with them by someone with an Insights Author license.
- Insights Author—Users can create and share Insights analyses and dashboards.

License Type	Granted	Additional Licenses
Insights Reader	100% free Reader licenses*	Contact your Cisco Account Manager
Insights Author	One free Author license for every 300 users**	Contact your Cisco Account Manager

*For every user license purchased for Compliance Recording (CR), Quality Management (QM), Workforce Management (WFM), Analytics, or the Webex WFO Bundle, you will receive an equal number of 100% free Reader licenses. The total number of free Reader licenses will match the maximum number of user licenses you've committed to for these services.

**You will receive one free Author license for every 300 user licenses purchased for Compliance Recording (CR), Quality Management (QM), Workforce Management (WFM), Analytics, or the Webex WFO Bundle. One Author license is always included and, then one more is added for every 300 additional committed licenses. The total number of Author licenses you receive will correspond to the number of committed user licenses purchased.

EXAMPLE If you have 1,000 WFM committed licenses and 500 QM committed licenses, you will receive 1,000 free Reader licenses and four free Author licenses. This is because the free Reader licenses match the total number of committed user licenses, and you get one free Author license for every 300 committed licenses.

Overages

If a customer exceeds the maximum number of committed user licenses for Compliance Recording (CR), Quality Management (QM), Workforce Management (WFM), Analytics, or the Webex WFO Bundle and hasn't purchased additional Insights licenses, they will be charged in arrears for those additional Insights licenses.

IMPORTANT Insights license usage begins when you assign a role with Insights permissions to a user account. To avoid unexpected charges, regularly monitor your license usage and ensure you have the correct number of Insights licenses. If you need additional licenses, contact your Account Manager.

Multiple-role user example

A user has an evaluator role associated with a Webex WFO access license and an agent role associated with a Quality Management license to capture their own contacts. The evaluator role has some agent functionality and some supervisor functionality. This user is using two licenses: one for Quality Management and one for Webex WFO access. In this case, the number of seats available for the Quality Management license and the number of seats for the Webex WFO access license both decrease by one. If this user only requires voice recording, a Call Recording license could be used instead of a Quality Management license.

Features available with QM and Analytics licenses

The table below lists the features that are available with different licenses.

Feature	Webex WFO Essentials**	Webex WFO Enterprise**	Compliance Recording (CR)	Quality Management (QM)	Analytics Essentials	Analytics Enterprise	Analytics Enterprise Plus	Bot Analytics	Desktop Analytics	Monitoring
Record audio or import audio from an	X	X	X	X						

Feature	Webex WFO Essentials**	Webex WFO Enterprise**	Compliance Recording (CR)	Quality Management (QM)	Analytics Essentials	Analytics Enterprise	Analytics Enterprise Plus	Bot Analytics	Desktop Analytics	Monitoring
ACD										
Import interactions from digital channels	X	X	X	X	X	X	X			
Screen recording	X	X		X						
Evaluations	X	X		X						
Reporting in Insights	X	X	X	X	X	X	X		X	
Live screen monitoring	X	X		X						X
Desktop monitoring	X	X	X	X					X	X
Contact Queue	X	X		X						
Automa	X	X		X						

Feature	Webex WFO Essentials**	Webex WFO Enterprise**	Compliance Recording (CR)	Quality Management (QM)	Analytics Essentials	Analytics Enterprise	Analytics Enterprise Plus	Bot Analytics	Desktop Analytics	Monitoring
ted pause and resume of recording										
Create and edit custom metadata associated with contacts	X	X		X						
Create and edit evaluation forms	X	X		X						
View standard evaluations	X	X		X						
Create and view post-call	X	X		X						

Feature	Webex WFO Essentials**	Webex WFO Enterprise**	Compliance Recording (CR)	Quality Management (QM)	Analytics Essentials	Analytics Enterprise	Analytics Enterprise Plus	Bot Analytics	Desktop Analytics	Monitoring
surveys										
Export contacts	X	X	X	X						
QM views	X	X	X	X						
QM workflows	X	X	X	X						
Contact tagging	X	X	X	X						
Agent Explorer	X	X			X	X	X		X	
Transcription	X	X			X	X	X			
Transcription redaction		X				X	X			
Sentiment analysis - Agent and Customer	X	X			X	X	X			

Feature	Webex WFO Essentials**	Webex WFO Enterprise**	Compliance Recording (CR)	Quality Management (QM)	Analytics Essentials	Analytics Enterprise	Analytics Enterprise Plus	Bot Analytics	Desktop Analytics	Monitoring
Sentiment analysis - Trend analysis*		X				X	X			
Interaction Summary	X	X			X	X	X			
Desktop activity tracking and analytics	X	X			X	X	X		X	
Application usage	X	X			X	X	X		X	
Desktop manager	X	X			X	X	X		X	
Bot Analytics							X	X		
Trending Topics		X				X	X			

Feature	Webex WFO Essentials**	Webex WFO Enterprise**	Compliance Recording (CR)	Quality Management (QM)	Analytics Essentials	Analytics Enterprise	Analytics Enterprise Plus	Bot Analytics	Desktop Analytics	Monitoring
AI Tags							X			

- *Trend analysis allows you to track changes in sentiment during an interaction.
- ** Webex WFO Essentials and Webex WFO Enterprise are bundles. Webex WFO Essentials bundles QM, WFM, WFM with Real-time Data Analytics, and Analytics Essentials. Webex WFO Enterprise bundles QM, WFM, WFM with Real-time Data Analytics, Vacation Planner Pro, and Analytics Enterprise.

Related topics

- Manage roles and permissions for QM, Analytics, and Insights—Create roles and set permissions for access to Webex WFO
- How the WFM licensing model works—Licensing information for New WFM

How the WFM licensing model works

The Cisco WFM license covers a defined number of named agents. A product activation key is applied to your system to activate the WFM functionality that you have access to. The product activation key also specifies the number of named agents it covers and the expiration date.

Calculation of named agents

The license for Cisco WFM is based on named agents. Named agents are persons for which the following statements are true.

- They are registered in the People tool.
- They are scheduled on at least one shift within the default scenario.
- They have not left their employment, that is they have no **Leaving date** or it is in the future.

Go to **About** in the WFM client to view a list of all named agents. See Manage product activation keys for WFM for more information.

If you need to simulate having more agents than what is covered by the product activation key, schedule them in another scenario than the default scenario.

Exceeding the number of named agents

The Cisco WFM application issues a warning if the number of named agents is exceeded. The system stops working when the number of active agents exceeds the limit defined in the product activation key. The limit might include a grace percentage.

Product activation key expiration date

The Cisco WFM application issues a warning 15 days before a product activation key expires. If the product activation key expires, the product stops working.

Related topics

- Manage product activation keys for WFM
- How licenses work for QM, Analytics, and Insights—Licensing information for the rest of the Webex WFO suite

Manage roles and permissions for QM, Analytics, and Insights

A role is a collection of permissions.

A permission controls the pages and actions that are available to a user who has been assigned a role. For example, if a user is assigned the supervisor role and the supervisor role includes the Create Contact permission, then that user can create contacts. Users can be assigned one or multiple roles and, as a result, can access all the features associated with those roles and permissions.

Webex WFO includes three default roles: administrator, agent, and supervisor. You cannot delete default roles, but you can rename them and change the optional permissions associated with them.

NOTE Some permissions are required for the default roles. These cannot be changed.

Prerequisite

- You have the Administer Roles permission

Page location

Application Management > Global > User Configuration > Roles

Webex WFO licensing

A license defines which roles are entitled to use specific Webex WFO functionality. For example, if the Access license is assigned to the supervisor role, then supervisors can monitor and evaluate agents.

NOTE All roles must be associated with one or more license types.

A specific number of seats or user licenses are available for each product, role, and license type. Each active Webex WFO user is associated with one or more licenses, and each active user can have one or more roles. License seats are counted by the number of active users specified with that licensed role.

NOTE Beginning with Webex WFO Version 10.0, all customers must have a set number of seats and licenses for each active user.

The following types of licenses are available, based on the user's role:

- Data license
- Access license
- Administration license
- Usage license
- Bot Analytics license
- Insights licenses

See How licenses work for QM, Analytics, and Insights for more information on licensing.

Procedures

Create a new role

1. Click **Create New Role**.
2. Enter the name of the role.
3. Click **Save**.

New roles that you create are added to the list of roles.

Change the name of a role

1. Select a role from the **Roles** table, and then click **Edit** (the pencil icon).
2. Enter the new name of the role.
3. Click **Save**.

Delete a role

- Select a role from the Roles table, and then click **Delete** (the X icon).

  NOTE Default roles cannot be deleted.

Associate a role to a license type

- In the Licenses table, select or clear the check box for each license type under the column for a specific role that you want to associate to that license type.

  NOTE The **Used** and **Available** fields indicate the number of seats you have used and the total number of seats to which you are entitled.

  NOTE If your organization has the Interaction Summary license, **Interaction Summary** appears in this table. You do not need to assign this license to any roles to use Interaction Summary.

BEST PRACTICE Whenever you add or remove a license from a role, verify that all the permissions assigned to that role are correct.

Edit a role's permissions

- In the Permissions table, select (assign) or clear (unassign) the check box for each permission under the column for a specific role.

If you select a permission that requires other permissions, the required permissions are automatically selected.

Permissions

The permissions table lets you assign specific permissions to default and custom roles.

The Permissions table separates permissions by category. The headings below correspond to the permissions table categories.

Application Management

Permission	Details	
Administer QM	Description	Allows you to manage QM applications. When combined with the Edit QM Views permission, allows you to assign QM views to users on the Users page and to import users who are assigned QM views.

Permission	Details	
	Page Access	Application Management > User Configuration > Views Application Management > QM Configuration > Global Settings Application Management > QM Contact Flows > Retention
	Licenses	Webex WFO Access
	Related Permissions and Notes	To access the Users page, you also need the Administer Org. Structure permission. To work with the Views page, you also need the Edit QM Views permission.
Agent Monitoring	Description	Allows you to monitor an active agent's screen and/or audio, as well as collect agent logs.
	Page Access	Application Management > Monitoring > Agent Monitoring
	Licenses	Webex WFO Access, Monitoring
	Related Permissions and Notes	To monitor agents in real time, you also need the Live Audio Monitoring permission (for audio monitoring) and/or the Live Screen Monitoring permission (for screen monitoring).
Agent Monitoring Report	Description	Allows you to use the Agent Monitoring Report button on the Agent Monitoring page to export a report on monitoring sessions.
	Page Access	—
	Licenses	Webex WFO Access, QM, Monitoring
	Related Permissions and Notes	You must also have the Agent Monitoring permission.
Administer Roles	Description	Allows you to create roles and modify permissions associated with those roles.

Permission	Details	
	Page Access	Application Management > User Configuration > Roles
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
Administer Tenant	Description	Allows you to perform administrative tasks for the tenant.
	Page Access	Application Management > User Configuration > Merge Users Application Management > Administration > Global Settings Application Management > Administration > Downloads Application Management > Administration > Key Performance Indicators (KPIs) Application Management > System Configuration > Data Server Configuration Application Management > System Configuration > External Storage Application Management > Analytics > Analytics Configuration Application Management > Administration > IAM Authentication
	Licenses	—
	Related Permissions and Notes	To access the Analytics Configuration page, you also need the Administer Analytics permission.
Administer Org. Structure	Description	Allows you to manage the groups, teams, and users that are within your scope.

Permission	Details	
	Page Access	Application Management > User Configuration > Groups Application Management > User Configuration > Teams Application Management > User Configuration > Users Application Management > User Configuration > Merge Users
	Licenses	Webex WFO Access
	Related Permissions and Notes	You must have several additional permissions to take the following actions on the Users page: ■ To assign roles, you must have the Assign User Roles permission. If you do not have the Assign User Roles permission and you create a new user, Webex WFO automatically gives the new user the default agent role. Only users with the Assign User Roles permission can change this assignment. ■ To assign WFM views on the Users page, you must have the Edit WFM Views permission ■ To import users, you must also have the Assign User Roles permission. ■ To assign roles to multiple users, you must have the Assign User Roles permission
Receive Business Notifications	Description	Allows you to subscribe to business notifications. These notifications relate to daily operations within a contact center.
	Page Access	(Business notifications only) Application Management > Monitoring > Notifications
	Licenses	Compliance Recording, Quality Management, Workforce Management, Analytics, Desktop Analytics, Monitoring, Webex WFO Access
	Related	See Configure notifications for a complete list of business

Permission	Details	
	Permission and Notes	notifications.
Receive Support Notifications	Description	Allows you to configure how support notifications are sent for troubleshooting purposes.
	Page Access	(Support notifications only) Application Management > Monitoring > Notifications
	Licenses	Administrative License: System Administrator
	Related Permissions and Notes	—
View API Documentation	Description	Allows you to view the API documentation.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
Administer ACD Configuration	Description	Allows you to set up a connection between Webex WFO and the ACD.
	Page Access	Application Management > System Configuration > ACD Configuration
	Licenses	—
	Related Permissions and Notes	—

Permission	Details	
Administer Distribution List	Description	Allows you to manage distribution lists.
	Page Access	—
	Licenses	Administrative License: System Administrator
	Related Permissions and Notes	—
View Audit Information	Description	Allows you to view the Server Status and Notifications.
	Page Access	—
	Licenses	—
	Related Permissions and Notes	—
Bulk Import	Description	Allows you to import data using the various import APIs.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	See the *Webex WFO API Reference Guide* for more details.
Administer Password Policy	Description	Allows you to manage password policy settings and to unlock user accounts.
	Page Access	Application Management > Administration > Password Policy
	Licenses	—

Permission	Details	
	Related Permissions and Notes	—
View Desktop Monitoring	Description	Allows you to view the Desktop Monitoring page.
	Page Access	Application Management > Monitoring > Desktop Monitoring
	Licenses	Monitoring, Desktop Analytics, Analytics
	Related Permissions and Notes	—
Administer Encryption Keys	Description	Allows you generate new storage file encryption keys.
	Page Access	Application Management > Administration > Global Settings
	Licenses	—
	Related Permissions and Notes	—
Administer Active Directory Authentication	Description	Allows you to create and edit Active Directory connections.
	Page Access	Application Management > Active Directory Configuration
	Licenses	
	Related Permissions and Notes	—

Permission	Details	
Administer Gamification	Description	Allows you to manage gamification for agents.
	Page Access	Application Management > Performance Management
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
View Gamification	Description	Allows you to view gamification.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
Mobile Device Access	Description	Allows you to enable access to a limited mobile version of the Webex WFO website.
	Page Access	—
	Licenses	Call Recording, Quality Management, Workforce Management, Desktop Analytics, Analytics, Webex WFO Access
	Related Permissions and Notes	—

Permission	Details	
View/Update Hoteling Users	Description	Allows you to view, edit, and create hoteling users
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
View Evaluator Details	Description	Allows you to view the following details about a contact's evaluator: ■ Evaluator first name ■ Evaluator last name ■ Evaluation date ■ Evaluation approved by
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	—
Assign User Roles	Description	Allows you to assign homepages to user roles on the Landing Page Management page. Allows you to assign roles to users on the Users page in any of the following ways: ■ Editing an existing user ■ Creating a new user ■ Assigning roles to multiple users ■ Importing users

Permission	Details	
		NOTE If the import file contains any values in the QM Views column, you must have at least one of the following permission sets: ■ Administer QM *and* Edit QM Views ■ Administer Org. Structure
	Page Access	Application Management > User Configuration > Landing Page
	Licenses	—
	Related Permissions and Notes	To access the Users page, you must have the Administer Org. Structure permission
Edit QM Views	Description	Allows you to create and edit QM views on the Views page. When combined with the Administer QM permission, allows you to assign views to users on the Users page and import users who are assigned QM views.
	Page Access	Application Management > User Configuration > Views
	Licenses	—
	Related Permissions and Notes	To see the Views page, you must also have the Administer QM permission. To import users, you must have the Assign User Roles permission.

Dashboard

Permission	Details	
View QM Dashboard	Description	Allows you to view the QM widgets in the Data Explorer dashboards.

Permission	Details	
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	To view some QM widgets, you also need the View Evaluation Scores and View Contact Goal permissions.
Administer Dashboards	Description	Allows you to configure the Analytics and QM dashboards.
	Page Access	—
	Licenses	—
	Related Permissions and Notes	You must also have the View QM Dashboard permission.

Recordings Admin

Permission	Details	
View Recycle Bin	Description	Allows you to search the recycle bin contents from the Interactions page and restore contacts so that the recordings can be played.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—

Permission	Details	
Delete Contact	Description	Allows you to delete contacts.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	You must also have the View Recycle Bin permission.
Administer Workflow	Description	Allows you to access and configure workflows for QM
	Page Access	Application Management > QM Configuration > Workflow Administration
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
Administer Metadata Fields	Description	Allows you to access and configure metadata.
	Page Access	Application Management > QM Configuration > Metadata Manager
	Licenses	Webex WFO Access
	Related Permissions and Notes	—

Permission	Details	
Administer Evaluation Forms	Description	Allows you to configure evaluation forms.
	Page Access	Application Management > QM Configuration > Evaluation Form Manager
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
Administer Recording Sites	Description	Allows you to select a recording site for a team, if the user has multiple sites.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
Administer Contact Goals	Description	Allows you to view contact goals on the Contact Queue Administration page.
	Page Access	Application Management > QM Contact Flows > Contact Queue Administration
	Licenses	Webex WFO Access
	Related Permissions and Notes	To create or edit contact goals, you also need the Create Contact Goal permissions.
Configure Telephony Groups	Description	Allows you to configure telephony groups, signaling groups, and recording groups.

Permission	Details	
	Page Access	Application Management > QM Configuration > Telephony Groups
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
Configure Device Associations	Description	Allows you to configure devices in your call center.
	Page Access	Application Management > QM Configuration > Device Associations
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
AdminReconTasks	This permission is not currently used.	

Desktop Client

Permission	Details	
Capture Desktop Analytics	Description	Allows agents' desktop activity to be automatically captured.
	Page Access	—
	Licenses	Compliance Recording, Quality Management, Desktop Analytics, Analytics Essential, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	Agents must also have the Capture Desktop Events permission.

Permission	Details	
Record Screen	Description	Automatically records screen activity on the user's desktop.
	Page Access	—
	Licenses	Data Licenses: Quality Management Analytics Essential, Analytics Enterprise
	Related Permissions and Notes	The agent must also have the Capture Contacts permission. To enable screen recording on a user's desktop, Smart Desktop must be installed, and you must also enable one of the following permissions: ■ Record Voice—Required when you want to automatically record both voice and screen during a call ■ Recording Start Stop Screen—Required when you want the user to control when screen recording starts and stops using Recording Controls
Record Voice	Description	Automatically records audio. This permission is needed for all voice recording architectures, not just those that use Smart Desktop. Without this permission, users' audio will not be recorded.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording, Quality Management
	Related Permissions and Notes	The agent must also have the Capture Contacts permission. With architectures using Smart Desktop, Smart Desktop must also be installed on the user's desktop for recording to occur.
Live Screen Monitoring	Description	Allows you to live monitor a user's screen. Allows agents' screens to be monitored via the Agent Monitoring page. Both the agent and the monitor must have this permission for live screen monitoring to work.

Permission	Details	
	Page Access	—
	Licenses	Data Licenses: Quality Management, Monitoring Webex WFO Access
	Related Permissions and Notes	Monitors also need the Agent Monitoring permission.
Live Audio Monitoring	Description	Allows you to live audio monitor a user's calls. Allows agents' audio to be monitored via the Agent Monitoring page. Both the agent and the monitor must have this permission for live audio monitoring to work.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	Monitors also need the Agent Monitoring permission.
Record On Demand (RTP Signaling)	Description	Enables the Record On Demand recording mode in Smart Desktop. This mode enables the agent to record only the segments of calls that are explicitly specified when using Recording Controls.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management Webex WFO Access
	Related Permissions	—

Permission	Details	
	and Notes	
Capture Desktop Events	Description	Allows desktop events on agents' desktops to be automatically captured.
	Page Access	—
	Licenses	Compliance Recording, Quality Management, Desktop Analytics, Analytics Essential, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	Agents must also have the Capture Desktop Analytics permission.
Desktop Real Time Adherence	Description	Allows agents' desktop activity to be captured and sent to WFM in real time to be monitored for adherence. See Monitor agent adherence.
	Page Access	—
	Licenses	Desktop Analytics, Analytics Essential, Analytics Enterprise, Webex WFO Access, WFM
	Related Permissions and Notes	Additional configuration is needed to enable WFM real-time desktop analytics. Contact your Cisco account manager for further information.

Recording Contacts

Permission	Details	
View Contacts	Description	Allows you to search all recording contacts within your scope from the Interactions page.
	Page Access	Interactions
	Licenses	Data Licenses: Compliance Recording, Quality Management, and Analytics Webex WFO Access
	Related	—

Permission	Details	
	Permissions and Notes	
View Scored Contacts	Description	Allows you to only search contacts that have been scored (evaluated) from the Interactions page.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	—
Export Recordings	Description	Allows you to export recordings from the Interactions page.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts permission.
View Custom Metadata	Description	Allows you to view custom metadata in the Interactions page, the Media Player, and on the Contact Queue page.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management Webex WFO Access

Permission	Details	
	Related Permissions and Notes	To access the Interactions page and the Media Player, you must also have the View Contacts permission. To access the Contact Queue page, you must also have the View Contact Goal permission.
Edit Custom Metadata	Description	Allows you to edit custom metadata in the Interactions page and the Media Player.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts and View Custom Metadata permissions.
Tag Contact	Description	Allows you to tag a contact using the Recording Controls.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management Webex WFO Access
	Related Permissions and Notes	To tag a contact with the Recording Controls, Smart Desktop must be installed.
Create Contact	Description	Allows you to create a non-call contact on the Interactions page.
	Page Access	—

Permission	Details	
	Licenses	Data Licenses: Compliance Recording and Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts permission.
View Analytics Data for Contacts	Description	Allows you to see the Analytics Net Promoter Scores (NPS) and Eval Predictive Scores (EPS) data for contacts within your scope on the Interactions page.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
View Root Recordings	Description	Allows you to view root recordings.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management Webex WFO Access
	Related Permissions and Notes	—

Permission	Details	
Untag Contact	Description	Allows you to untag a tagged contact.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management Webex WFO Access
	Related Permissions and Notes	—
Mark For Training	Description	Allows you to mark a contact for review in training.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management Webex WFO Access
	Related Permissions and Notes	By default, all users can mark a contact for training. If you do not require all users to mark contacts for training, clear this check box. You must also have the View Contacts, and Tag Contacts or Untag Contacts permissions.
View All Training Contacts	Description	Allows you to view all contacts marked for training across the tenant.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts permission.

Permission	Details	
Bulk Contact Export	Description	Allows you to export audio files, contact details, and metadata from the Interactions page on a scheduled or ad-hoc basis. You can only view and interact with your own bulk contact exports.
	Page Access	—
	Licenses	Data Licenses: Call Recording, Quality Management Webex WFO Access
	Related Permissions and Notes	Disabled by default. Paired together, the Bulk Contact Export and View Bulk Contact Export permissions allow you to create your own bulk contact exports and view all bulk contact exports for your organization.
View UnReconciled Root Recordings	Description	Allows you to see all root recordings unconditionally.
	Page Access	—
	Licenses	Data Licenses: Call Recording, Quality Management Webex WFO Access
	Related Permissions and Notes	Disabled by default. You must also have the View Root Recordings permission.
View Bulk Contact Export	Description	Allows you to view the bulk contact exports of everyone in your organization. You cannot create bulk contact exports with this permission.
	Page Access	—
	Licenses	Data Licenses: Call Recording, Quality Management

Permission	Details	
		Webex WFO Access
	Related Permissions and Notes	Disabled by default. Paired together, the Bulk Contact Export and View Bulk Contact Export permissions allow you to create your own bulk contact exports and view all bulk contact exports for your organization.
Bulk Delete	Description	Allows you to delete contacts in bulk.
	Page Access	Application Management > QM Contact Flows > Bulk Contact Operations
	Licenses	Data Licenses: Call Recording, Quality Management
	Related Permissions and Notes	To use all the features on the Bulk Contact Operations page, combine this permission with the Bulk Update Retention and Bulk Update Metadata permissions.
Capture Contacts	Description	Allows agents' contacts of any type to be imported into Webex WFO. This permission is required for any kind of contact capture or recording.
	Page Access	—
	Licenses	Data Licenses: Call Recording, Quality Management
	Related Permissions and Notes	This permission is a prerequisite for the Record Voice and Record Screen permissions.
View All HR Contacts	Description	Allows you to view all contacts marked for HR across the tenant.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related	You must also have the View Contacts permission.

Permission	Details	
	Permissions and Notes	
Mark For HR	Description	Allows you to mark a contact for review in HR.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access **NOTE** Requires at least one of these licenses.
	Related Permissions and Notes	Enables administrators to define which roles have the ability to mark a contact for review in HR. If you do not require all users to mark contacts for HR, clear the Mark for HR check box. You must also have the View Contact permission.
ViewNotProcessedReason	Description	This permission is not currently used.
Include Self Scope in QM Views	Description	If your access to Webex WFO is governed by QM Views, this permission lets you see and play your own contacts, plus any contacts that meet the QM View criteria. See Manage views for QM.
	Page Access	—
	Licenses	Data Licenses: Call Recording, Quality Management
	Related Permissions and Notes	You must also have the View Contacts permission. By default, this permission is not assigned to any roles.
Bulk Update Retention	Description	Allows you to update the retention policy for multiple contacts at once.

Permission	Details	
	Page Access	Application Management > QM Contact Flows > Bulk Contact Operations
	Licenses	Data Licenses: Call Recording, Quality Management
	Related Permissions and Notes	To use all the features on the Bulk Contact Operations page, combine this permission with the Bulk Delete and Bulk Update Metadata permissions.
Bulk Update Metadata	Description	Allows you to update the custom metadata that is associated with multiple contacts at once.
	Page Access	Application Management > QM Contact Flows > Bulk Contact Operations
	Licenses	Data Licenses: Call Recording, Quality Management
	Related Permissions and Notes	To use all the features on the Bulk Contact Operations page, combine this permission with the Bulk Delete and Bulk Update Retention permissions.

Recording Contact Evaluations

Permission	Details	
Create Evaluation Comment	Description	Allows you to create comments in the Evaluation Form window in the Media Player.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts and View Evaluations permissions.
Approve Contact	Description	Allows you to approve the evaluation for a contact from the

Permission	Details	
Evaluation		Media Player.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts and View Evaluations permissions.
Evaluate Contact	Description	Allows you to evaluate a contact in the Media Player and to view the Evaluation panel for unscored contacts.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts and View Evaluations permissions.
Edit Evaluation Comment	Description	Allows you to edit comments in an Evaluation Form window in the Media Player.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts, Create Evaluation Comment, and View Evaluations permissions.

Permission	Details	
View Evaluations	Description	Allows you to view contact evaluations in the Media Player.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts permission
Self-Evaluate Contact	Description	Allows you to evaluate your own contacts.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts and Evaluate Contact permissions.
Self-Approve Contact Evaluation	Description	Allows you to approve your own contact evaluation.
	Page Access	—
	Licenses	Data Licenses: Quality Management
	Related Permissions and Notes	You must also have the View Contacts and View Evaluations permissions.
Edit Any Evaluation	Description	Allows you to edit an evaluation you have completed and to see the following details about a contact's evaluator: ■ Evaluator name ■ Evaluation approved by

Permission	Details	
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	—

Recording Contact Calibrations

Permission	Details	
Calibrate Contact	Description	Allows you to mark a contact for calibration on the Interactions page and to perform a calibration evaluation.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts permission.
Self-Calibrate Contact	Description	Allows you to calibrate your own contacts.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	You must also have the View Contacts and Calibrate Contact permissions

Contact Goals

Permission	Details	
Create Evaluation Goal	Description	Allows you to create and assign evaluation tasks (ad-hoc) and contact goals.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	To create contact goals, you also need the Administer Contact Goals permission.
Create Calibration Goal	Description	Allows you to create and assign calibration tasks (ad hoc) and contact goals.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	To create contact goals, you also need the Administer Contact Goals permission.
Create Review Goal	Description	Allows you to create and assign review tasks (ad-hoc) and contact goals.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	To create contact goals, you also need the Administer Contact Goals permission.

Permission	Details	
View Contact Goal	Description	Allows you to access the Contact Queue and view the Contact Goal Progress widget.
	Page Access	Contact Queue Dashboard > Contact Goal Progress widget
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related Permissions and Notes	—

Survey

Permission	Details	
Administer QM Surveys	Description	Allows you to configure external post-call survey providers.
	Page Access	Application Management > QM Contact Flows > Post Call Survey
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
View Survey Results	Description	Allows you to view customer survey result data in the media player, contact table, and reports.
	Page Access	—
	Licenses	Data Licenses: Quality Management Webex WFO Access
	Related	You must also have the View Contacts permission.

Permission	Details	
	Permissions and Notes	

Analytics

Permission	Details	
View System Analytics	Description	Allows you to create and manage data sets on Analytics dashboards.
	Page Access	Analytics Dashboard
	Licenses	Desktop Analytics, Analytics Essentials, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	—
Administer Desktop Analytics	Description	Allows you to create, view, edit, and delete Desktop Analytics tasks on the Analytics Task Manager page.
	Page Access	Application Management > Analytics > Task Manager Application Management > Analytics > Desktop Manager Application Management > Analytics > Field Manager Application Management > Analytics > Analytics Configuration
	Licenses	Desktop Analytics, Analytics Essentials, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	—

Permission	Details	
Administer Speech Analytics	Description	Allows you to view and delete Phonetics Analytics tasks on the Analytics Task Manager page. **NOTE** Because Phonetics Analytics has been retired, you cannot create or edit Phonetics Analytics tasks even if you have this permission.
	Page Access	Application Management > Analytics > Task Manager Application Management > Analytics > Analytics Configuration
	Licenses	Analytics, Webex WFO Access
	Related Permissions and Notes	—
Administer Speech to Text Analytics	Description	Allows you to create, view, edit, and delete Speech-to-Text (Transcription) tasks on the Analytics Task Manager page.
	Page Access	Application Management > Analytics > Task Manager Application Management > Analytics > Analytics Configuration
	Licenses	Analytics Essentials, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	—
Administer Text Analytics	Description	Allows you to create, view, edit, and delete Text Analytics tasks on the Analytics Task Manager page.
	Page Access	Application Management > Analytics > Task Manager Application Management > Analytics > Analytics Configuration
	Licenses	Analytics Essentials, Analytics Enterprise, Webex WFO Access

Permission	Details	
	Related Permissions and Notes	—
View Desktop Analytics	Description	Allows you to view the Desktop Analytics features.
	Page Access	Agent Explorer Analytics Dashboard
	Licenses	Desktop Analytics, Analytics Essentials, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	—
View Speech Analytics	Description	Allows you to view the Speech Analytics features.
	Page Access	Analytics Dashboard
	Licenses	Analytics Essentials, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	—
View Speech to Text Analytics	Description	Allows you to view the AI Transcription panel in the Media Player and to search for words in transcribed audio.
	Page Access	Analytics Dashboard
	Licenses	Analytics Essentials, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	—

Permission	Details	
View Text Analytics	Description	Allows you to view the Text Analytics features.
	Page Access	Analytics Dashboard
	Licenses	Analytics Essentials, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	—
View Analytics	Description	Allows you to view all aspects of the Analytics features.
	Page Access	Analytics Dashboard
	Licenses	Analytics Essentials, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	—
Administer Analytics	Description	Allows you to access some Analytics APIs. When combined with the Administer Tenant permission, allows you to configure Analytics.
	Page Access	Application Management > Analytics > Analytics Configuration
	Licenses	Analytics Essentials, Analytics Enterprise, Webex WFO Access
	Related Permissions and Notes	To access the Analytics Configuration page, you also need the Administer Tenant permission.
Administer Predictive Analytics	Description	Allows you to create, view, edit, and delete Predictive Evaluation Score (PES) and Predictive Net Promoter Score (PNPS) tasks on the Analytics Task Manager page.

Permission	Details	
	Page Access	Application Management > Analytics > Task Manager
	Licenses	Analytics Essentials, Analytics Enterprise,Webex WFO Access
	Related Permissions and Notes	—
Administer Analytics Phrases	Description	Allows you to create and edit phrases and phrase categories on the Business Signal > Phrases page.
	Page Access	Application Management > Analytics > Business Signal > Phrases
	Licenses	Analytics Essentials, Analytics Enterprise, Analytics Enterprise Plus, Webex WFO Access
	Related Permissions and Notes	—

Reporting

Permission	Details	
View QM Reports	Description	Allows you to view QM reports.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management Webex WFO Access
	Related Permissions and Notes	—

Permission	Details	
Administer QM Reports	Description	Allows you to administer QM reports.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
View QM Evaluation Reports	Description	Allows you to view QM evaluation reports.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
View QM System Reports	Description	Allows you to view QM system reports.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—

Permission	Details	
View QM Survey Reports	Description	Allows you to view QM survey reports.
	Page Access	—
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
Advanced Reporting API	Description	Allows you to access the API needed for Data Explorer.
	Page Access	—
	Licenses	—
	Related Permissions and Notes	—
Home Page	Description	Gives you to read-only access to your home page dashboard and its contents.
	Page Access	Home Page
	Licenses	Data Licenses: Quality Management and Workforce Management Webex WFO Access
	Related Permissions and Notes	This permission is backward compatible to the legacy permissions it replaces: View QM Dashboard, View WFM Dashboard, and Administer Dashboards.
Data Explorer	Description	Gives you read-only access to the Data Explorer asset browser page.

Permission	Details	
	Page Access	Data Explorer
	Licenses	Webex WFO Access
	Related Permissions and Notes	—
Content Creation	Description	Enables you to create, update, and delete Data Explorer reports and dashboards.
	Page Access	Data Explorer > Reports
	Licenses	Webex WFO Access
	Related Permissions and Notes	Data Explorer
Content Publishing	Description	Enables you to share reports and dashboards that you own to sharing groups you belong to.
	Page Access	Application Management > Data Management > Sharing Groups
	Licenses	Webex WFO Access
	Related Permissions and Notes	Content Creation

Recording Controls

Permission	Details	
Send Pause	Description	Pauses and resumes the user’s call recordings. This permission is

Permission	Details	
/ Resume Command		needed for any pause-and-resume architecture for recordings, both automated and manual (via the Recording Controls page).
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	—
Send Login / Logout Command	Description	Associates and un-associates the user with a device extension for network recording. This permission is useful for situations like hot-desking where an agent might not use the same phone every day.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	—
Send Metadata Command	Description	Adds metadata to a user's call recording. This permission is needed for any recording architecture that adds metadata to calls, both automated and manual (via the Recording Controls page).
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	—
Send Tag Command	Description	Tags a user's call recordings. This permission is needed for any recording architecture that tags calls, both automated and manual

Permission	Details	
		(via the Recording Controls page).
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	—
Send Segment and Delete / Save Command	Description	Starts and stops recording call segments (and saves and deletes call segments). This permission is needed for any recording architecture that uses these actions, both automated and manual (via the Recording Controls page).
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	—
Send Start Screen / Stop Screen Command	Description	Starts and stops a screen-only recording. This permission is needed for any recording architecture that uses these actions, both automated and manual (via the Recording Controls page).
	Page Access	—
	Licenses	Data Licenses: Quality Management
	Related Permissions and Notes	—
Pause /	Description	Allows you to use the Pause and Resume buttons on the Recording Controls page.

Permission	Details	
Resume Buttons	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	You must also have the Send Pause / Resume Command permission.
Login / Logout Buttons	Description	Allows you to use the Log In and Log Out buttons on the Recording Controls page.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	You must also have the Send Login / Logout Command permission.
Add Metadata Button	Description	Allows you to use the Add Metadata button on the Recording Controls page.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	You must also have the Send Metadata Command permission.

Permission	Details	
Tag Button	Description	Allows you to use the Tag button on the Recording Controls page.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	You must also have the Send Tag Command permission.
Segment and Delete / Save Buttons	Description	Allows you to use the “Segment and Delete” and “Segment and Save” buttons on the Recording Controls page.
	Page Access	—
	Licenses	Data Licenses: Compliance Recording and Quality Management
	Related Permissions and Notes	You must also have the Send Segment and Delete / Save Command permission.
Start / Stop Screen Buttons	Description	Allows you to use the Start Screen and Stop Screen buttons on the Recording Controls page.
	Page Access	—
	Licenses	Data Licenses: Quality Management
	Related Permissions and Notes	You must also have the Send Start Screen / Stop Screen Command permission.

Performance Management

NOTE This is a new feature that is not yet generally available. If you would like early access to this feature, contact your Cisco Account Manager.

Permission	Details	
Administer Performance Management Essentials	Description	Allows you to add and manage Performance Management metrics.
	Page Access	Performance Management > Settings
	Licenses	Webex WFO Access Data Licenses: Quality Management or Workforce Management
	Related Permissions and Notes	—
Administer Performance Management Enterprise	Description	This permission is not currently used.
ViewPerformanceManagement	Description	Allows you to access the Performance Management home page.
	Page Access	Performance Management
	Licenses	Webex WFO Access Data Licenses: Quality Management or Workforce Management
	Related Permissions and Notes	—

Bot Analytics

Permission	Details	
View Experience Automation	Description	View top level metrics such as BES/BAS/$ per Automated Conversation
	Page Access	Experience & Automation
	Licenses	Bot Analytics

Permission	Details	
	Related Permissions and Notes	Configure Experience Automation
Configure Experience Automation	Description	Configure the targets for BES/BAS/$ per Automated Conversation, Topics
	Page Access	Configuration > Experience & Automation
	Licenses	Bot Analytics
	Related Permissions and Notes	View Experience Automation
View Conversation Distribution	Description	View total conversations and how they are distributed between between digital assistant & live agents
	Page Access	Conversation Distribution
	Licenses	Bot Analytics
	Related Permissions and Notes	
View Conversation Topics	Description	View all content on the Conversation Topics page
	Page Access	Conversation Topics
	Licenses	Bot Analytics
	Related Permissions and Notes	Edit Conversation Topics

Permission	Details	
Edit Conversation Topics	Description	Blacklist, merge, and rename topics
	Page Access	Configuration > Conversation Topics
	Licenses	Bot Analytics
	Related Permissions and Notes	View Conversation Topics
View Conversation Topics Metrics Analysis	Description	View the breakdown of BES & BAS signals for each topic
	Page Access	Conversation Topics > Metrics Analysis tab
	Licenses	Bot Analytics
	Related Permissions and Notes	View Conversation Topics
View Conversation Topics Transcripts	Description	View transcripts within topics
	Page Access	Conversation Topics > Transcripts tab
	Licenses	Bot Analytics
	Related Permissions and Notes	View Conversation Topics
View Conversation Topics Related Topics	Description	View additional conversation topics that were identified after the main topic
	Page Access	Conversation Topics > Related Topics
	Licenses	Bot Analytics
	Related	View Conversation Topics

Permission	Details	
	Permissions and Notes	
View Conversation Topics Grouped Topics	Description	View topics that have been merged together and define one main topic
	Page Access	Conversation Topics > Grouped Topics
	Licenses	Bot Analytics
	Related Permissions and Notes	View Conversation Topics
View Conversation Topics Entities	Description	View entities (keywords) that came up in transcripts within the topic
	Page Access	Conversation Topics > Entities
	Licenses	Bot Analytics
	Related Permissions and Notes	View Conversation Topics
View Conversation Topics Intents	Description	View the intents that were triggered within the topic
	Page Access	Conversation Topics > Intents
	Licenses	Bot Analytics
	Related Permissions and Notes	View Conversation Topics
View Impact Analysis	Description	View the side-by-side comparison of several metrics for a single or multiple topics between two date ranges
	Page Access	Impact Analysis

Permission	Details	
	Licenses	Bot Analytics
	Related Permissions and Notes	
View Aggregated Metrics	Description	View common aggregated metrics
	Page Access	Aggregated Metrics
	Licenses	Bot Analytics
	Related Permissions and Notes	
View Transcript Search	Description	View transcript search
	Page Access	Transcript Search
	Licenses	Bot Analytics
	Related Permissions and Notes	
View VAA Overview	Description	View the Virtual Agent Analytics overview with all message level metrics
	Page Access	Overview
	Licenses	Bot Analytics
	Related Permissions and Notes	Configure VAA

Permission	Details	
View VAA Performance Comparison	Description	View message level metrics daily, monthly, quarterly, or yearly
	Page Access	Performance Comparison
	Licenses	Bot Analytics
	Related Permissions and Notes	Configure VAA
View VAA Response Performance	Description	View responses and next actions after response was shown
	Page Access	Response Performance
	Licenses	Bot Analytics
	Related Permissions and Notes	Configure VAA
View VAA Unclassified Messages	Description	View messages causing no-match to intent, categorized by topic
	Page Access	Unclassified Messages
	Licenses	Bot Analytics
	Related Permissions and Notes	Configure VAA, Edit VAA Unclassified Messages
Edit VAA Unclassified Messages	Description	Categorize no-match to intent messages into existing intent or new intents
	Page Access	Unclassified Messages
	Licenses	Bot Analytics
	Related	Configure VAA, View VAA Unclassified Messages

Permission	Details	
	Permissions and Notes	
View VAA Intent Performance	Description	View intent level metrics
	Page Access	Intent Performance
	Licenses	Bot Analytics
	Related Permissions and Notes	Configure VAA
View Bot Management Report	Description	View uploaded bot management reports
	Page Access	Bot Management Report
	Licenses	Bot Analytics
	Related Permissions and Notes	
View Bot Performance Report	Description	View uploaded bot performance reports
	Page Access	Bot Performance Report
	Licenses	Bot Analytics
	Related Permissions and Notes	

Permission	Details	
Configure VAA	Description	Configure targets within VAA
	Page Access	Configuration > Virtual Agent Analytics
	Licenses	Bot Analytics
	Related Permissions and Notes	View VAA Overview, View VAA Performance Comparison, View VAA Response Performance, View VAA Unclassified Messages, View VAA Intent Performance
View Company Configurations	Description	View company specific thresholds
	Page Access	Company Configurations
	Licenses	Bot Analytics
	Related Permissions and Notes	Edit Company Configurations
Edit Company Configurations	Description	Configure company specific thresholds
	Page Access	Company Configurations
	Licenses	Bot Analytics
	Related Permissions and Notes	View Company Configurations

Permission	Details	
View Alert Notification	Description	View alerts tab when a signal threshold is triggered
	Page Access	Alert Notifications tab
	Licenses	Bot Analytics
	Related Permissions and Notes	Configure Alert Notification
Configure Alert Notification	Description	Configure the thresholds for alerts
	Page Access	Configuration > Overall Bot Metrics, Configuration > Topic Metrics
	Licenses	Bot Analytics
	Related Permissions and Notes	View Alert Notification
View Transcript Summary	Description	View summarized transcripts
	Page Access	Transcript Search
	Licenses	Bot Analytics
	Related Permissions and Notes	Configure Transcript Summary

Permission	Details	
Configure Transcript Summary	Description	Configure the prompt that generates the summarize transcripts
	Page Access	Configuration > Summary Generation Prompt
	Licenses	Bot Analytics
	Related Permissions and Notes	View Transcript Summary
View Activity Notifications	Description	View activity notifications such as when an action is taken like blacklist, merge, rename
	Page Access	—
	Licenses	Bot Analytics
	Related Permissions and Notes	

Insights

Permission	Details	
View Content	Description	Allows you to view Insights dashboards that are shared by other people in your organization.
	Page Access	Insights > Favorites Insights > Recent Insights > My folders Insights > Shared folders Insights > Dashboards
	Licenses	Insights Author, Insights Reader

Permission	Details	
	Related Permissions and Notes	You must have the Insights Reader license and at least one “View [Product] Data” permission.
View Analytics Data	Description	Allows you to view dashboards and analyses created with Analytics data, including the standard Analytics dashboards that come built with Webex WFO. When combined with the Create Content permission, allows you to use Analytics datasets to create analyses.
	Page Access	Insights > Favorites Insights > Recent Insights > My folders Insights > Shared folders Insights > Dashboards
	Licenses	Insights Author, Insights Reader
	Related Permissions and Notes	You must also have the View Content permission. Your organization must have a Cisco Analytics license.
View Classic WFM Data	Description	Allows you to view dashboards and analyses created with Classic WFM data, including the standard Classic WFM dashboards that come built with Webex WFO. When combined with the Create Content permission, allows you to use Classic WFM datasets to create analyses.
	Page Access	Insights > Favorites Insights > Recent Insights > My folders Insights > Shared folders Insights > Dashboards
	Licenses	Insights Author, Insights Reader

Permission	Details	
	Related Permissions and Notes	You must also have the View Content permission. Your organization must have a Cisco Classic WFM license.
View QM Data	Description	Allows you to view dashboards and analyses created with QM data, including the standard QM data that come built with Webex WFO. When combined with the Create Content permission, allows you to use QM datasets to create analyses.
	Page Access	Insights > Favorites Insights > Recent Insights > My folders Insights > Shared folders Insights > Dashboards
	Licenses	Insights Author, Insights Reader
	Related Permissions and Notes	You must also have the View Content permission. Your organization must have a Cisco QM license.
View WFM Data	Description	Allows you to view dashboards and analyses created with WFM data, including the standard WFM data that come with built Webex WFO. When combined with the Create Content permission, allows you to use WFM datasets to create analyses.
	Page Access	Insights > Favorites Insights > Recent Insights > My folders Insights > Shared folders Insights > Dashboards
	Licenses	Insights Author, Insights Reader

Permission	Details	
	Related Permissions and Notes	You must also have the View Content permission. Your organization must have a Cisco WFM license.
Create Content	Description	Allows you to create analyses and dashboards.
	Page Access	Insights > Favorites Insights > Recent Insights > My folders Insights > Shared folders Insights > Dashboards Insights > Analyses Insights > Datasets
	Licenses	Insights Author
	Related Permissions and Notes	You must have the Insights Author license and at least one “View [Product] Data” permission. When you add this permission to a role, the role automatically gets the View Content permission as well.
Share Content	Description	Allows you to share analyses and dashboards that you create with other people in your organization.
	Page Access	Insights > Favorites Insights > Recent Insights > My folders Insights > Shared folders Insights > Dashboards
	Licenses	Insights Author
	Related Permissions	You must also have the Create Content permission and at least one “View [Product] Data” permission.

Permission	Details	
	and Notes	
Administer Insights	Description	This permission is not currently used.
	Page Access	—
	Licenses	Insights Author
	Related Permissions and Notes	—
Show All Records	Description	Gives you full access to all reporting data, regardless of application scope. Important for those who need to create reporting content for the entire organization or those who need to view all data, regardless of scope. **NOTE** This permission applies to reporting data only and does not grant any other access in Webex WFO.
	Page Access	—
	Licenses	Insights Author, Insights Reader
	Related Permissions and Notes	—

Data Management

Permission	Details	
Delivery Management	Description	Allows you view information about the current information space and to opt in and opt out of receiving scheduled reports by email from other users.
	Page Access	Data Explorer > Settings
	Licenses	Data Management
	Related	

Permission	Details	
	Permissions and Notes	
Report Delivery	Description	Allows you to configure and manage when and to whom a report that you own is emailed.
	Page Access	Share option on the context menu that appears when you right-click a report you own on the Data Explorer > Reports page.
	Licenses	Data Management
	Related Permissions and Notes	
Data Library	Description	Allows you read-only access to the Data Library page to view details about collections and their data sets.
	Page Access	Data Explorer > Data Library
	Licenses	Data Management
	Related Permissions and Notes	
Data Library Design	Description	Allows you to create, read, update, and delete data libraries owned by you.
	Page Access	
	Licenses	Data Management
	Related Permissions and Notes	
Data Library	Description	Allows you to share data collections to sharing groups in which you

Permission	Details	
Publishing		are a member.
	Page Access	
	Licenses	Data Management
	Related Permissions and Notes	
Data Task Administration	Description	Allows you to manage agents and tasks in any information space you own.
	Page Access	Application Management > Data Management > Data Task Management
	Licenses	Data Management
	Related Permissions and Notes	
Sharing Groups Administration	Description	Allows you to create and manage groups of users created for purposes of sharing content.
	Page Access	Application Management > Data Management > Sharing Groups
	Licenses	Data Management
	Related Permissions and Notes	

Permission	Details	
Data Management System Administration	Description	Allows you to create and manage real-time tasks
	Page Access	Application Management > Data Management > Real-Time (RT) Job Management
	Licenses	Data Management
	Related Permissions and Notes	
Data UDM Administration	Description	Allows you to add and manage tenants in the Unified Data Mart.
	Page Access	Application Management > Data Management > Unified Data Mart
	Licenses	Data Management
	Related Permissions and Notes	
Manage Infospace	Description	Grants access to the business intelligence lifecycle management features.
	Page Access	Settings
	Licenses	Data Management
	Related Permissions and Notes	Deploy Infospace
Deploy Infospace	Description	Grants users who can manage infospaces the right to deploy information spaces to other user accounts.

Permission	Details	
	Page Access	Settings
	Licenses	Data Management
	Related Permissions and Notes	Manage Infospace

Auto QM

Permission	Details	
View Auto QM	Description	Allows you to view the Auto QM panels in the Media player.
	Page Access	—
	Licenses	Analytics Enterprise, Analytics Enterprise Plus, Webex WFO Access
	Related Permissions and Notes	—
Edit Auto QM	Description	Allows you to create Auto QM evaluation forms, run Auto QM tasks, and override the AI score on a contact.
	Page Access	Analytics > Auto QM Application Management > Auto QM > Auto QM Evaluation Form Manager
	Licenses	Analytics Enterprise, Analytics Enterprise Plus, Webex WFO Access
	Related Permissions and Notes	You must also have the View Auto QM permission.

Permission	Details	
View Auto QM Dashboard	Description	Allows you to view Auto QM dashboard.
	Page Access	Analytics > Auto QM
	Licenses	Analytics Enterprise, Analytics Enterprise Plus, Webex WFO Access
	Related Permissions and Notes	—
Edit Auto QM Dashboard	Description	This permission is not currently used.
View Auto QM Notification	Description	Allows you to see the Notifications panel on the Auto QM dashboard page.
	Page Access	—
	Licenses	Analytics Enterprise, Analytics Enterprise Plus, Webex WFO Access
	Related Permissions and Notes	To access the Auto QM dashboard, you also need the View Auto QM Dashboard permission.
Edit Auto QM Notification	Description	Allows you to configure the thresholds that trigger usage notifications.
	Page Access	Analytics > Auto QM > Configuration
	Licenses	Analytics Enterprise, Analytics Enterprise Plus, Webex WFO Access
	Related Permissions and Notes	You also need the View Auto QM Notification permission.
View Auto	Description	Allows you to see the Manage Custom Questions section in the Auto

Permission	Details	
QM Question Editor		QM Evaluation Form Manager page.
	Page Access	—
	Licenses	Analytics Enterprise Plus
	Related Permissions and Notes	You also need the Edit Auto QM permission.
Create Auto QM Questions	Description	Allows you to create custom questions in the Manage Custom Questions section of the Auto QM Evaluation Form Manager page.
	Page Access	—
	Licenses	Analytics Enterprise Plus
	Related Permissions and Notes	You also need the Edit Auto QM and View Auto QM Question Editor permissions.
Run Auto QM Task	Description	Allows you to create Auto QM tasks on the Analytics Task Manager page.
	Page Access	Application Management > Analytics > Task Manager
	Licenses	Analytics Enterprise, Analytics Enterprise Plus
	Related Permissions and Notes	—

Trending Topics

Permission	Details	
View Trending Topics	Description	Allows you to view all Trending Topics pages
	Page Access	Analytics > Trending Topics
	Licenses	Analytics Enterprise, Analytics Enterprise Plus
	Related Permissions and Notes	—
Edit Trending Topics	Description	Allows you to edit (for example, group and ungroup topics) in the Trending Topics tool.
	Page Access	—
	Licenses	Analytics Enterprise, Analytics Enterprise Plus
	Related Permissions and Notes	You also need the View Trending Topics permission.
View Trending Topics Notification	Description	Allows you to view the Notification section on the Trending Topics dashboard to track your organization's AI usage.
	Page Access	—
	Licenses	Analytics Enterprise, Analytics Enterprise Plus
	Related Permissions and Notes	To access the Trending Topics dashboard, you also need the View Trending Topics permission.
Edit Trending Topics Notification	Description	Allows you to access the Configuration tab on the Trending Topics dashboard to configure usage-level notifications.
	Page Access	—
	Licenses	Analytics Enterprise, Analytics Enterprise Plus
	Related Permissions	You also need the View Trending Topics and View Trending Topics Notifications permissions.

Permission	Details	
	and Notes	
Run Trending Topics Task	Description	Allows you to create Trending Topics tasks on the Analytics Task Manager page.
	Page Access	Application Management > Analytics > Task Manager
	Licenses	Analytics Enterprise, Analytics Enterprise Plus
	Related Permissions and Notes	—

Sentiment Analysis

Permission	Details	
View Sentiment	Description	Allows you to view the AI sentiment analysis section in the Media Player's Data Insights panel. Allows you to see the Sentiment filter and Sentiment column on the Interactions page. If your organization has the Analytics Enterprise or Analytics Enterprise Plus license, this permission also lets you see the AI Sentiment panel in the Media Player.
	Page Access	—
	Licenses	Analytics Essential, Analytics Enterprise, Analytics Enterprise Plus
	Related Permissions and Notes	To open the Media Player, you also need the View Contacts permission.
Run Sentiment Task	Description	Allows you to create Sentiment Analysis tasks on the Analytics Task Manager page.
	Page Access	Application Management > Analytics > Task Manager
	Licenses	Analytics Essential, Analytics Enterprise, Analytics Enterprise Plus

Permission	Details	
	Related Permissions and Notes	—

AI Tags

Permission	Details	
View AI Tags	Description	Allows you to view the AI Tags section in the Media Player's Data Insights panel. Allows you to view the AI Tags dashboard, except for the Notifications section.
	Page Access	Analytics > AI Tags
	Licenses	Analytics Enterprise Plus
	Related Permissions and Notes	To open the Media Player, you also need the View Contacts permission.
View AI Tags Editor	Description	Allows you to see (but not edit) AI tags and categories on the Business Signal page.
	Page Access	Application Management > Analytics > Business Signal > AI Tags
	Licenses	Analytics Enterprise Plus
	Related Permissions and Notes	—
Edit AI Tags	Description	Allows you to create and manage AI tags and categories on the Business Signal page.
	Page Access	—
	Licenses	Analytics Enterprise Plus
	Related Permissions	To access the Business Signal page, you also need the View AI Tags Editor permission.

Permission	Details	
	and Notes	
View AI Tags Notification	Description	Allows you to view the Notification section on the AI Tags dashboard to track your organization's AI usage.
	Page Access	—
	Licenses	Analytics Enterprise Plus
	Related Permissions and Notes	To access the AI Tags dashboard, you also need the View AI Tags permission.
Edit AI Tags Notification	Description	Allows you to access the Configuration tab on the AI Tags dashboard to configure usage-level notifications.
	Page Access	—
	Licenses	Analytics Enterprise Plus
	Related Permissions and Notes	You also need the View AI Tags and View AI Tags Notifications permissions.
Run AI Tags Task	Description	Allows you to create AI Tags tasks on the Analytics Task Manager page.
	Page Access	Application Management > Analytics > Task Manager
	Licenses	Analytics Enterprise Plus
	Related Permissions and Notes	—

Related topics

- Create roles for access to WFM—Create user roles and set permissions for New WFM
- Assign landing pages to users

- Give users access to Insights
- Turn off Data Explorer

Create roles for access to WFM

The user's roles control the access to functionality in the system and to agents' or users' data. This guide will help you create roles which can later be assigned to the users or agents.

A role always consists of function permissions and data permissions. The function permissions define which functionality a user with the role can access. The data permissions define which data a user with the role can access.

Roles can be combined to achieve the desired access for a user. For each role, you define the functionality the user can access for that data access level.

EXAMPLE You need to set up three roles to allow an agent to see shifts for all agents on their site, to trade shifts within their own team, and to see a couple of selected reports with only their own data.

IMPORTANT All changes in Permissions are automatically and directly saved. For users of the web tools, changes to their roles take immediate effect. For users of the Windows client, changes of permissions take effect the next time they log in.

NOTE The Super Administrator role will always give access to all functionality and data within WFM, and this role cannot be changed. Only a user with the Super Administrator role can grant the Super Administrator role to another user.

All changes in the Permissions tool are tracked and shown in the General Audit Trail report.

Prerequisites

- You have the Web > Permissions permission.

Page location

WFM > Permissions

Procedures

Grant access to Application Management

If there is a user sync from WFM to Webex WFO, all users added in WFM are by default assigned the agent role in Webex WFO even if they are assigned the super administrator role in WFM. Therefore, you must take the following steps if you want to grant access to the Application Management tab.

1. Click **Application Management**.
2. Click **Users**.
3. In the **User Information** section, in the **Select User** field, search for and select the user you want to grant access to.
4. In the **Roles** section, move the administrator role from **Available** to **Assigned**.
5. In the **Associated Groups and Teams** section, select the top level until it highlights in blue.
6. Click **Save**.

Create a new role

Create a role to be used by a user or agent.

> **NOTE** If the role you are about to create is similar to an existing role, you can copy that role to make this process quicker.

1. Click **Add role**.
2. Enter a name for the new role.
3. Click **Add**.
4. Set function and data access for the role according to the instructions below.

Change access to functionality for a role

Add or remove function permissions to change which functionality the user can access.

> **NOTE** Users are not allowed to change function permissions of their own role(s). This is to prevent users from accidentally locking themselves out by removing function permissions by mistake.

1. Select the role to modify.
2. Ensure the **Functions** tab is selected.
3. Select (or unselect) one or several functions by clicking them. Click the arrows to expand and show detailed access levels. Access on a higher level does not automatically give the user access to the functions on the lower levels. All function permissions need to be enabled individually.

Use the **Toggle all** button to give access to all functions.

For information on what access each function permission gives, see How WFM function permissions work.

Change data access for a role

Add or remove data permissions to change which data the user can access. See How WFM data permissions work for more information.

1. Select the role to modify.
2. Ensure the **Data** tab is selected.
3. Set dynamic data permissions, static data permissions, or a combination of the two.
    - Dynamic data permissions are set by selecting a global level of authorization in the menu in the upper right corner.
    - Static data permissions are set by selecting teams and sites in the business hierarchy.

EXAMPLE

- Dynamic data permissions are useful to give agents in more than one team access to the same functionality and their own team's data. By selecting the global authorization level MyTeam, the same role can be used for agents in different teams.
- Static data permissions are used for users who do not belong to any team. They are also useful to give a group of users access to see the data for a specific team, regardless of which team the users themselves belong to.

Specify which absence types a role can add, edit, and remove

EXAMPLE A user has permissions to add, edit, and remove the absence type *Illness*, but no other absence types. This user can add a full-day *Illness* absence for an agent, even if the *Illness* absence replaces an absence type which the user does not have permissions to edit.

NOTE

- This setting only applies to the web Schedules tool.
- If a user has permissions to *Restore* shifts in Schedules, they can restore a shift even though an absence in the shift is not on the list of permitted absences for their role.
- If an absence type is confidential, the user must also have permissions to see confidential absences to add that absence type.

1. Select the role for which to specify absence types.
2. Select the **Functions** tab.
3. Expand the **Web** section.
4. On the Schedules row, click **Permitted absences**.
5. Click to **Turn on permitted absences**. If this is turned off, users with the selected role can manage all absence types.
6. Select the check boxes for the absence types users with this role can add, edit and remove.
7. Click **Save**.

Specify which activities a role can add, edit, and remove

EXAMPLE A user has permissions to add, edit, and remove the activity E-learning, but no other activity. This user can add *E-learning* for an agent, even if the *E-learning* activity is scheduled on top of an activity which the user does not have permissions to edit.

NOTE

- This setting only applies to the web Schedules tool.
- If a user has permissions to *Restore* or *Move shifts* in Schedules, they can move or restore a shift even though some of the included activities are not on the list of permitted activities for their role.

1. Select the role for which to specify activities.
2. Select the **Functions** tab.
3. Expand the **Web** section.
4. On the Schedules row, click **Permitted activities**.
5. Click to **Turn on permitted activities**. If this is turned off, users with the selected role can manage all activities.
6. Select the check boxes for the activities this role can add, edit and remove.
7. Click **Save**.

Copy an existing role

Copying a role is a useful way to create a new role that is similar to an existing role. After copying the role, rename the copy and then edit it as needed.

1. Hover the role you want to copy.
2. Click on **Copy**. A new role is created with the prefix "Copy of ..."
3. Hover the new role and select **Edit** to rename the role.
4. Adjust the function and data permissions by following the instructions above.

Rename a role

1. Hover the role you want to rename.
2. Click on **Edit**.
3. Enter the new name.
4. Click **Edit**.

Delete a role

1. Hover the role you want to delete.
2. Click on **Delete**.
3. Click **Yes** to confirm.

Related topics

- How WFM data permissions work
- How WFM function permissions work
- Manage WFM user and agent access
- Manage roles and permissions for QM, Analytics, and Insights—Create roles and set permissions for the rest of the Webex WFO suite

Assign landing pages to users

Select the page that people see when they first log in to Webex WFO. This page can be a Webex WFO page or an Insights dashboard.

Prerequisites

- You have the Assign User Roles permission.
- To view a Webex WFO page as their landing page, users must have permission to access that page. See Manage roles and permissions for QM, Analytics, and Insights.
- To assign an Insights dashboard as a landing page, you must have access to Insights. See Give users access to Insights.
- To view an Insights dashboard as their landing page:
  - Users must have access to Insights. See Give users access to Insights.
  - The dashboard must be shared with you (if you did not create it) and with the people who will get it as their landing page. See Grant individual Insights users and groups access to a dashboard in Insights.

Page location

Application Management > Global > User Configuration > Landing Page

Procedures

Assign a Webex WFO page as the landing page for a user role

1. Select the role in the **Roles** table.
2. In the **Landing Pages** table, select the page. The page name appears next to the role in the **Roles** table.

   NOTE Not every Webex WFO page can be a landing page. The available pages are a curated list.

3. Click **Save**. When people with this role next log in to Webex WFO, they will land on this page. If a user is assigned multiple roles that have different landing pages, they will see the landing page assigned to the role that was most recently created.

Assign an Insights dashboard as the landing page for a user role

1. Select the role in the **Roles** table.
2. Click **Insights Dashboards**. A list of dashboards that you created or that have been shared with you appears.
3. In the **Landing Pages** table, select the dashboard. The dashboard name appears next to the role in the **Roles** table.
4. (Optional) To view the dashboard, click the eye icon next to its name. The dashboard opens in a new tab.
5. Click **Save**. When people with this role next log in to Webex WFO, they will land on this dashboard. If a user is assigned multiple roles that have different landing pages, they will see the landing page assigned to the role that was most recently created.

Remove a landing page from a role

If a role is not assigned a landing page, people with that role see the first page in the Webex WFO top menu (from left to right) that they have permission to see.

1. Click the trash can icon next to the role name in the **Roles** table.
2. Click **Save**.

Related topics

- Manage roles and permissions for QM, Analytics, and Insights—Create roles
- —Assign roles to users
- Give users access to Insights
- Grant individual Insights users and groups access to a dashboard in Insights

How WFM function permissions work

There are two types of permissions in WFM, function permissions and data permissions. The function permissions control what functionality the user can access.

The function permissions always need to be combined with data permissions to define what data the user can access when using that functionality.

The function permissions are organized in a tree structure, and a lot of the function permissions have sub-levels. Access on a higher level does not automatically give the user access to the functions on the lower levels. All function permissions need to be enabled individually.

One section of the function permissions is the global functions. This section contains function permissions that give the user access to functionality which is available in several tools. The user still needs the additional function permissions to access those tools to make use of the global permissions.

> **EXAMPLE** **View schedules** is a global function permission that controls functionality available in more than one part of WFM, such as the Schedules module. Without the **View schedules** permission, the user cannot see or make changes to any shifts even if they have access to the Schedules module.

All function permissions

Open Cisco WFM

Permission	Details
Open Cisco WFM	Allows you to log in to Cisco WFM.

API access

Permission	Details
API access	Allows you to access the API to read from and write to the database.
Read forecast	Allows you to read the forecast from the database through the API.
Read organization	Allows you to read the organization from the database through the API.
Read request	Allows you to read requests from the database through the API.
Read schedule	Allows you to read the schedule from the database through the API.
Write forecast	Allows you to change the forecast through the API.
Write organization	Allows you to change the organization through the API.
Write request	Allows you to add requests through the API.
Write schedule	Allows you to change the schedule through the API.

Budgets

Permission	Details
Budgets	Allows you to open the Budget module.
Request allowances	Allows you to create budget allowances for absences. This requires the Vacation Planner license.

Forecasts

Permission	Details
Forecasts	Allows you to open Forecasts in the Windows client and perform most actions. The functions listed below require specific permission.
Export forecast to other business unit	Allows you to export forecasts to another business unit.
Export to file	Allows you to export forecasts to a file.
Import forecast from file	Allows you to import forecast data.

Global functions

Permission	Details
Global functions	This does not allow you to do anything within WFM. Select specific permissions below.
Copy schedule	Allows you to copy schedules from the default scenario to another scenario.
Import schedule	Allows you to import schedules from a selected scenario to the default scenario.
Modify availabilities	Allows you to add, edit or delete agents' hourly availability or

Permission	Details
	overtime availability in the Schedules module.
Modify meetings	Allows you to create, edit and delete meetings in the Schedules module.
Modify restricted scenarios	Allows you to make schedule changes in all scenarios, even the restricted ones.
Modify schedule	This does not allow you to do anything within WFM. Select specific permissions below.
Modify absence	Allows you to add, edit and delete absences in the schedule.
Modify assignment	Allows you to add, edit and delete shifts and activities.
Modify person restriction	Allows you to add, edit or delete agents' restrictions in the Restrictions view in the Schedules module.
Modify write-protected schedule	Allows you to edit a shift even though it is write-protected.
Organize cascading skills	Related to unreleased functionality.
Publish schedule	Allows you to publish schedules to agents from the Schedules module.
Save favorite search	Allows you to save favorite searches in the Requests tool.
Set write protection	Allows you to write-protect schedules in the Schedules module.
View active agents	Allows you to see a list of active agents, accessed from the About view.
View confidential	Allows you to see all absences, even those that are defined as confidential.
View restricted scenarios	Allows you to open all scenarios in the Schedules module in the WFM client.

Permission	Details
View schedules	Allows you to view published schedules. This permission is required to view schedules in any part of WFM.
View unpublished schedules	Allows you to view schedules that have not yet been published. This permission is not considered when viewing reports. That is, both published and unpublished schedules are always shown in reports.

MyTime

Permission	Details
MyTime	Allows you to open MyTime and perform some actions. The functions listed below require specific permissions.
Absence reporting	Allows you to report absences, for example illness, directly in MyTime. No validations are done when reporting absences.
Absence requests	Allows you to send absence requests. This requires the Vacation Planner license.
Cancel request	Allows you to cancel already approved absence requests.
Activity requests	Allows you to request activity time slots outside of shifts directly in MyTime.
Agent Assist	Allows you to access Agent Assist.
Agent Schedule Messenger	Allows you to access the Agent Schedule Messenger (ASM) in MyTime. This requires the Agent Schedule Messenger license.
Edit waitlist	Allows you to edit waitlists for absence requests.
Extended preferences	Allows you to enter extended preferences for the role in MyTime. Extended preferences make it possible for you to enter preferred

Permission	Details
	start and end times for the shifts and for a selected activity.
Free text in requests	Allows you to enter text in the subject and message fields of a request.
Grant	Allows you to interact with Grant, the chatbot, to request time away or to work extra hours.
Hourly availability	Allows you to enter hourly availability, that is when you are available to work.
MyReport	Allows you to access the MyReport dashboard.
Queue metrics	Allows you to access queue metrics within the MyReport dashboard.
Overtime availability	Allows you to enter overtime availability, that is when you are available to work overtime.
Overtime requests	Allows you to send overtime requests to requests to work extra hours.
Cancel overtime request	Allows you to cancel already approved overtime requests.
Self-Scheduling	This does not allow you to do anything within WFM. Select specific permissions below.
Add hours	Allows you to add your own hours.
Move lunch	Allows you to move your own lunch.
Move short break	Allows you to move your own short break.
Share calendar	Allows you to subscribe to your MyTime schedule from an external calendar app, for example Outlook calendar, Google calendar or iPhone calendar. Requires the CalendarLink license.

Permission	Details
Shift bidding	Allows you to bid on which shift patterns you prefer.
Shift trade board	Allows you to post shifts you want to trade on a bulletin board and define conditions for what shift you want in exchange.
Shift trade requests	Allows you to trade shifts with other agents by sending shift trade requests.
Shift trade requests - part day	Allows you to trade part-day shifts with other agents by sending part-day shift trade requests.
Standard preferences	Allows you to enter which shift categories you prefer on which day, and when you prefer to have your days off.
Team schedule	Allows you to view your team's schedule and the schedule for other teams and sites. Which teams and sites you can see is controlled by the data permissions.
View all group pages	Allows you to view other agents grouped by group pages, for example by skill or contract. Which agents you can see is controlled by the data permissions.
Text requests	Allows you to send text requests.
View badge	Allows you to receive and view badges for performing well.
View badge leaderboard	Allows you to view the badge leaderboard, to show who has the highest number of badges.
View guide for mobile app	Allows you to access a guide in MyTime to help you download and configure the WFM App.
View personal account	Allows you to view the current balance for your personal accounts when requesting time away.
View staffing info	Allows you to see the probability to have time away or to work extra, based on the staffing levels for the day.

Options

Permission	Details
Options	Allows you to open Options and perform some actions. The functions listed below require specific permissions.
Absence request	Allows you to change the workflow control set configuration on how to handle and validate absence requests.
Manage real-time adherence	Allows you to change the configuration for the real-time adherence, for example manage state groups, rules and the mapping of state groups and activities and configure for which activities to track when agents are late for work.
Manage scorecards	Allows you to define scorecards, for example set target values for each scorecard and assign scorecards to a team. This requires the Performance Manager license.
Shift trade	Allows you to change the workflow control set configuration on how to handle and validate shift trade requests. This requires the Shift Trader license.

Payroll integration

Permission	Details
Payroll integration	Allows you to create and run payroll exports in the Payroll integration module. This requires the Payroll license.

People

Permission	Details
People	Allows you to open the People module and view the information. It does not allow you to make any changes.

Permission	Details
Add person	Allows you to add new persons in the People module.
Can change and save	Allows you to change all details for agents and users in the People module, except logon credentials and time zone. Users with this permission can change and save settings for all users and agents they can open in the People module, even if those data permissions are given by a role that does not have permission to change and save.
Delete persons	Allows you to delete users and agents in the People module.
Modify access	Allows you to change log on credentials (the Log on, Application logon name, and Password columns) or assign or revoke roles for users and agents in the People module.
Modify group page	Allows you to create, rename and delete group pages.
Modify people within group page	Allows you to move agents to, from and between subgroups within the group page.
Modify time zone	Allows you to change time zone for users and agents in the People module.
Send message (ASM)	Allows you to send messages from the Windows client to the agents in MyTime. This requires the Agent Schedule Messenger license.

Performance Manager

Permission	Details
Performance Manager	Allows you to access Performance Manager. This requires the Performance Manager license. Users with permission to view or create reports in Performance Manager can see all data available in Performance Manager,

Permission	Details
	regardless of the data permissions defined for the role.
Create Performance Manager report	Allows you to both view and create reports in Performance Manager.
View Performance Manager report	Allows you to view all shared reports in Performance Manager.

Reports

Permission	Details
Reports	This in itself does not allow you to view any reports. Select each report to give access to it.

Schedules

Permission	Details
Schedules	Allows you to open the Schedules module and perform some actions. The functions listed below require specific permissions.
Automatic scheduling	Allows you to run the automatic scheduling and optimization.
Requests	Allows you to view the agents' requests in the Schedules module.
Approve	Allows you to approve or deny and reply to agents' requests in the Schedules module.
View allowance	Allows you to view the budget allowance for the budget group the agent belongs to.

Shifts

Permission	Details
Shifts	Allows you to open the Shifts module, create, edit and delete rule

Permission	Details
	sets and arrange the rule sets in shift bags.

Web

Permission	Details
Web	Allows you to access the WFM web tools.
Adherence	Allows you to access the Adherence tool.
Adjust to neutral	Allows you to adjust all agents' adherence to neutral, for example when there are technical issues.
Approve	Allows you to approve when an agent is out of adherence or remove a previously approved out of adherence occurrence.
Historical overview	Allows you to access the historical overview to view adherence for up to 30 days back.
Forecasts	Allows you to access the Forecasts tool.
Dynamic shrinkage	Allows you to manage dynamic shrinkage in the Forecasts tool.
Modify skill	Allows you to create skills in the Forecasts tool.
Remove skill	Allows you to remove skills in the Forecasts tool.
Gamification	Allows you to access the gamification settings and to import gamification data.
Intraday	Allows you to access the Intraday tool to view traffic, staffing and performance data.
Adjust backlog	Allows you to manually set a backlog for backoffice and email skills in Intraday.
Meetings	Allows you to get an overview of planned meetings and to schedule meetings for one or many people in the organization. Also required to be able to add and edit meetings in Schedules.

Permission	Details
Modify skill group	Allows you to create and modify skill groups.
PartnerManager	Allows you to access the Partner Manager tool.
People	Allows you to access the People tool to view employee information.
Access management	Allows you to grant and revoke roles, and to add, change and delete application logons and identity logons.
Add new employees	Allows you to add new employees.
Edit basic person information	Allows you to edit the agent information like name and email address.
Edit employment details	Allows you to edit the agents' contract, contract schedule, part-time percentage, shift bag and budget group.
Manage leaving date	Allows you to add or remove leaving dates for the agents.
Manage site/team	Allows you to move agents between teams.
Manage skills	Allows you to add skills to the agents.
Manage template	Allows you to manage templates.
Contracts	Allows you to manage templates for contracts.
Rotations	Allows you to manage templates for rotations.
Periodization	Allows you to see the deviation of planned or scheduled hours from the contract hours.
Add agents	Allows you to add agents.
Add group	Allows you to add groups.

Permission	Details
Adjust target	Allows you to adjust targets.
Delete group	Allows you to delete a group.
Edit group	Allows you to edit a group.
Remove agents	Allows you to remove agents.
View employment number	Allows you to view the employment number.
View optional columns	Allows you to view the information in any optional columns in the detailed display view.
View users	Allows you to view users that are not connected to a team.
Permissions	Allows you to access the Permissions tool and create, edit and delete roles.
Personal access tokens	Allows you to generate personal access tokens that can be used to access the SDK in machine to machine communication.
Plans	Allows you to manage plans.
Manage planning groups	Allows you to manage planning groups.
Requests	Allows you to access the Requests tool on the web and view requests. **IMPORTANT** Users with at least one role that includes the *Approve/deny request* permission can approve and deny any requests that they can view in the Requests tool. That is, it is not possible to assign a combination of roles that allows the user to for example view all requests for the whole site but only approve requests for their own team.
Approve/deny	Allows you to approve or deny agents' requests.

Permission	Details
request	
Cancel request	Allows you to cancel already approved absence requests.
Edit site open hours	Allows you to edit the site open hours, which are used in validations of requests.
Overtime requests	Allows you to handle agents' overtime requests.
Reply to request	Allows you to reply with a text message to agents' requests.
Schedules	Allows you to access the Schedules tool to view agent schedules and staffing levels. **NOTE** You can specify which absences and activities a role can add, edit and remove in the Schedules tool. See Create roles for access to WFM for more information.
Add activity	Allows you to add activities to the agents' schedules.
Add day off	Allows you to add days off to agents' schedules.
Add full-day absence	Allows you to add full-day absences to the agents' schedules.
Add overtime	Allows you to schedule overtime hours to the agents' schedules.
Add part day absence	Allows you to add part-day absences to the agents' schedules.
Add personal activity	Allows you to add personal activities.
Edit activities and absences	Allows you to edit an activity or absence for one or more agents.
Edit location	Allows you to add or edit a location.
Edit shift category	Allows you to update the shift category for the shifts.
Export schedules	Allows you to export schedule information to Excel for one or more

Permission	Details
	selected teams and a selected date period.
Move overlapped activity	Allows you to move non-overwritable activities which are overlapped by other activities.
Move shift	Allows you to move the whole shift.
Notes	Allows you to read, add and edit notes.
Remove absence	Allows you to remove previously added absences.
Remove activity	Allows you to remove an activity.
Remove day off	Allows you to remove days off.
Remove overtime	Allows you to remove previously added overtime hours.
Remove shift	Allows you to remove a shift.
Replace absence	Allows you to replace previously added absences with an absence of a different absence type.
Replace activity	Allows you to replace an activity.
Schedule history	Allows you to see the schedule history.
Restore	Allows you to restore the schedule to a previous shift in the schedule history for that agent and day.
Swap shifts	Allows you to swap shifts between two agents.
Sessions	Allows you to manage sessions.
Optimize sessions	Allows you to optimize sessions.
Shift bidding	Allows you to view the existing bid processes.
Manage bid process	Allows you to create, activate, manage and finalize bid processes.

Permission	Details
Place delegated bid	Allows you to place bids on behalf of agents.
Staffing	Allows you to access the Staffing tool to view staffing levels.
BPO exchange	Allows you to export the staffing gap and import staffing from other suppliers. Requires the BPO Exchange license.
Vacation planning	Allows you to access the Vacation planning tool.
Manage process	Allows you to manage vacation planning.
WFM settings	Allows you to access the WFM settings view. Select specific permissions below.
Absence and attributes	Allows you to configure absence and attributes.
Activity request	Allows you to configure activity request rules.
Bank holiday	Allows you to configure bank holidays to indicate these to the agents in MyTime.
Define organization	Allows you to configure the organization hierarchy.
Notification settings	Allows you to configure notification settings.
Scheduling settings	Allows you to configure scheduling settings.
Shifts	Allows you to configure shifts for scheduling settings.
Settings for new employees	Allows you to set default values to be used in the new employee import.

Related topics

- Create roles for access to WFM
- How WFM data permissions work

How WFM data permissions work

There are two types of permissions in WFM, function permissions and data permissions. The configuration of the data permissions control what data the user can access.

Data is all information related to the users; their names, schedule, reporting data etc.

The data permissions always need to be combined with function permissions to define what functionality the user can access for that data.

Data permissions can be dynamic or static. This means you can set up an agent role with permissions to access specific teams or sites, with permissions to access the team or site which the agent belongs to or a combination of those.

Dynamic data permissions

Dynamic data permissions are useful to reuse roles across different teams and sites as they are based on the team and site the user belongs to. If the user changes teams, the access is automatically changed to the new team from the first day of the new period.

EXAMPLE An agent with MyTeam data permissions for viewing schedules can see their team's shifts in the team view. If the agent moves to a new team on June 1st, they can see the current team's shifts up until May 31st, and on June 1st they can see the shifts of their new team.

NOTE A user who doesn't have an active person period with a site and team assigned cannot get data access through dynamic data permissions.

Dynamic data permissions are set by selecting a global level of authorization in the permissions view.

There are five access levels to dynamic data.

- **MyOwn**—The users can only see their own data.
- **MyTeam**—The users can see the team members of their own team and their data.
- **MySite**—The users can see data for the site they belong to, that is data for all teams and team members on that site.
- **MyBusinessUnit**—The users can see data for the whole business unit they belong to, that is all sites, all teams and team members on that business unit.
- **Everyone**—The user has full access to all data.

Static data permissions

Static data permissions are used to give access to specific business units, sites or teams. This is the only way to assign data permissions to users who do not belong to a team. Static data permissions are also useful if there is one particular team or site that a group of users should have access to, regardless of which team these users are in.

The static permissions are not affected by user changes. If the user is moved to a different team, the static permissions do not change.

Related topics

- Create roles for access to WFM
- How WFM function permissions work

Import and export users for QM and Analytics

On the Users page, select **Import and Export** to import new or edited users or export existing users. The import and export data is in CSV format.

> **NOTE**
> The date format in the CSV files might be changed by a spreadsheet application such as Microsoft Excel to the format that is set in the application as the default. Be aware of this possibility and make sure that the date columns are configured so that the date format is correct. The supported date formats are:
>
> - DD/MM/YYYY
> - MM/DD/YYYY
> - YYYY-MM-DD
> - YYYY/MM/DD

Once you have configured how your import file fields are mapped to the Webex WFO fields, you can save that mapping for reuse.

Prerequisites

- You have the Administer Org. Structure permission.
- To import users, you must have the Assign User Roles permission.

Page location

Application Management > Global > User Configuration > Users

Procedures

Export user data

- Click **Export**. Webex WFO downloads the file to your PC. By default, the file is named **people.csv**.

Import user data

1. Click **Choose File**, navigate to the CSV file that contains the import data, and then click **Open** to display the file column headers. See CSV file format for details on the CSV file requirements.
2. Map the required Webex WFO import fields to the appropriate field in the CSV file, and then configure that field's data type.
3. Click **Import**.

> **NOTE** Existing users' data is updated with the values in each column. If a column is left blank or the column is deleted from the import file, any existing data in that column is deleted in Webex WFO.

Save a mapping schema for reuse

1. Click **Choose File**, navigate to your CSV file, and then click **Open** to display the file column headers.
2. Map the required Webex WFO import fields to the appropriate field in the CSV file, and then configure that field's data type.
3. Enter a name for the mapping in the **Mapping Name** field.
4. Click **Save**. This mapping schema will then be available for reuse in a future import.

CSV file format

The CSV file can include columns for the following data in any order. The Email, First Name, and Last Name columns are required; all others are optional. The columns are listed in alphabetical order in this table.

The columns in the CSV file can use the names listed in this table or names that you choose. For example, **Email** could be **Email Address**. The column names listed here are the ones used in the Webex WFO database. If you use different column names, you must map each custom name to the appropriate Webex WFO name.

IMPORTANT A user's email addresses must be valid and configured on the customer SMTP prior to adding a new user to Webex WFO or updating an existing user's email address in Webex WFO. Otherwise, Webex WFO cannot send emails to the user's email address. This message is only applicable to organizations that have configured users to receive activation and welcome emails to set their passwords.

Column Header	Description
ACD ID	The user's ID within the ACD.
ACD Server ID	The ID of the ACD that is the source of data for the user.
Activated	The date the user was activated.
Company End Date	The date the user left the company.
Company Start Date	The date the user started with the company.
Deactivated	The date the user was deactivated. To activate a deactivated user when importing users, set this date to **12/31/2999**.
Department Start Date	The date the user started with the department.
Display Time Zone	The user's display time zone. For a list of valid names to use when importing users, see Time zone names.
Email	(Required) The user's email address.
Employee ID	The user's employee ID.
Enable Scheduling	Indicates if the user can be scheduled. True/False.
First Name	(Required) The user's first name.

Column Header	Description
Full Scope	When set to TRUE, the user has scope over all groups, teams, and users. When set to FALSE, the user's scope is as configured in the Scope Teams and Scope Groups fields.
Last Name	(Required) The user's last name.
Locale	The language used by the user.
Login	The user's login ID.
Max Staffing Group	The maximum staffing group to which the user is assigned.
Member Group	The group to which the user belongs.
QM Views	The views assigned to the user in QM.
Rank	The user's rank within the contact center.
Roles	The roles assigned to the user. Multiple roles are separated by a semicolon.
Schedule Release Profile	The schedule release profile assigned to this user.
Scheduling Time Zone	The time zone used to schedule the agent.
Scope Groups	The groups within the user's scope. Multiple groups are separated by semicolons.
Scope Teams	The teams within the user's scope. Multiple teams are separated by semicolons.
Skill Mappings	The skill mappings assigned to this user.
Team	The user's assigned team.
User ID	The user's ID in Webex WFO. You can identify the ID number by exporting user data and viewing it in the resulting CSV file.

Column Header	Description
	If the user is a new user, the User ID must be set to 0 (zero) or the import will fail.
Work Condition Profile	The work condition profile assigned to this user.

Time zone names

The following is a list of allowable time zone names that can be entered in the Users import/export CSV file.

ACT	AET	Africa/Abidjan
Africa/Accra	Africa/Addis_Ababa	Africa/Algiers
Africa/Asmara	Africa/Asmera	Africa/Bamako
Africa/Bangui	Africa/Banjul	Africa/Bissau
Africa/Blantyre	Africa/Brazzaville	Africa/Bujumbura
Africa/Cairo	Africa/Casablanca	Africa/Ceuta
Africa/Conakry	Africa/Dakar	Africa/Dar_es_Salaam
Africa/Djibouti	Africa/Douala	Africa/El_Aaiun
Africa/Freetown	Africa/Gaborone	Africa/Harare
Africa/Johannesburg	Africa/Juba	Africa/Kampala
Africa/Khartoum	Africa/Kigali	Africa/Kinshasa
Africa/Lagos	Africa/Libreville	Africa/Lome
Africa/Luanda	Africa/Lubumbashi	Africa/Lusaka
Africa/Malabo	Africa/Maputo	Africa/Maseru
Africa/Mbabane	Africa/Mogadishu	Africa/Monrovia
Africa/Nairobi	Africa/Ndjamena	Africa/Niamey
Africa/Nouakchott	Africa/Ouagadougou	Africa/Porto-Novo
Africa/Sao_Tome	Africa/Timbuktu	Africa/Tripoli

Africa/Tunis	Africa/Windhoek	AGT
America/Adak	America/Anchorage	America/Anguilla
America/Antigua	America/Araguaina	America/Argentina/Buenos_ Aires
America/Argentina/Catamarca	America/Argentina/ComodRivadavi a	America/Argentina/Cordoba
America/Argentina/Jujuy	America/Argentina/La_Rioja	America/Argentina/Mendoza
America/Argentina/Rio_ Gallegos	America/Argentina/Salta	America/Argentina/San_Juan
America/Argentina/San_Luis	America/Argentina/Tucuman	America/Argentina/Ushuaia
America/Aruba	America/Asuncion	America/Atikokan
America/Atka	America/Bahia	America/Bahia_Banderas
America/Barbados	America/Belem	America/Belize
America/Blanc-Sablon	America/Boa_Vista	America/Bogota
America/Boise	America/Buenos_Aires	America/Cambridge_Bay
America/Campo_Grande	America/Cancun	America/Caracas
America/Catamarca	America/Cayenne	America/Cayman
America/Chicago	America/Chihuahua	America/Coral_Harbour
America/Cordoba	America/Costa_Rica	America/Creston
America/Cuiaba	America/Curacao	America/Danmarkshavn
America/Dawson	America/Dawson_Creek	America/Denver
America/Detroit	America/Dominica	America/Edmonton
America/Eirunepe	America/El_Salvador	America/Ensenada
America/Fort_Wayne	America/Fortaleza	America/Glace_Bay
America/Godthab	America/Godthab	America/Goose_Bay

America/Grand_Turk	America/Grenada	America/Guadeloupe
America/Guatemala	America/Guayaquil	America/Guyana
America/Halifax	America/Havana	America/Hermosillo
America/Indiana/Indianapolis	America/Indiana/Knox	America/Indiana/Marengo
America/Indiana/Petersburg	America/Indiana/Tell_City	America/Indiana/Vevay
America/Indiana/Vincennes	America/Indiana/Winamac	America/Indianapolis
America/Inuvik	America/Iqaluit	America/Jamaica
America/Jujuy	America/Juneau	America/Kentucky/Louisville
America/Kentucky/Monticello	America/Knox_IN	America/Kralendijk
America/La_Paz	America/Lima	America/Los_Angeles
America/Louisville	America/Lower_Princes	America/Maceio
America/Managua	America/Manaus	America/Marigot
America/Martinique	America/Matamoros	America/Mazatlan
America/Mendoza	America/Menominee	America/Merida
America/Metlakatla	America/Mexico_City	America/Miquelon
America/Moncton	America/Monterrey	America/Montevideo
America/Montreal	America/Montserrat	America/Nassau
America/New_York	America/Nipigon	America/Nome
America/Noronha	America/North_Dakota/Beulah	America/North_ Dakota/Center
America/North_Dakota/New_ Salem	America/Ojinaga	America/Panama
America/Pangnirtung	America/Paramaribo	America/Phoenix
America/Port-au-Prince	America/Port_of_Spain	America/Porto_Acre
America/Porto_Velho	America/Puerto_Rico	America/Rainy_River

America/Rankin_Inlet	America/Recife	America/Regina
America/Resolute	America/Rio_Branco	America/Rosario
America/Santa_Isabel	America/Santarem	America/Santiago
America/Santo_Domingo	America/Sao_Paulo	America/Scoresbysund
America/Shiprock	America/Sitka	America/St_Barthelemy
America/St_Johns	America/St_Kitts	America/St_Lucia
America/St_Thomas	America/St_Vincent	America/Swift_Current
America/Tegucigalpa	America/Thule	America/Thunder_Bay
America/Tijuana	America/Toronto	America/Tortola
America/Vancouver	America/Virgin	America/Whitehorse
America/Winnipeg	America/Yakutat	America/Yellowknife
Antarctica/Casey	Antarctica/Davis	Antarctica/DumontDUrville
Antarctica/Macquarie	Antarctica/Mawson	Antarctica/McMurdo
Antarctica/Palmer	Antarctica/Rothera	Antarctica/South_Pole
Antarctica/Syowa	Antarctica/Vostok	Arctic/Longyearbyen
ART	Asia/Aden	Asia/Almaty
Asia/Amman	Asia/Anadyr	Asia/Aqtau
Asia/Aqtobe	Asia/Ashgabat	Asia/Ashkhabad
Asia/Baghdad	Asia/Bahrain	Asia/Baku
Asia/Bangkok	Asia/Beirut	Asia/Bishkek
Asia/Brunei	Asia/Calcutta	Asia/Choibalsan
Asia/Chongqing	Asia/Chungking	Asia/Chungking
Asia/Colombo	Asia/Dacca	Asia/Damascus
Asia/Dhaka	Asia/Dili	Asia/Dubai

Asia/Dushanbe	Asia/Gaza	Asia/Harbin
Asia/Hebron	Asia/Ho_Chi_Minh	Asia/Hong_Kong
Asia/Hovd	Asia/Irkutsk	Asia/Istanbul
Asia/Jakarta	Asia/Jayapura	Asia/Jerusalem
Asia/Kabul	Asia/Kamchatka	Asia/Karachi
Asia/Kashgar	Asia/Kathmandu	Asia/Katmandu
Asia/Kolkata	Asia/Krasnoyarsk	Asia/Kuala_Lumpur
Asia/Kuching	Asia/Kuwait	Asia/Macao
Asia/Macau	Asia/Magadan	Asia/Makassar
Asia/Manila	Asia/Muscat	Asia/Nicosia
Asia/Novokuznetsk	Asia/Novosibirsk	Asia/Omsk
Asia/Oral	Asia/Phnom_Penh	Asia/Pontianak
Asia/Pyongyang	Asia/Qatar	Asia/Qyzylorda
Asia/Qyzylorda	Asia/Rangoon	Asia/Riyadh
Asia/Riyadh87	Asia/Riyadh88	Asia/Riyadh89
Asia/Saigon	Asia/Sakhalin	Asia/Samarkand
Asia/Seoul	Asia/Shanghai	Asia/Singapore
Asia/Taipei	Asia/Tashkent	Asia/Tbilisi
Asia/Tehran	Asia/Tel_Aviv	Asia/Thimbu
Asia/Thimphu	Asia/Tokyo	Asia/Ujung_Pandang
Asia/Ulaanbaatar	Asia/Ulan_Bator	Asia/Urumqi
Asia/Vientiane	Asia/Vladivostok	Asia/Yakutsk
Asia/Yekaterinburg	Asia/Yerevan	AST
Atlantic/Azores	Atlantic/Bermuda	Atlantic/Canary

Atlantic/Cape_Verde	Atlantic/Faeroe	Atlantic/Faroe
Atlantic/Jan_Mayen	Atlantic/Madeira	Atlantic/Reykjavik
Atlantic/South_Georgia	Atlantic/St_Helena	Atlantic/Stanley
Australia/ACT	Australia/Adelaide	Australia/Brisbane
Australia/Broken_Hill	Australia/Canberra	Australia/Currie
Australia/Darwin	Australia/Lindeman	Australia/Hobart
Australia/LHI	Australia/North	Australia/Lord_Howe
Australia/Melbourne	Australia/Queensland	Australia/NSW
Australia/Perth	Australia/Tasmania	Australia/South
Australia/Sydney	Australia/Yancowinna	Australia/Victoria
Australia/West	Brazil/DeNoronha	BET
Brazil/Acre	BST	Brazil/East
Brazil/West	Canada/East-Saskatchewan	Canada/Atlantic
Canada/Central	Canada/Newfoundland	Canada/Eastern
Canada/Mountain	Canada/Yukon	Canada/Pacific
Canada/Saskatchewan	Chile/Continental	CAT
CET	CST	Chile/EasterIsland
CNT	Cuba	CST6CDT
CTT	EET	EAT
ECT	EST	Egypt
Eire	Etc/GMT+0	EST5EDT
Etc/GMT	Etc/GMT+11	Etc/GMT+1
Etc/GMT+10	Etc/GMT+3	Etc/GMT+12
Etc/GMT+2	Etc/GMT+6	Etc/GMT+4

Etc/GMT+5	Etc/GMT+9	Etc/GMT+7
Etc/GMT+8	Etc/GMT-10	Etc/GMT-0
Etc/GMT-1	Etc/GMT-13	Etc/GMT-11
Etc/GMT-12	Etc/GMT-3	Etc/GMT-14
Etc/GMT-2	Etc/GMT-6	Etc/GMT-4
Etc/GMT-5	Etc/GMT-9	Etc/GMT-7
Etc/GMT-8	Etc/UCT	Etc/GMT0
Etc/Greenwich	Etc/Zulu	Etc/Universal
Etc/UTC	Europe/Athens	Europe/Amsterdam
Europe/Andorra	Europe/Berlin	Europe/Belfast
Europe/Belgrade	Europe/Bucharest	Europe/Bratislava
Europe/Brussels	Europe/Copenhagen	Europe/Budapest
Europe/Chisinau	Europe/Guernsey	Europe/Dublin
Europe/Gibraltar	Europe/Istanbul	Europe/Helsinki
Europe/Isle_of_Man	Europe/Kiev	Europe/Jersey
Europe/Kaliningrad	Europe/London	Europe/Lisbon
Europe/Ljubljana	Europe/Malta	Europe/Luxembourg
Europe/Madrid	Europe/Monaco	Europe/Mariehamn
Europe/Minsk	Europe/Oslo	Europe/Moscow
Europe/Nicosia	Europe/Prague	Europe/Paris
Europe/Podgorica	Europe/Samara	Europe/Riga
Europe/Rome	Europe/Simferopol	Europe/San_Marino
Europe/Sarajevo	Europe/Stockholm	Europe/Skopje
Europe/Sofia	Europe/Tiraspol	Europe/Tallinn

Europe/Tirane	Europe/Vatican	Europe/Uzhgorod
Europe/Vaduz	Europe/Volgograd	Europe/Vienna
Europe/Vilnius	Europe/Zaporozhye	Europe/Warsaw
Europe/Zagreb	GB-Eire	Europe/Zurich
GB	Greenwich	GMT
GMT0	Iceland	Hongkong
HST	Indian/Chagos	IET
Indian/Antananarivo	Indian/Comoro	Indian/Christmas
Indian/Cocos	Indian/Maldives	Indian/Kerguelen
Indian/Mahe	Indian/Reunion	Indian/Mauritius
Indian/Mayotte	IST	Iran
Israel	JST	Jamaica
Japan	MET	Kwajalein
Libya	Mexico/General	Mexico/BajaNorte
Mexico/BajaSur	Mideast/Riyadh89	Mideast/Riyadh87
Mideast/Riyadh88	MST7MDT	MIT
MST	NST	Navajo
NET	Pacific/Apia	NZ
NZ-CHAT	Pacific/Chuuk	Pacific/Auckland
Pacific/Chatham	Pacific/Enderbury	Pacific/Easter
Pacific/Efate	Pacific/Funafuti	Pacific/Fakaofo
Pacific/Fiji	Pacific/Guadalcanal	Pacific/Galapagos
Pacific/Gambier	Pacific/Johnston	Pacific/Guam
Pacific/Honolulu	Pacific/Kwajalein	Pacific/Kiritimati

Pacific/Kosrae	Pacific/Midway	Pacific/Majuro
Pacific/Marquesas	Pacific/Norfolk	Pacific/Nauru
Pacific/Niue	Pacific/Palau	Pacific/Noumea
Pacific/Pago_Pago	Pacific/Ponape	Pacific/Pitcairn
Pacific/Pohnpei	Pacific/Saipan	Pacific/Port_Moresby
Pacific/Rarotonga	Pacific/Tarawa	Pacific/Samoa
Pacific/Tahiti	Pacific/Wake	Pacific/Tongatapu
Pacific/Truk	PLT	Pacific/Wallis
Pacific/Yap	Portugal	PNT
Poland	PST	PRC
PRT	Singapore	PST8PDT
ROK	SystemV/AST4ADT	SST
SystemV/AST4	SystemV/EST5	SystemV/CST6
SystemV/CST6CDT	SystemV/MST7	SystemV/EST5EDT
SystemV/HST10	SystemV/PST8PDT	SystemV/MST7MDT
SystemV/PST8	Turkey	SystemV/YST9
SystemV/YST9YDT	US/Alaska	UCT
Universal	US/Central	US/Aleutian
US/Arizona	US/Hawaii	US/East-Indiana
US/Eastern	US/Mountain	US/Indiana-Starke
US/Michigan	US/Samoa	US/Pacific
US/Pacific-New	W-SU	UTC
VST		WET
Zulu		

Related topics

- Import new employees for WFM—Import users into New WFM

Manage multiple users for QM and Analytics

Use the “Manage multiple users” option to change the activation status and assign roles to multiple users at once.

Manage multiple users’ activation status

1. From the Action field, select **Manage Activation Status**.
2. Move users between the Inactive and Active panes as desired to change their activation status.
3. Click **Save**.

Assign roles to multiple users

NOTE To assign roles to multiple users, you must have the Assign User Roles permission.

1. From the Action field, select **Assign Roles**.
2. From the Assign Roles field, select the role you want to assign to users.
3. Move users from the Available pane to the Assigned pane as desired to assign to those users the role you selected.
4. Click **Save**.

Merge users for QM and Analytics

You can merge users when you want to do the following:

- Link users with PC logins to users created by the ACD or created manually in Webex WFO
- Link users created manually in Webex WFO to users created by the ACD
- Link ACD-synced users who have been deleted or deactivated with ACD-synced users who recently have been added

In each case, after the merge, one of the users will remain active and the other will be inactive.

BEST PRACTICE If a PC has Webex WFO Smart Desktop installed, a corresponding user is created in Webex WFO with the Agent role when anyone logs into that PC if they do not already exist in Webex WFO. This is done so users can be recorded without additional configuration. However, if these users will be synced, it is best to sync them and configure them with their ACD account, so a merge is not required later.

Prerequisites

- You have the Administer Tenant and Administer Org. Structure permissions

Page location

Application Management > Global > User Configuration > Merge Users

Procedures

Webex WFO supports the following types of merges:

- Merge one active ACD-synced user with another active non-ACD-synced user into one user
- Merge one active ACD-synced user with another deactivated ACD-synced user into one user
- Merge many active, individual ACD-synced users, each with a related active non-ACD-synced user, at the same time

Merge two users

If both users are active, one must *not* be synced from an ACD. You can merge two ACD-synced users if one is active and the other is deactivated.

1. Select **Merge duplicate users into a single user**.
2. In the **Primary User** field, click the person icon and select the user to keep active.
3. In the **Duplicate User** field, click the person icon and select the duplicate user to merge into the primary user.
4. Click **Save**. A confirmation dialog opens.
5. Click **Yes**.

Merge multiple duplicate users

Both sets of users must be active. One set of users must *not* be synced from an ACD.

1. Select **Merge multiple duplicate users at once**. Webex WFO looks for possible matches based on first name and last name. Results appear in the table. The arrow points to the primary user, who will remain active after the merge. This user's name also appears in bold.
2. (Optional) To remove a set of duplicates from the merge, clear the check box next to the name.
3. (Optional) To change which user is the primary user, click the arrow. The arrow changes directions, and the other user's name now appears in bold.

4. Click **Save**. A confirmation dialog opens.
5. Click **Yes**.

Merge two ACD-synced users

You can merge two ACD-synced users only if you do one of the following first:

- Deactivate the duplicate user on the Users page (Application Management > Global > User Configuration > Users)
- Delete the duplicate user in the ACD

BEST PRACTICE Delete duplicate users in the ACD instead of deactivating them on the Users page. Deactivating users does not delete them in the ACD. If you merge a duplicate user that you have deactivated in Webex WFO but not deleted in the ACD, that user will reappear in Webex WFO the next time the ACD syncs with Webex WFO.

If both the primary and the duplicate users are active and synced from the ACD, Webex WFO displays an error message and prevents the merge.

1. Select **Merge duplicate users into a single user**.
2. In the **Primary User** field, click the person icon and select the user to keep active.
3. Select **Show inactive users**.
4. In the **Duplicate User** field, click the person icon and select the duplicate user to merge into the primary user.
5. Click **Save**. A confirmation dialog opens.
6. Click **Yes**.

How merge users works

The following sections describe what happens to user information and user data when you merge users.

User information

If the users you select have conflicting user information, the duplicate user's information overwrites and deletes the primary user's information except for the ACD ID. All information except the ACD ID is removed from the duplicate user, which is also deactivated.

NOTE If both the primary user and the duplicate user are synced with an ACD, both users keep their original ACD IDs. The primary user's ACD ID is not overwritten and deleted, and the duplicate user's ACD ID is not removed.

The following table describes what happens to the primary and duplicate users' information when they are merged.

User Information	Primary User Before Merge	Duplicate User Before Merge	Primary User After Merge (Active)	Duplicate User After Merge (Inactive)
First Name	Bob	Robert	Robert	—
Last Name	S	Smith	Smith	—
Team	Team A	Team B	Team B	—
(ACD-synced users only) ACD ID	5000	5001	5000	5001

User data

When you merge users, the duplicate user's data either overwrites and deletes the primary user's data or is combined with the primary user's data.

- QM—Everything except the primary user's device associations is combined with the duplicate user's data. The duplicate user's device associations overwrite and delete the primary user's device associations.

The following example illustrates what happens when the duplicate user's QM data is merged into the primary user's QM data.

QM User Data	Primary User Before Merge	Duplicate User Before Merge	Primary User After Merge (Active)	Duplicate User After Merge (Inactive)
Call recordings	Primary user's call recordings	Duplicate user's call recordings	Primary user's and duplicate user's call recordings	—
Evaluation forms	Primary user's evaluation forms	Duplicate user's evaluation forms	Primary user's and duplicate	—

QM User Data	Primary User Before Merge	Duplicate User Before Merge	Primary User After Merge (Active)	Duplicate User After Merge (Inactive)
			user's evaluation forms	
Device associations	Primary user's device associations	Duplicate user's device associations	Duplicate user's device associations	—

IMPORTANT Data Explorer does not support user merge. We do not recommend merging users who are responsible for creating reports and dashboards in Data Explorer. If you merge a user who owns reports or dashboards in Data Explorer with a user who does not, Webex WFO does not transfer ownership of the reports or dashboards from the deactivated user to the active user.

Override user profiles

Webex WFO removes any existing override user profiles from both the primary user and the secondary user before they are merged.

Related topics

-
- Import and export users for QM and Analytics
- Configure an ACD

Transfer user data for QM and Analytics

IMPORTANT Transferring user data is a permanent process and cannot be undone.

The User Data Transfer page allows you to transfer data from a single user to another user. It also allows you to transfer data for up to 2,000 users in bulk at once.

To transfer a single user's data, you need to identify the **Target User** and the **Source User**.

Target User — The user whose data is overwritten or combined.

Source User — The user whose data overwrites the target user's data or combines with the target user's data.

IMPORTANT For a full list of supported data types that can be transferred, see About user data transfer for QM and Analytics.

After identifying a target user and source user, run the transfer. The target user remains active with their data either overwritten by the source user or combined with the source user. Whether the target user's data is overwritten or combined is dependent on the data type as described in About user data transfer for QM and Analytics.

If you choose to transfer user data in bulk, you apply the same logic but at a larger scale using a CSV file you download. The CSV file lists all active and inactive users in your account. In the CSV file are the **From User ID** and **To User ID** columns that function similarly to the **Target User** and **Source User** for transferring data for a single user.

To User ID — (target user) The **To User ID**'s data will be overwritten by the From User ID or combined with the From User ID.

From User ID — (source user) The **From User ID** overwrites the To User ID's data or combines with the To User ID's data.

After you download the CSV file, update the file by choosing the users whose data you want to transfer, reupload the file, fix any errors that arise, and then run the data transfer. Check out the Procedures below for the full step-by-step processes.

Limitations

- You can transfer up to 2,000 users in bulk at once.
- You can only perform one bulk user data transfer at a time.
- You cannot transfer data from multiple source users to a single target user.
- You cannot transfer data from a single source user to multiple target users.
- Users must be within your view. A view controls the scope of access a user has (Application Management > Global > User Configuration > Views).
- The users whose data is being transferred cannot be tenant administrators.
- This page only transfers user data for Quality Management and Classic WFM. See About user data transfer for QM and Analytics for the full list of what data types are transferred.

Prerequisites

- You have the Administer Tenant and Administer Org. Structure permissions. See Manage roles and permissions for QM, Analytics, and Insights for more information.
- The user data you plan to transfer must fit the scenarios described in About user data transfer for QM and Analytics.

Page location

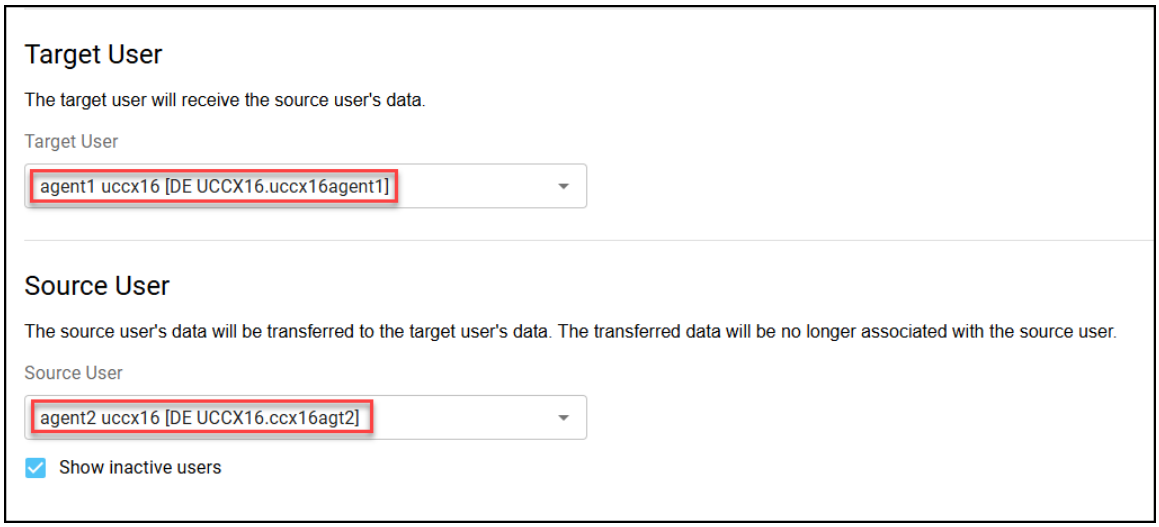
Application Management > Global > User Configuration > User Data Transfer

Procedures

Single user: Transfer data from one user to another user

1. Select **Single (Transfer data from one user to another)**.
2. Select a user from the **Target User** drop-down list.
3. Select a user from the **Source User** drop-down list.
4. (Optional) Select the **Show inactive users** checkbox if at least one of the users is inactive.
5. Select **Run Transfer**. A confirmation window opens.
6. Select **Run Transfer** once again in the confirmation window. The transfer process may take several minutes.

EXAMPLE



I want the data for Agent 2, the source user, to transfer to Agent 1, the target user. I run the

transfer. Agent 2's data transfers to Agent 1's data. Agent 1, now has fresh data from Agent 2's account.

Bulk users: Download and edit the CSV upload file

1. Select **Bulk (Perform multiple data transfers at one time via a CSV upload)**.
2. Click **Run a new bulk data transfer**.
3. Select the link, **Click here to download an export of all users**. Webex WFO exports a CSV file titled "people" by default to your system.
4. Locate and open the file. This file is a list of all the users in your Webex WFO tenant account. Only the first two columns, "From User ID" and "To User ID," are considered by the bulk data transfer process. Do not make changes to any other columns in the file.
5. Identify whose data you want to transfer in the **From User ID** column. These are your source users. Do not make any changes to the numbers in this column.

EXAMPLE I decide that I want to transfer data from John Smith and James Anderson.

	A	B	C	D	E
1	From User ID	To User ID	Email	First Name	Last Name
2	19		simagent1@rnd.ld	John	Smith
3	20		simagent2@rnd.ld	James	Anderson
4	21		simagent3@rnd.ld	Jenny	Andrews
5	22		simagent4@rnd.ld	Sam	Rodgers
6	23		simagent5@rnd.ld	Sim	Lee

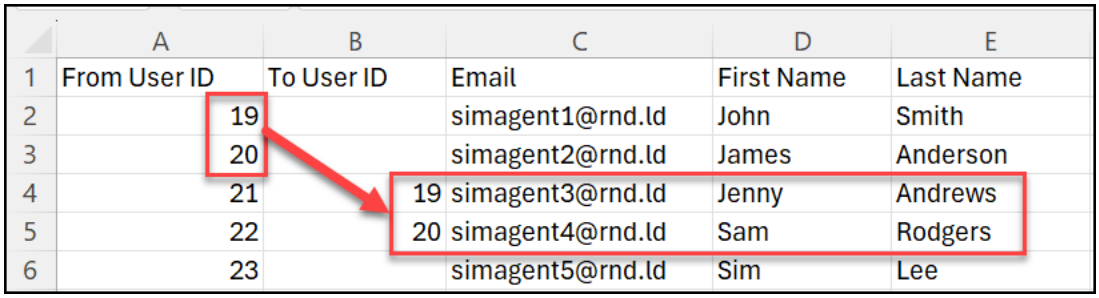
	From User ID	Name
Example 1	19	John Smith
Example 2	20	James Anderson

6. Identify the users to whom you want data to be transferred to. These people will be your target users. Copy the **From User ID** of the source users, then paste their From User IDs under the **To User ID** column for the intended target users.

	From User ID	Name (From User ID)	To User ID	Name (To User ID)

Example 1	19	John Smith	19	Jenny Andrews
Example 2	20	James Anderson	20	Sam Rodgers

EXAMPLE I want John Smith's data to transfer to Jenny Andrews. John Smith's **From User ID** is **19**; therefore, I enter **19** in Jenny Anderson's **To User ID** cell. I also want James Anderson's data to transfer to Sam Rodgers. James Anderson's **From User ID** is **20**; therefore, I enter **20** in Sam Rodgers's **To User ID** cell.



	A	B	C	D	E
1	From User ID	To User ID	Email	First Name	Last Name
2	19		simagent1@rnd.ld	John	Smith
3	20		simagent2@rnd.ld	James	Anderson
4	21	19	simagent3@rnd.ld	Jenny	Andrews
5	22	20	simagent4@rnd.ld	Sam	Rodgers
6	23		simagent5@rnd.ld	Sim	Lee

7. Save your changes to the CSV file.

Upload and review the CSV file

1. Select **Upload User Data Transfer File**. A file explorer window opens.
2. In the file explorer window, locate the CSV file you edited and select **Open**.
3. A **Preview** section is populated with information from the CSV file. Review the preview to ensure all selected users will be transferred correctly. You can change how many rows appear per page using the **Rows per page** drop-down list, and you can click through multiple pages using the arrow icons at the bottom of the table.



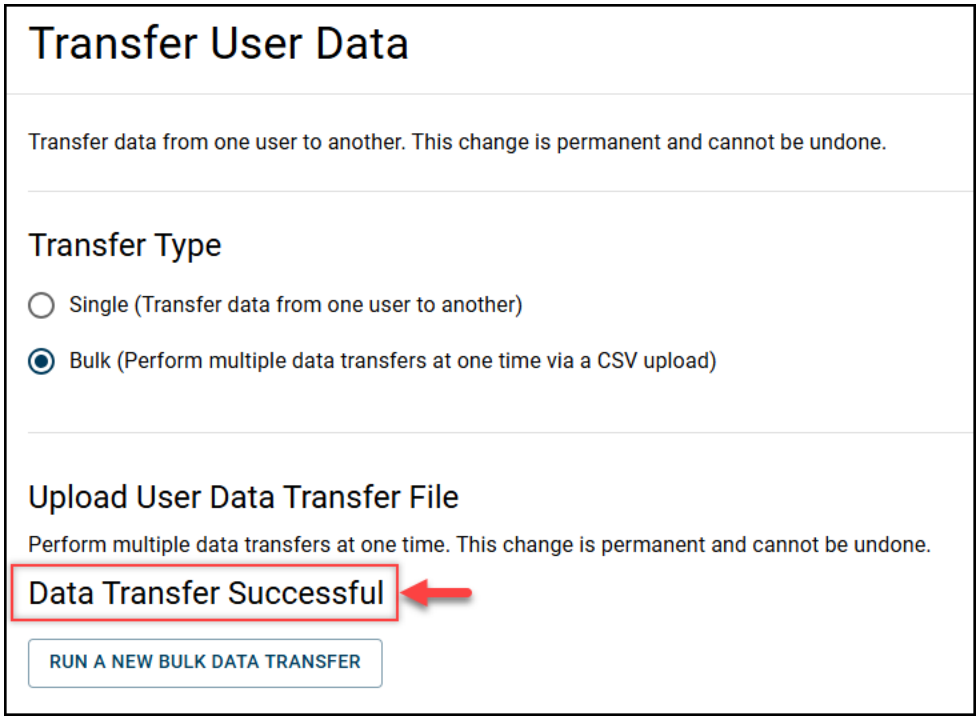
EXAMPLE I review and compare the information in the preview with the data in the CSV file. First I confirm that Jenny Andrews' (simagent3@rnd.ld) **From User ID**, which is **21**, and **To User ID**, which is **19** match what I see in the preview section. Then, I confirm that

am Rodgers (simagent4rnd.ld) **From User ID**, which is **22**, and **To User ID**, which is **20**, atch what I see in the preview section.

	A	B	C	D	E
1	From User ID	To User ID	Email	First Name	Last Name
2	19		simagent1@rnd.ld	John	Smith
3	20		simagent2@rnd.ld	James	Anderson
4	21	19	simagent3@rnd.ld	Jenny	Andrews
5	22	20	simagent4@rnd.ld	Sam	Rodgers
6	23		simagent5@rnd.ld	Sim	Lee

rom User ID (source)				To User ID (target)			
rom User ID	ACD ID	ACD Server Name	Email	To User ID	ACD ID	ACD Server Name	Email
1	5025	DE UCCE 30	simagent3@rnd.ld	19	5023	DE UCCE 30	simagent1@rnd.ld
2	5026	DE UCCE 30	simagent4@rnd.ld	20	5024	DE UCCE 30	simagent2@rnd.ld

4. Fix any errors present in the preview table before running the data transfer.
5. Select **Run Transfer**.
6. Select **Run Transfer** once again in the confirmation window. This process may take several hours. You can navigate to other pages or log out of Webex WFO and return later.
7. A **Data Transfer Successful** message appears once the transfer is complete.

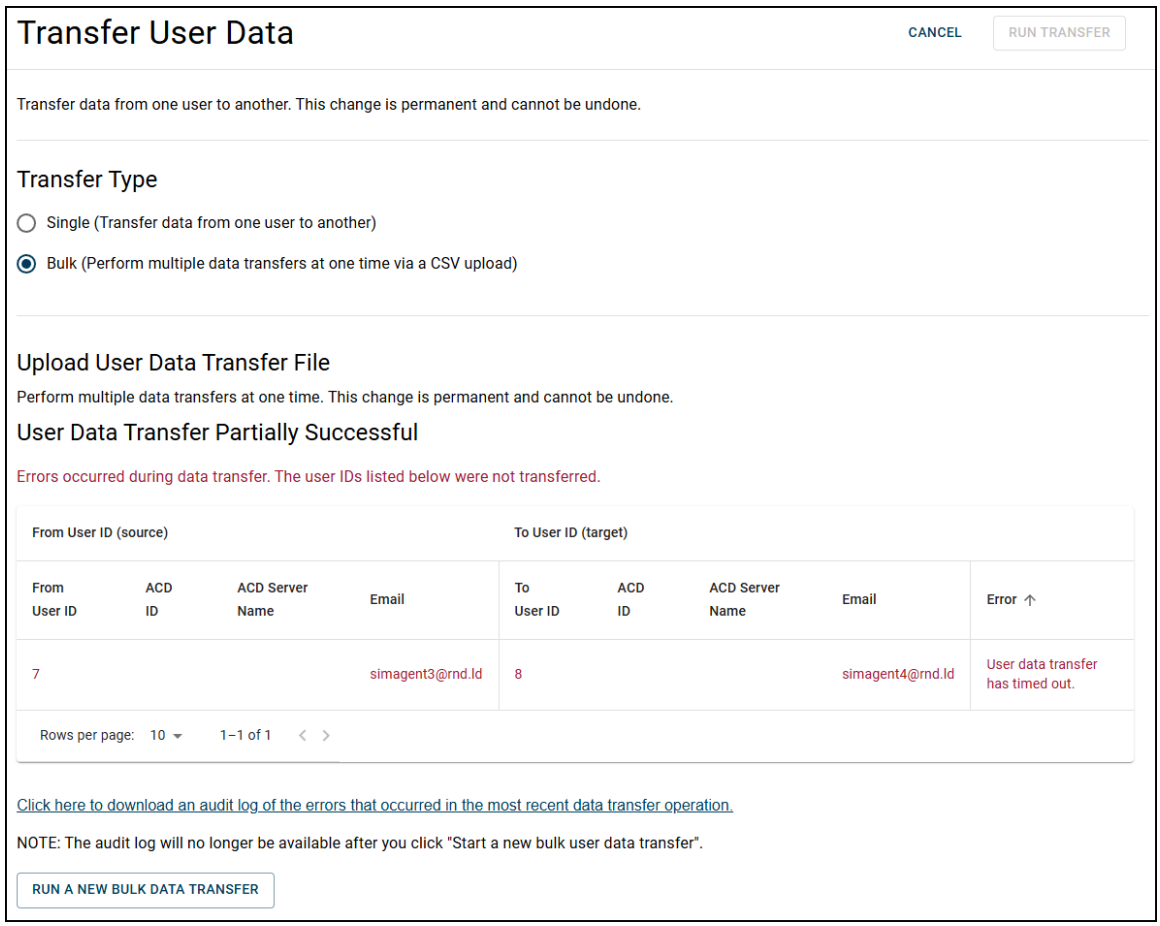


(Optional) Fix errors after a bulk data transfer

If a bulk data transfer fails for one or more users, then you will see an error message that states the following.

"Errors occurred during data transfer. The user IDs listed below were not transferred."

Follow this procedure in the event of such error.



1. Note the user(s) who have errors.

   BEST PRACTICE Download the audit log file by clicking the link titled, **Click here to download an audit log of the errors that occurred in the most recent data transfer operation**. which has detailed information on the user(s) who have errors.

2. Follow the Bulk users: Download and edit the CSV upload file procedure for the users whose data were not transferred.

3. Follow the Upload and review the CSV file procedure.

4. Do not re-run the merge on users whose data was successfully transferred. Only re-run the merge on users whose data was not transferred due to errors.

Field descriptions

Field	Description
Single (Transfer data from one user to another)	Transfer data from one user to another user.
Bulk (Perform multiple data transfers at one time via a CSV upload)	Transfer data for multiple users.
Single	
Target User	The user whose data is overwritten or combined.
Source User	The user whose data overwrites the target user's data or combines with the target user's data.
Show inactive users	Ensures both active and inactive users are included in the **Source User** drop-down list.
Bulk	
Click here to download an export of all users.	A link that uploads a CSV file titled "people" by default. The file is a list of all users in your Webex WFO tenant.
Upload User Data Transfer File	Opens a file explorer window for you to select and upload your modified CSV file.
Run Transfer	Starts the transfer process. The transfer process runs in the background and may take several hours.

Related topics

- About user data transfer for QM and Analytics
- Manage roles and permissions for QM, Analytics, and Insights - Learn more about the Administer Tenant and Administer Org. Structure permissions.
- Import and export users for QM and Analytics - Learn how to import or export users.

About user data transfer for QM and Analytics

Combining and overwriting data

The data transfer page allows you to transfer many types of QM and Classic WFM data. Data is either combined or overwritten depending on the type of data being transferred.

Combine — The target user will have data from both the target user and the source user after a data transfer is performed.

Overwrite — The target user's existing data is deleted, then overwritten with the source user's data.

Data between two users is combined unless it cannot feasibly be done. In that case, the data from the source user overwrites the target user's data.

In both cases, the data that is transferred no longer belongs to the Source User after a transfer is completed.

> **EXAMPLE** For example, user server requests can be easily combined. However, agent schedules cannot be combined because agents can only have one schedule. Therefore schedules are overwritten because they cannot be combined.

What data is transferred

Quality Management data types

The following QM data types are **combined**.

- Login State
- Recording API Command
- CCRs
- Evaluations - approver and evaluator
- Evaluation Comments
- Contact Goal
- Contact Goal Person
- Contact Goal Progress
- Storage File
- Archive Audit
- Wfo Audit Events

Classic WFM data types

The following Classic WFM data types are **combined**.

- User Messaging Requests
- User Messaging Request Comments
- User Server Requests
- Alerts (deprecated)
- Views
- Workflow Conditions

The following data types are **overwritten**.

- Accumulated Vacation Hours
- Skill Mappings
- Agent Assigned Exceptions
- Agent Schedules
- Projects
- Agent Work Shifts
- Agent/Service Productivity Data (Interval/Day/Week/Month/Year)
- Agent Productivity Data
- Agent Offline ActivityHours
- Agent Group Day Allocations
- Historical Activities by Agent
- Agent Work Hours
- Agent Real Time States
- Dynamic Schedule
- Dynamic Schedule Shift
- Dynamic Schedule Event Parameters

- Multiskill Mappings
- Work Condition Mappings
- Vacation Plan mappings

Related topics

- Transfer user data for QM and Analytics
- Import and export users for QM and Analytics

Manage hoteling users for QM and Analytics

A hoteling user is a generic profile that is assigned to a device (see Associate phones with agents, recording groups, and recording types) in the case that no user logs in. If you choose not to assign a device to a specific agent, you can assign it to a hoteling user.

Field	Description
Select User	(”Edit or delete an existing user” only) The hoteling user you want to edit.
First Name	The first name of the hoteling user.
Last Name	The last name of the hoteling user.
User Name	The user’s email address. This becomes the user’s Webex WFO user name and is used to log in.
Windows Login	The user’s Windows login credentials. In an Active Directory environment, this is the user’s Active Directory user name.
Account Status	The user’s account status (locked or unlocked). Use this field to change a user’s account status if the account has become locked due to unsuccessful login attempts.
Team	The team for the hoteling user.

Manage teams for QM and Analytics

A team is a collection of one or more agents.

The Teams page allows you to manage teams for synced and non-synced systems. You can also import and export teams.

In a synced system, teams are created in the ACD and synced to Webex WFO. The sync is one way from the ACD to Webex WFO. If a team has agents assigned to it in the ACD, then those agents are assigned to that team in Webex WFO. For these teams, you cannot change the team name or the agents assigned to the team.

BEST PRACTICE When the ACD is synced with Webex WFO, do not create teams in Webex WFO because these teams will not be synced with the ACD.

In a non-synced system, you can create and manage teams in Webex WFO as desired.

Field definitions

Use the Teams page to create, edit, import, or export teams. If your ACD syncs team data with Webex WFO, consult the documentation to understand how that affects any changes you make here.

The fields on the Teams page are described below.

Field	Description
Team Name	Enter a name for the team. The team name cannot be the name an existing group, an existing team, or the name of the tenant this team is part of. Synced team names are read-only.
Select Team	Select an existing team. The list displays active teams by default.
Show inactive teams	Select this check box to display both active and inactive teams in the Select Team field. “Inactive” appears next to inactive teams in the Select Team list. When cleared, only active teams appear in the Select Team field. This field appears only when you are editing an existing team.
Activate this team	To activate the team, select this check box. Teams are activated by default. Clear this check box to deactivate the team.

Field	Description
Creation Date	(Read-only) The date the team record was created.
Deactivation Date	(Read-only) The date the team record was deactivated. As long as the team record is active, this field is not visible. When this field is visible, it displays the date of the team record's most recent deactivation. This field only appears when you clear the "Activate this team" check box.
Group	Select the group in which this team should be placed.
Agents	Assign the desired agents to the team. In a synced system, you cannot change the list of agents assigned to the synced team.
Include this team in productivity reports	Select this check box if you want this team's statistics to be included when the Webex WFO capture service compiles productivity statistics.
Stage Upload Location	Select this check box to associate the team and Stage Upload Data Server. This check box is available only if the Staged Upload component is enabled for a Data Server in your system. Users who are assigned to this team will use Staged Upload only if they are also associated with a correctly-configured QM Workflow Daily Event. For more information about Two-Stage Upload, see "Configuring the Staged Upload Component" in the *Design Guide for Cloud Deployments*.
Storage Profiles	Select a storage profile to associate with this team. The default storage profile for this field is the default set in Storage Profiles (Application Management > System Configuration > Storage Profiles).

Field	Description
	If you change the storage profile for the team, new recordings are stored in the new storage profile, but existing recordings remain in the original storage profile.

Related topics

- Configure the organization structure for WFM—Create teams for New WFM

Import and export teams for QM and Analytics

Select the “Import and export teams” option to import new or edited team or export existing teams. The import and export data is in CSV format.

The columns can use the field names below as the header names or you can use field names you choose (for instance, “Name” could be “Team Name”). The column names listed here are the names used in the Webex WFO database. If you use different column names you must map each custom name to the appropriate Webex WFO name.

Once you have configured how your import file fields are mapped to the Webex WFO fields, you can save that mapping for reuse.

Export team data

- Click **Export**. Webex WFO downloads the file (named teams.csv) to your PC in CSV format.

Import team data

1. Click **Choose File**, navigate to your team CSV file, and then click **Open** to display the file column headers. The file can use the default column header names below or you can use header names you choose (for instance, “Name” could be “Team Name”). If you use different column header names you must map each custom name to the appropriate Webex WFO name.

Column Header	Description
Team ID	The team’s ID in the ACD. You can identify the ID number by exporting team data and viewing it in the resulting CSV

Column Header	Description
	file. If you import a team with a Team ID that already exists in the database, the imported data for that Team ID overwrites the data in the database. If the team is a new team, the ID must be set to 0 (zero) or the import will fail.
Name	The name of the team.
Activated Date	The date the team was activated.
Deactivated Date	The date the team was deactivated.
Parent Group ID	The group to which the team belongs.
Productivity Compilation	(False/True) Indicates if the team's statistics are to be included when the Capture service compiles productivity statistics.

2. Map the required Webex WFO import fields to the appropriate field in the CSV file, and then configure that field's data type.
3. Click **Import**.

Save a mapping schema for reuse

1. Click **Choose File**, navigate to your team CSV file, and then click **Open** to display the file column headers.
2. Map the required Webex WFO import fields to the appropriate field in the CSV file, and then configure that field's data type.
3. Enter a name for the mapping in the **Mapping Name** field, and then click **Save**. This mapping schema will be available for reuse in a future import.

Manage groups for QM and Analytics

A group is a collection of one or more teams.

Field definitions

Use the Groups page to create, edit, import, and export groups.

NOTE Groups can be deactivated but not removed. They are retained for historical purposes and are available in reports, contacts, analytics, and so on.

The fields on the Groups page are described below.

Field	Description
Group Name	Enter a name for the group. The group name cannot be the name of an existing group, an existing team, or the name of the tenant this group is part of.
Select Group	Select an existing group. The list displays active groups by default.
Show inactive groups	Select this check box to display both active and inactive groups in the Select Group field. “Inactive” appears next to inactive groups in the list of groups. When cleared, only active groups appear in the Select Group field. This field only appears when you are editing an existing group.
Activate this group	Select this check box to activate the group. Groups are activated by default. Clear this check box to deactivate the group.
Teams	Assign one or more teams to this group.
Creation Date	(Read-only) The date the group record was created.
Deactivation Date	(Read-only) The date the group record was deactivated. When a record is active, this field is not visible. When this field is visible, it displays the date of the group’s most recent deactivation. This field only appears when you clear the “Activate this group” check box.
Teams	Assign one or more teams to this group by moving the teams from the Available pane to the Assigned pane.

Related topics

- Configure the organization structure for WFM—Create collections of teams (called “sites” in New WFM) for New WFM

Import and export groups for QM and Analytics

Select the “Import and export groups” option to import new or edited groups or export existing groups. The import and export data is in CSV format.

Export group data

- Click **Export**. Webex WFO downloads the file (named groups.csv) to your PC.

Import group data

1. Click **Choose File**, navigate to your group CSV file, and then click **Open** to display the file column headers. The file must include columns for the following data in any order. The columns can use these names as the header, or a name you choose (for instance, “Name” could be “Group Name”). If you use different column names, you must map each custom name to the appropriate Webex WFO name.

Column Header	Description
Group ID	The group’s ID in the ACD. You can identify the ID number by exporting group data and viewing it in the resulting CSV file. If the group is a new group, the ID must be set to 0 (zero) or the import will fail.
Name	The name of the group.
Activated Date	The date the group was activated.
Deactivated Date	The date the group was deactivated.

2. Map the required Webex WFO import fields to the appropriate field in the CSV file and configure that field’s data type, or select an existing mapping from the **Use Existing Mapping** drop-down field..

> **NOTE** If you are creating a new mapping, once you have configured how your import file fields are mapped to the Webex WFO fields, you can name the mapping and then save it for reuse.

3. Click **Import**.

> **NOTE** If you import a group with a Group ID that already exists in the database, the imported data for that Group ID overwrites the data in the database.

Manage user profiles for QM and Analytics

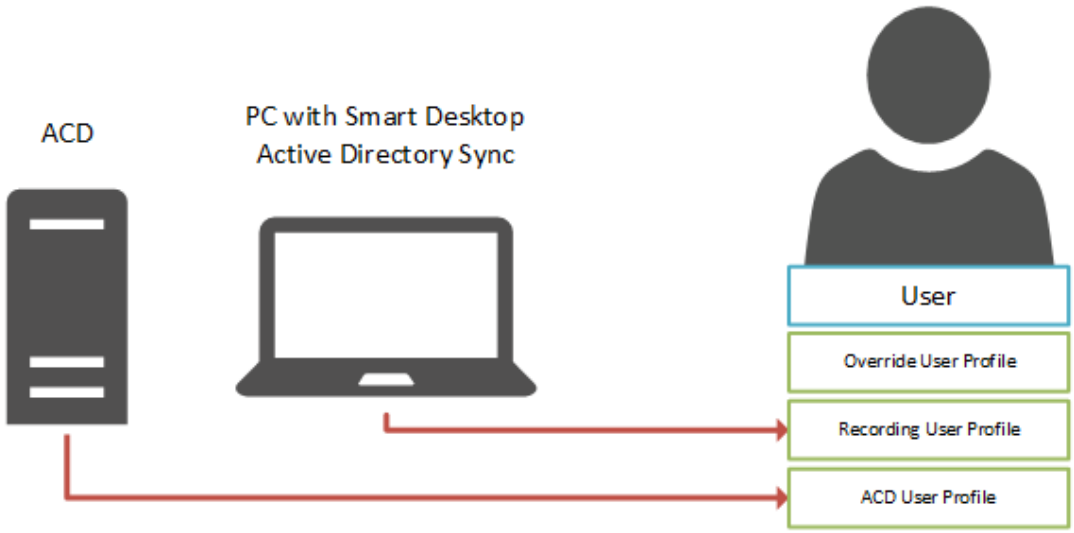
User profiles contain several fields (including first name, last name, and external ID) that summarize a user's identity in external sources such as an ACD, a PC with Smart Desktop, or Active Directory. When a Webex WFO user is added from an external source, Webex WFO selects values from these fields and transfers that identity to the new Webex WFO user.

There are three categories of user profiles:

- ACD user profiles
- Recording user profiles
- Override user profiles

A single Webex WFO user can have all three user profiles at once. However, a user cannot have more than one ACD user profile, even if the user is merged with another user who has an ACD user profile (see Merge users for QM and Analytics).

User profiles have "precedence." Their importance is ranked in the User Profile table from highest (top) to lowest (bottom). When a user has more than one user profile, and those user profiles contain conflicting values in the same field, this precedence determines which values Webex WFO selects to identify that user in Webex WFO (see User profiles example).



ACD user profiles

Users who are added through syncing with an ACD have ACD user profiles. An ACD user profile summarizes a user's identity in the ACD and transfers that identity to the associated Webex WFO user.

When changes are made to a user in the ACD, the values in the ACD user profile of the associated Webex WFO user are updated the next time that sync occurs. These changes are also transferred to the Webex WFO user, unless the Webex WFO user has another user profile (Recording or Override) that has a higher precedence and contains conflicting values in one or more fields.

Webex WFO creates a separate ACD user profile for each ACD that it imports users from. It distinguishes multiple ACD user profiles by appending the name of the ACD (as entered on the ACD Configuration page) to the user profile source.

EXAMPLE

Webex WFO imports users from an Amazon Connect ACD that is named "Amazon" and a Cisco Webex Contact Center ACD that is named "Cisco." This results in two user profiles that have the following sources:

- ACD - Cisco
- ACD - Amazon

An ACD user profile can have a higher or a lower precedence than another ACD user profile or a Recording user profile. This precedence can be changed in the User Profile Precedence table on the Global Settings page (see Configure global settings). ACD user profiles cannot have a higher precedence than Override user profiles.

Recording user profiles

A Recording user profile summarizes a user's identity in Active Directory and transfers that identity to the associated Webex WFO user.

Recording user profiles are added in the following situations:

- A new user is added by logging in to a PC with Smart Desktop
- An existing user is synced with Active Directory
- A new or existing user is given a Windows login

A Recording user profile can have a higher or a lower precedence than an ACD user profile. This precedence can be changed in the User Profile Precedence table on the Global Settings page (see Configure global settings). Recording user profiles cannot have a higher precedence than Override user profiles.

Override user profiles

An Override user profile preserves any changes that you make to users whose identities are created from ACD or Recording user profiles, ensuring that the values you enter in Webex WFO replace (or "override") those imported from the ACD, PC with Smart Desktop, or Active Directory.

A user has an Override user profile after any of the following occur:

- The user already has a Recording or an ACD user profile, and you edit one of the values that came from one of these user profiles.

  NOTE You cannot edit the first name or last name of a user who is synced with an ACD. If the ACD syncs the relationship between users and teams, you cannot edit the team, either.

- You merge a user that you manually created in Webex WFO with a user who has a Recording or an ACD user profile.

  NOTE Webex WFO removes any existing override user profiles from both the primary user and the secondary user before they are merged. For more information about merging users, see Merge users for QM and Analytics.

- You update an existing user through user import.

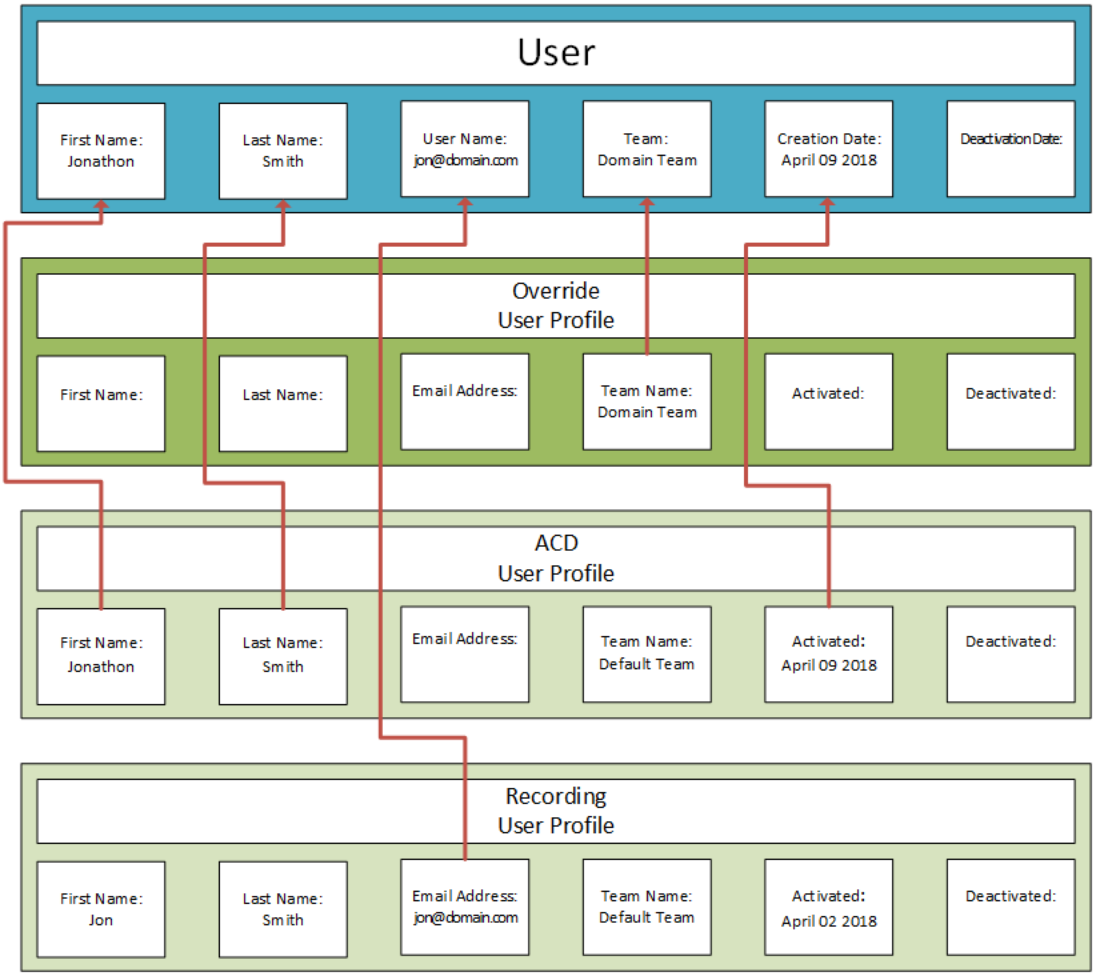
A user cannot have an Override user profile only.

Override user profiles have the highest precedence by default. You cannot lower this precedence. If you want to identify a user with the values stored in an ACD or Recording user profile instead of the values stored in an Override use profile, you must manually delete that user's Override user profile.

User profiles example

The following image shows how a Webex WFO user's identity is created from the values contained in three user profiles. The user profiles are ranked according to their precedence, as they are in the User Profiles table: from highest (Override) to lowest (Recording). To create the Webex WFO user's identity, Webex WFO selects the first non-blank value for each field from the profile with the highest precedence.

NOTE The precedence of user profiles does not affect which value is selected from the External User ID field, even if a user has both a Recording user profile and an ACD user profile. Webex WFO maps the External User ID from the Recording user profile to the user's Windows Login, and it maps the External User ID from the ACD user profile to the user's ACD ID.



If you want to change the precedence of the ACD and Recording user profiles, you can rearrange them in the User Profile Precedence table on the Global Settings page (see Configure global settings).

BEST PRACTICE Reordering the precedence of user profiles affects every user who has those user profiles. Set the precedence of user profiles once, when you first configure Webex WFO.

Field descriptions

The following fields appear in the User Profiles table. All fields are read-only.

NOTE The values contained in an ACD user profile depend on the ACD. Not all ACD user profiles contain values for all fields.

Field	Description
First Name	ACD and Recording—The first name of the user in the external source. Override—The first name of a user who was created in Webex WFO, not added from an external source.
Last Name	ACD and Recording—The last name of the user in the external source. Override—The last name of a user who was created in Webex WFO, not added from an external source.
Email Address	ACD and Recording—The email address of the user in the external source. Override—The email address that was entered and saved for the user on the Users page.
Team Name	ACD—In ACDs that sync the relationship between users and teams , the team of the user in the ACD. In ACDs that do not sync the relationship between users and teams, the default team. Recording—The default team. Override—The name of the team that was selected and saved for the user on the Users page.
Activated	ACD and Recording—The date that the user was added to Webex WFO from the external source. Override—The date that a user who was created in Webex WFO, not added from an external source, was activated.
Deactivated	ACD and Recording—The date that the user was deactivated or deleted in the external source. Override—The date that the user was deactivated in Webex WFO.
External User ID	ACD—The unique identifier of the user in the ACD. Recording—The user’s Windows login credentials. Override—The ACD ID of a user who was created in Webex WFO, not

Field	Description
	added from an external source.
Source	The origin of the user profile: ACD, Recording, or Override.

Manage views for QM

A view controls the scope of access a user has in QM. Use the Views page to create, edit, and delete QM views.

A user's scope is determined on login. If new entities are created after login (for example, users or teams added by syncing with the ACD), the user's scope will include those entities only after logging out and logging back in.

Prerequisites

- You have the Administer QM and Edit QM Views permissions

Page location

Application Management > Global > User Configuration > Views

NOTE Contacts previously recorded and tagged with metadata used for a QM view will be included in the returned results for the view. The first time you access contacts using a QM view, you will experience a delay, as the application performs its initial database search for that view.

NOTE
If your organization uses QM views instead of configuring user scope via the Users page, the Organization filter on the Interactions page works like this for users who have a QM view assigned but no assigned scope:

- The Group and Team drop-downs are set to All and cannot be changed.
- The Agent drop-down shows all agents' names.

NOTE To let agents view and play their own contacts in addition to any contacts that meet the QM View criteria, assign them the Include Self Scope in QM Views permission. See Manage roles and permissions for QM, Analytics, and Insights.

An entity can be included in multiple views, and a user can be assigned to multiple views.

Field descriptions

The fields on the Views page are described below.

Field	Description
View Name	Choose a unique name for the view or select an existing view. **NOTE** EnterpriseView is a system view and cannot be renamed or deleted.
Activate	Select the Activate check box to activate the view. A view cannot be used unless it is activated.
Scoping Conditions	Use the fields in this section to create rules for defining the metadata for limiting the scope for this view. ■ Match Any or Match All drop-down list—Indicates whether the rule is a logical OR (Match Any) or a logical AND (Match All). ■ Add Rule button—Adds a line of conditions to define the rule. You can add multiple rules. ■ Metadata Field—Select a metadata field from the drop-down list. Use this field to specify a scope outside your team and group. ■ Condition—Select the operation to apply to the condition from the drop-down list. ■ Value—Enter the value with which you want to filter the metadata. Note that you cannot use wild cards when entering this value. To delete a rule, click the **X** next to the desired rule.

Related topics

- —Assign views to users

Manage users in WFM and QM/Analytics

If you have WFM and QM/Analytics, an admin must manage users manually. There is no automatic user sync between these applications.

Prerequisites

- You have permission for Web > People > Add new employees
- You have permission for People > Can change and save
- A business hierarchy with sites and teams is defined.
- Skills are created.
- External logons are available through an ACD integration.
- Contracts, contract schedules and part-time percentages are created to define the agents' work time.
- A shift bag is created.
- To approve absence requests based on budget allowance or use the Budgets module to create staffing budgets, a budget group must be created.
- Roles are created.
- A workflow control set is created.

Page location

Application Management > Users

Web > People

Client > People

Procedures

Create User

In Application Management:

If there is no sync from the ACD and Webex WFO, complete the following steps:

1. Go to **Application Management** > **User Configuration** > **Users**.
2. Select **Create a new user**.
3. Enter a **First Name** and **Last Name**.
4. In the **User Name** field, enter an email address. Update the **Team**, **Associated Groups and Teams**, and **QM Views** fields, if necessary.

> **IMPORTANT** When you enter an email address as the logon in Cisco WFM, an email is immediately triggered and sent to the user. With this email, the user can create a password and log in. Therefore, do not enter the agents' email addresses until you are ready for agents to log in.

5. Click **Save**.

After the user is automatically synced from the ACD and Webex WFO, complete the following steps:

1. Go to **Application Management** > **User Configuration** > **Users**.
2. Select **Edit an existing user**.
3. Verify the **First Name** and **Last Name**.
4. In the **User Name** field, enter an email address. Update the **Team**, **Associated Groups and Teams**, and **QM Views** fields, if necessary.

> **IMPORTANT** When you enter an email address as the logon in Cisco WFM, an email is immediately triggered and sent to the user. With this email, the user can create a password and log in. Therefore, do not enter the agents' email addresses until you are ready for agents to log in. A user's email address must be valid and configured on your SMTP prior to adding a new user to Webex WFO or updating an existing user's email address in Webex WFO. Otherwise, Webex WFO cannot send emails to the user's email address. This message is only applicable to organizations that have configured users to receive activation and welcome emails to set their passwords.

5. Click **Save**.

In WFM web tools

1. Go to **People**, click **Add new employees**, and then click **Add new employee**.
2. Enter a **First name** and **Last name**.
3. Enter an **Email address**.
4. Enter an **Employment number**. The employment number is unique to each user and searchable in WFM. It can also be added to the agent description, to be shown together with the agent's name when they are listed in, for example, reports and schedules.
5. Enter a **Start date**.

6. Enter an **Identity logon**. The **Identity logon** is used for identity authentication. Enter the ID from the external authentication system. The ID must be unique for each agent.
7. Select the appropriate **Roles**.
8. Select the **Workflow control set** for the agent. The workflow control set defines, for example, how far ahead the agent can see their schedule, for which period they can send absence requests or shift trade requests and enter their preferences on how to work.
9. Select the day of the week that the **Work week starts on** to define the period that is considered a week. This affects for which period the contract rules are validated. These rules control the weekly rest, the maximum weekly work time, and the minimum weekly work time. The **Work week starts on** setting also affects the day off optimization settings that control the number of days off per week and the day off placement on weekends. The two last days of the work week are implicitly defined as weekend days. For example, if the first workday of the week for the agent is usually Monday, select Monday in the **Work week starts on** menu. This means the weekend is Saturday and Sunday.
10. Select the **Time zone** for the agent. The agent's time zone controls how they view things like shifts and staffing. In some areas of the product, times are always shown according to the agent's time zone. In other areas, it is possible to select the viewing time zone.
11. Toggle the **Employee to be scheduled** button on, if necessary, and fill in the fields.
12. Click **Save**.

Connect external logon to person

In WFM Client

Before you complete the below procedures, ensure that teams and contracts are set up. After the agent's first contact, you must wait overnight for the external logon to appear. After the ACD records the user's first call, complete the following steps:

1. Go to **People**, expand the site, expand the team, and double-click an agent.
2. Click the **Person periods** tab.
3. Select an existing person period or click the **New** drop-down list and select **New Person Period**. If you create a new person period, ensure that you add a **Date**.
4. Click the **External logon** field for an agent, click the **External logon** tab to the right, and then select the check boxes for the external logons to connect to this agent. The selected external logons

are listed in the **External logon** column.

NOTE External logons are used to connect statistics from external systems, such as CTIs, to the agents. The external logons are automatically populated from the external system every night. One agent can have several external logons to connect data from different external systems. Several agents can share one external logon. Sharing an external logon is generally not recommended, because that makes it impossible to view statistics per agent.

5. Click **Save**.

Updating email address

In Application Management

1. Go to **Application Management** > **User Configuration** > **Users**.
2. Select **Edit an existing user**.
3. In the **Select User** field, update the first and last name, if necessary.
4. In the **User Name** field, update the email address.
5. Click **Save**.

NOTE If the user is already linked to a WFM user (in other words, the Webex WFO user's email, prior to updating, matched a WFM user's log on), once a user's email address is updated in Application Management, Application Management will sync the Identity logon of the user in WFM.

In WFM web tools

1. Go to **People**.
2. Search for the agent.
3. Click **Display** for the agent.
4. Click the **Edit** symbol to the right of **Basic info**.
5. Update the **Email address**.
6. Click **Save**.

Deactivate User

In Application Management

1. Go to **Application Management** > **User Configuration** > **Users**.
2. Select **Edit an existing user**.
3. In the **Select User** field, search for a first and last name.
4. To deactivate the user, go to the **Activate** section and clear the **Activate this user** check box.
5. Click **Save**.

In WFM web tools

1. Go to **People**.
2. Search for the agent and then select the agent.
3. Click **Actions** and then select **Set leaving date**.
4. Select the leaving date.
5. Click **Save**.

Check readiness for transition from Cisco Teleopti WFM to New Cisco WFM

You can run a transition readiness process that verifies if all of your user details are correct for your user transition from Cisco Teleopti WFM to New Cisco WFM, so that your users can still log in after the transition.

NOTE This feature is not enabled by default and is only available as part of a transition from Cisco Teleopti WFM to New WFM.

Prerequisites

- You have the People permission.

Page location

Client > People

Web > People

Procedures

Check transition readiness

1. In the WFM client, open a team.
2. Ensure that there is an email address in the **Appl. logon name** field or the **Log on** field.
3. In the WFM web tools, in the **People** tool, click **Check for transition readiness**.
4. In the **Validate Transition Readiness** window, select option 1 or option 2 and then enter one or more domain names.
5. Click **Run**. All errors appear in the results in a spreadsheet. For Option 1, ensure that there is an email address in the **Appl. logon name** column. For option 2, ensure that there is an email address in the **Log on** column. If you use both options in your organization, you must check both columns for errors.

Related topics

- WFM data transition overview
- Transition data from Classic Cisco WFM to the new Cisco WFM

Find, sort, and filter WFM agents and users

Find the agents or users that you want to edit settings for with the **Find** function. This is useful to find agents if you are not sure in which team they are working. It can also help you find agents who have left the organization. This works as long as the agents' leaving date is not too long ago, so that their data has been pseudonymized or deleted based on the database purge settings.

The agents or users that you open in the People module can be sorted and filtered, to make the data easier to work with.

If you have opened many agents or users, use the **Find** function within the People module to find specific details.

Prerequisites

- You have the People permission.

Page location

Client > People

Procedures

Find agents or users

1. In People in the main portal, click **Find** in the **Actions** section.
2. Enter the search criteria in text field. This can be for example a part of the name, the employment number, or the information in the note field.
3. To limit the search results, select the field to search in the drop-down menu.
4. To find a person that has left the organization, select a date when you know that this person was still employed.
5. Click the **Search** button with the magnifying glass.
6. Maximum 10 agents are shown at a time. Click **Next** to page through the results.
7. Select the agents to open in the People module. To select more than one agent or user, press the **Ctrl** key and click to select.
8. Click **Open**.

Find information for agents or users

Find information for agents or users that you have open in the People module.

1. Select the tab that you want to search within.
2. Click **Find**.
3. Enter the search criteria in the **Find what** field.
4. To do a more detailed search, click **Options**.
    - Select to search the **Whole table** or the selected **Column only**.
    - Select **Match case** to make the search case-sensitive.
    - Select **Match whole cell** to only present the exact matches in the search result.
5. Click **Find all** to show all matches or click **Find next** to select the next match in the table.

Sort agents or users

By default, the agents or users are sorted based on their last name. Select to sort on other columns.

1. Select the column header for the column to sort on.
2. Click **Sort** and select to sort the column ascending or descending.

Filter agents

1. Click **Filter**.
2. Select the tab to filter by, either the **Business hierarchy** tab or a group page tab, like **Contract** or **Skill**.
3. Select the check boxes for sites, teams, groups or individual agents or users.
4. Click **OK**.

Related topics

- Create group pages to filter agents in WFM

Add or edit WFM users manually

Add users to WFM by defining details such as name, logon and roles in the People module.

Users have permissions to use WFM, but they are usually not part of any team and they are not scheduled in WFM. Users can be for example forecasters, schedulers or business administrators.

Users are found in the **User** folder on the **Business hierarchy** tab in the People module. Open a user in the People module to edit the details.

> **NOTE** Handle logons and roles in the People tool on web. See Manage WFM user and agent access. The main reason is that any changes to logon names and roles in the People tool on web are logged in the General audit trail. This gives you the possibility to see all changes and see when they were made and by whom. Keep the number of users that can change logons or roles in the People module in the Windows client to a minimum. The permission that controls that access is the People > Modify name and password permission.

Prerequisites

- You have the People permission and the underlying permissions Add person and Can change and save.
- To add an application logon, you must have the People > Modify name and password permission.
- Roles are created.

Page location

Client > People > General tab

Procedures

Add a new user

When you add a user, the General tab is the only tab you need to fill in.

1. Add a row to enter details for a new person in one of these two ways.
    - Open People for a team or site, select the General tab and click New.
    - In People in the main portal, click Add person.
2. Enter the user's **First name** and **Last name**.
3. Enter their **Email** address to be used for email notifications.

    IMPORTANT A user's email addresses must be valid and configured on the customer SMTP prior to adding a new user to Webex WFO or updating an existing user's email address in Webex WFO. Otherwise, Webex WFO cannot send emails to the user's email address. This message is only applicable to organizations that have configured users to receive activation and welcome emails to set their passwords.
4. Enter their **Employment number**. The employment number is searchable in WFM.
5. Add a **Note** to provide any additional information.
6. Enter a **Logon**.

    The **Logon** is used for identity authentication. Enter the ID from the external authentication system. The ID must be unique for each user.

> **IMPORTANT** When you enter an email address as the **Logon** in Cisco WFM, an email is immediately triggered and sent to the user. With this email, the user can create a password and log in. Therefore, do not enter users' email addresses until you are ready for agents to log in.

7. If you are using application authentication, enter a **Password**.
8. Ensure the user's row is selected and then select the check boxes for the **Roles** to add in the list to the right. The selected roles are listed in the user's **Role** column.
9. Select the **Language** for this user. Select a specific language or select **Computer default**. Computer default uses the language settings on the user's computer. If the selected language is not available in WFM, English is shown.

   > **NOTE** Calendar language, for example names of months and days of the week, is controlled by the **Format** setting.

10. Select the **Format** for this user. The format controls how times and dates are shown in WFM. It is based on Microsoft standards. Select a specific format or select **Computer default**. Computer default uses the format settings on the user's computer.
11. Select the **Time zone** for this user. The user's time zone controls how they view things like shifts and staffing. In some areas of the product, times are always shown according to the user's time zone. In other areas it is possible to select the viewing time zone. The time zone is in the UTC format.
12. Define what day of the week the **Work week starts on**. This defines what is considered a week and affects for which period the weekly rest is calculated. The two last days of the work week is considered the weekend, which affects how days off are scheduled on weekend days during schedule optimization.
13. Select the **Workflow control set** for this user. A workflow control set is only needed for users who need to view schedules and who do not have permissions to view unpublished schedules. This is common for team leaders.
14. Any columns between the **Workflow control set** column and the **Leaving date** column are added as optional columns. Fill them in according to the process defined by your organization.
15. Leave the **Leaving date** field empty for now. It is set when the user has resigned. The leaving date is the last workday of the employment. See End an employment for WFM for more information.
16. Click **Save**.

Edit details for an existing user

1. In People in the main portal, open the **User** folder.
2. Double-click a user to open People and edit details for that user.
3. Edit the details according to the descriptions in the procedure above.
4. Click **Save**.

Related topics

- Add or edit WFM agents manually
- Import new employees for WFM
- Manage WFM user and agent access
- —Add and update users for the rest of the Webex WFO suite
- Configure QM global settings—Configure Webex WFO to display contacts in the user's time zone

Add or edit WFM agents manually

Enter the required information in the People module to schedule new agents. There are three mandatory tabs; the General tab, the Person periods tab and the Schedule periods tab. Only the General tab is mandatory when you add new users who are not scheduled in WFM. See Add or edit WFM users manually

This topic describes how to add a new agent and enter the basic information on the General tab. Then continue to add a person period and a schedule period for the agent. See the topics Manage WFM agent work rules and Manage schedule periods.

When you add a new agent manually, it is often helpful to copy information from an existing agent who works in a similar way. Open for example the team that the agent is planned to work in when you add the new agent. Copy relevant information from one of the other agents to the new agent.

It's possible to copy information like names and email addresses from for example an Excel document to the fields in People. To copy information from local sources to People when using Windows Virtual Desktop to access the Windows client, you must use Ctrl+C and Ctrl+V to copy and paste. You must also press Ctrl+V before you start copying content from your local source.

To add many new agents at once, use the new employee import. See Import new employees for WFM.

NOTE Handle logons and roles in the People tool on web. See Manage WFM user and agent access. The main reason is that any changes to logon names and roles in the People tool on web are logged in the General audit trail. This gives you the possibility to follow up on any changes and see when they were made and by whom. Keep the number of users that can change logons or roles in the People module in the Windows client to a minimum. The permission that controls that access is the People > Modify name and password permission.

Prerequisites

- You have the People permission and the underlying permissions Add person and Can change and save.
- To add application logons, you must have the People > Modify name and password permission.
- Roles are created.
- A workflow control set is created.

Page location

Client > People > General tab

Procedures

Add a new agent

When you add an agent, start with entering the information on the General tab.

1. Add a row to enter details for a new agent in one of these two ways.
    - Open People for a team or site, select the **General** tab and click **New**.
    - In People in the main portal, click **Add person**.
2. Enter the agent's **First name** and **Last name**.
3. Enter their **Email** address.

    IMPORTANT A user's email addresses must be valid and configured on the customer SMTP prior to adding a new user to Webex WFO or updating an existing user's email address

Webex WFO. Otherwise, Webex WFO cannot send emails to the user's email address. This essage is only applicable to organizations that have configured users to receive activation nd welcome emails to set their passwords.

4. Enter their **Employment number**. The employment number is searchable in WFM. It can also be added to the agent description, to be shown together with the agent's name when agents are listed in for example reports and schedules.
5. Add a **Note** to provide any additional information. The values in these notes are the basis for the **Note** group page, which can be used to filter agents.
6. Enter a **Logon** .

   The **Logon** is used for identity authentication. Enter the ID from the external authentication system. The ID must be unique for each agent.

   IMPORTANT When you enter an email address as the **Logon** in Cisco WFM, an email is immediately triggered and sent to the user. With this email, the user can create a password and log in. Therefore, do not enter agents' email addresses until you are ready for agents to log in.

7. If you are using application authentication, enter a **Password**.
8. Ensure the agent's row is selected and then select the check boxes for the **Roles** to add in the list to the right. The selected roles are listed in the **Role** column.
9. Select the **Language** for this agent. Select a specific language or select **Computer default**. Computer default uses the language settings on the agent's computer. If the selected language is not available in WFM, English is shown.

   NOTE Calendar language, for example names of months and days of the week, is controlled by the **Format** setting.

10. Select the **Format** for this agent. The format controls how times and dates are shown in WFM. It is based on Microsoft standards. Select a specific format or select **Computer default**. Computer default uses the format settings on the agent's computer.
11. Select the **Time zone** for this agent. The agent's time zone controls how they view things like shifts and staffing. In some areas of the product, times are always shown according to the agent's time zone. In other areas it is possible to select the viewing time zone. After you add an agent to WFM, it

is recommended that you do not edit an agent's time zone because it might cause errors. Instead, you must terminate the agent and create a new agent with the correct time zone.

12. Select what day of the week the **Work week starts on**to define the period that is considered a week. This affects for which period the contract rules are validated. These rules control the weekly rest, the maximum weekly work time, and the minimum weekly work time. The **Work week starts on** setting also affects the day off optimization settings that control the number of days off per week and the day off placement on weekends. The two last days of the work week are implicitly defined as weekend days.

    EXAMPLE If the first workday of the week for the agent is usually Monday, select Monday in the **Work week starts on** menu. This means the weekend is Saturday and Sunday.

13. Select the **Workflow control set** for this agent. The workflow control set defines for example how far ahead the agent can see their schedule, for which period they can send absence requests or shift trade requests and enter their preferences on how to work.
14. Any columns between the **Workflow control set** column and the **Leaving date** column are added as optional columns. Fill them in according to the process defined by your organization.
15. Leave the **Leaving date** field empty for now. It is set when the agent has resigned. The leaving date is the last workday of the employment. See End an employment for WFM for more information.
16. Click **Save**.
17. Continue by adding a person period for the new agent. See Manage WFM agent work rules.

Edit details for an existing agent

NOTE It is recommended that you do not edit an agent's time zone because this might cause errors. Instead, you must terminate the agent and create a new agent with the correct time zone.

1. In People in the main portal, expand the agent’s team.
2. Double-click the agent to open People for that agent. To edit many agents, double-click a site or team to open all agents in that site or team.
3. Edit the details according to the descriptions in the procedure above.
4. Click **Save**.

Related topics

- Add or edit WFM users manually
- Import new employees for WFM
- Manage WFM agent work rules
- Manage schedule periods
- Manage personal accounts for absences
- Assign rotations to agents
- Assign availability patterns to agents
- Manage WFM user and agent access
- —Add and update users for the rest of the Webex WFO suite
- Configure QM global settings—Configure Webex WFO to display contacts in the user's time zone

Move an agent to a non-agent role or a different business unit

You can use the WFM desktop client or web client to move an agent to a non-agent role when a promotion occurs and they no longer need an agent license. For further information, see How the WFM licensing model works In the web client, you can also move an agent from one business unit to another business unit.

Prerequisites

- You have the Web > People permission or the Client > People permission.

Page location

WFM > People

Procedures

Move an agent to a non-agent role or a new business unit in the WFM desktop client

1. Open the site or team where the agent currently exists.
2. Click **General** and locate the agent.

3. In the **Leaving Date** column, enter a leaving date. You must add a leaving date of yesterday or earlier. If you cannot see the **Leaving Date** column, scroll to the right.
4. Click **Save**.
5. In the **Log on** column, delete the user's email address.
6. Click **Save**.
7. Click **New** and then enter the relevant details. For example, first name, last name, and employment number.
8. To move an agent to a new business unit, open the WFM desktop client in a different business unit before you proceed to the next step. If you do not want to move an agent to a new business unit, skip step 8.
9. To enter a role in a new business unit or to move an agent to a non-agent role, in the **Roles** panel, select the agent and then select a role.
10. In the **Log on** column, enter the user's email address and click **Save**. The user should be able to login without reactivating or resetting their password.

Move an agent to a non-agent role or a different business unit in the WFM web client

1. Select the agent.
2. Click **Actions** and select **Set leaving date**.
3. Click **Effective date** and select the date. You must add a leaving date of yesterday or earlier.
4. Click **Save**.
5. Ensure that the user is still in the **Active selection** pane, click **Actions**, and select **Set identity logons**.
6. Delete the email address and click **Save**.
7. To move an agent to a new business unit, open the WFM web client in a different business unit before you proceed to the next step. If you do not want to move an agent to a new business unit, skip step 7.

8. To enter a role in a new business unit or to move an agent to a non-agent role, click **Add new employees**, click **Add new employee**, and then enter the relevant details. In the **Identity login** field, enter the user's email address.

Import new employees for WFM

Use the file import to add new employees. The file import cannot be used to update information about existing employees.

A validation of the import file is done before you run the import. The validation highlights any potential issues in the file, for example duplicate names or a contract name that could not be matched to any existing contract name.

If there are warnings, the affected fields are highlighted in yellow. If you decide to go through with the import, rows with warnings are still imported. Warnings are shown for example when both the first and last name are the same as for an existing user or when the email address is the same as for an existing user.

If there are errors, the affected fields are highlighted in red. If you decide to go through with the import without adjusting these values first, rows with errors are not imported. Errors are shown for example when the employment number is the same as for an existing user.

For some of the parameters, default values can be set. These values are used as fallback values, if they are not defined in the import file. See Set default values for the WFM employee import for more information.

The imports of new employees are shown in the General Audit Trail report.

Prerequisites

- You have the Web > People > Add new employees permission.

Page location

WFM > People

Procedures

Import new employees

1. Prepare the import file to ensure it fulfills the employee import file format. See Import file format for WFM employees.
2. Click **Add new employees** and select **Import new employees**.
3. Select the **Time zone** to set for the users in the import. The time zone is from the IANA database
4. Select a day of the week for **Work week starts on**.
5. Drop the file to import in the area at the top of the page.
6. Review any warnings or errors. If needed, adjust the file and upload it again.
7. Click **Import**.
8. Click **OK**.
9. A message is shown when the import is done. It specifies the number of agents that were successfully imported, and if applicable the number of agents that could not be imported because of errors. Click **OK**.

Follow up on the import

When the import is done, the result is shown in the import view.

- The filtered table by default shows any rows with errors. These rows have not been imported.
- Select the **Warnings** check box to show any rows with warnings.
- Select the **Imported** check box to show the rows that were successfully imported.

Related topics

- Set default values for the WFM employee import
- Import file format for WFM employees
- General Audit Trail report
- Import and export users for QM and Analytics—Import users into the rest of the Webex WFO suite

Set default values for the WFM employee import

The employee default values are used when importing new employees. The default values are fall-back values. They are used if no value is defined for those parameters in the import file. The value for the start day of the week can only be set in these settings, not in the import file.

The defined default values are shown in the Import new employees view. There are three default values that are not configurable; time zone, language and date format. For these parameters, the values defined for the user who is doing the import are used as default values.

Prerequisites

- You have the Web > WFM settings > Settings for new employees permission.

Page location

WFM > System settings > Set employee defaults

Procedures

Set employee default values

1. Select the **Site/team** to be used as default.
2. Select the **Contract** to be used as default.
3. Select the **Contract schedule** to be used as default.
4. Select the **Part-time percentage** to be used as default.
5. Select which day the **Work week starts on**.
6. Click **Save**.

Related topics

- Import new employees for WFM

Import file format for WFM employees

The import file for new employees must follow the described format. Some values are mandatory, but most of them are optional.

Default values can be defined for the parameters Site and Team, Contract, Contract schedule and Part-time percentage. If default values are defined, they are used if no value is defined in the import file. See Set default values for the WFM employee import for more information.

The file should be an Excel file with the .xlsx format.

> **IMPORTANT** A user's email addresses must be valid and configured on the customer SMTP prior to adding a new user to Webex WFO or updating an existing user's email address in Webex WFO. Otherwise, Webex WFO cannot send emails to the user's email address. This message is only applicable to organizations that have configured users to receive activation and welcome emails to set their passwords.

People import file columns

- **First name** (mandatory)
- **Last name** (mandatory)
- **Start date** (mandatory). Use date format YYYY-MM-DD.
- **Site** (optional if a default value is defined). If not defined in the file, the default value is used.
- **Team** (optional if a default value is defined). If not defined in the file, the default value is used.
- **Contract** (optional if a default value is defined). If not defined in the file, the default value is used.
- **Contract schedule** (optional if a default value is defined). If not defined in the file, the default value is used.
- **Part-time percentage** (optional if a default value is defined). If not defined in the file, the default value is used.
- **Employment number** (optional). Must be unique, otherwise the row will give an error.
- **Email address** (optional). Must be unique, otherwise the row will give an error.
- **Application logon name** (optional). Must be unique, otherwise the row will give an error.
- **Identity logon** (optional). Must be unique, otherwise the row will give an error.
- **Roles** (optional). Only one role can be assigned in the import.
- **Workflow control set** (optional).
- **Shift bag** (optional). Set on the person period that is created with the given start date.

- **Budget group** (optional). Set on the person period that is created with the given start date
- **Time zone**(optional if a default value is defined). If not defined in the file, the default value is used. The time zone is from the IANA database.
- **Work Week Starts On** - (optional if a default value is defined). If not defined in the file, the default value is used.

Related topics

- Import new employees for WFM
- Set default values for the WFM employee import

Manage WFM user information

View and edit user information, for example their name and email address or information about their employment, team, skills, and workflow control set.

All changes made in the web People tool are logged. Check the General Audit Trail report to see what changes were made, by who and when.

NOTE All searches in the People tool are dependent on the selected date. This is useful for example to find users who have a start date in the future or to find who worked in a team on a given day in the past. This can also be used to check for example if a future team change has already been configured and if it was done correctly.

IMPORTANT The user must also be added in Application Management. See for more information.

Prerequisites

- You have the Web > People permission and if needed additional underlying permissions.
  - Add new employees to enter details for a new user or agent.
  - Edit basic person information to change the note or the start date for a user or agent.
  - Edit employment details to change agents' contract, contract schedule, part-time percentage, shift bag or budget group.
  - Manage leaving date to enter or remove a leaving date.
  - Manage site/team to move agents to a new team.

- Manage skills to add skills to agents.
- View employment number to see a user's or agent's employment number.
- View optional columns to see and edit the information entered in any optional columns.
- View users to see existing users who are not connected to a team, and add new users.

Page location

WFM > People > Basic info tab

Procedures

Search for and select agents and users to work with

1. Select the date to search by.

   The search result is dependent on the selected date. This is useful to find users who have a start date in the future, or to find who worked in a team on a given day in the past.

2. If you want to show agents for selected teams and sites, click the **Site/team** field and select the check boxes for the sites and teams to show.
3. Optionally, enter what to search for in the **Search** field to narrow the search further. You can search by name, employment number, role, skill, contract, part-time percentage and shift bag.
4. Click **Search**.
5. Click the respective column header to sort the search result on name, site and team, or employment number.
6. Select the check boxes for the agents or users to work with. The selected agents and users are shown in the **Active selection** panel to the right.

Display the agent or user profile

This view displays the agent or user profile, and this is also where you can update details such as the name, employment number, and email address, adjust the start date, or set a leaving date.

1. Find the agents or users to show information for according to the instruction above.
2. Click **Display** for the agent or user to show the profile for. See Display and edit user information for more information about what you can do in this view.

Add a new employee

1. Click **Add new employees** and select **Add new employee**.
2. Enter the employee's **First name** and **Last name**.
3. Enter their **Email** address.

   > **IMPORTANT** A user's email addresses must be valid and configured on the customer SMTP prior to adding a new user to Webex WFO or updating an existing user's email address in Webex WFO. Otherwise, Webex WFO cannot send emails to the user's email address. This message is only applicable to organizations that have configured users to receive activation and welcome emails to set their passwords.

4. Enter their **Employment number**. The employment number is searchable in WFM. It can also be added to the agent description, to be shown together with the agent's name when agents are listed in for example reports and schedules.
5. Enter the **Start date** of the employee.
6. Enter an **Identity logon** .

   The **Identity logon** is used for identity authentication. Enter the ID from the external authentication system. The ID must be unique for each agent.

   > **IMPORTANT** When you enter an email address as the **Logon** in Cisco WFM, an email is immediately triggered and sent to the user. With this email, the user can create a password and log in. Therefore, do not enter users' email addresses until you are ready for them to log in.

7. Select the permission **Roles** that apply for this employee.
8. Select the **Workflow control set** for this employee. The workflow control set defines for example how far ahead the agent can see their schedule, for which period they can send absence requests or shift trade requests and enter their preferences on how to work. A workflow control set is also needed for users who need to view schedules and who do not have permissions to view unpublished schedules. This is common for team leaders.
9. Select what day of the week the **Work week starts on**to define the period for which the contract rules are validated. These rules control the weekly rest, the maximum weekly work time and the minimum weekly work time. The **Work week starts on** setting also affects the day off optimization settings that control the number of days off per week and the day off placement on weekends. The two last days of the work week are implicitly defined as weekend days.

10. Select the **Time zone** for this employee. The agent's time zone controls how they view things like shifts and staffing. In some areas of the product, times are always shown according to the employee's time zone. In other areas it is possible to select the viewing time zone. The time zone is from the IANA database.
11. In the **Reporting manager** drop-down list, to search for a name, enter a minimum of three characters. Then, select the name.
12. If the employee is an agent who will be scheduled within Cisco WFM, toggle **Employee to be scheduled** on. When you do, more fields are shown, described below.

    If the employee is a user who will not be scheduled within Cisco WFM, click **Save**.
13. Select what **Site/team** the employee will belong to.
14. Select a **Contract**, **Contract schedule** and a **Part-time percentage** for the employee.

    The employee's contract time target for each schedule period is calculated based on these three settings. See How work time is calculated for more information.
15. Select which **Skills** the employee has. The selected skills are listed in the **Skills** column.
16. Select the **Shift bag** to select shifts from for the employee.
17. To approve the employee's absence requests based on budget allowance, select a **Budget group**. To automatically load staff employed when creating staffing budgets, the employees must be connected to a budget group.
18. Click **Save**.

Add a reporting manager for one or more agents

1. Find and select the agents.
2. Click **Actions**.
3. Click **Set reporting manager**.
4. In the **Reporting manager** drop-down list, to search for a name, enter a minimum of three characters. Then, select the name.
5. Click **Save**.

Move agents to a new team

1. Find and select the agents who are changing teams according to the instruction above.
2. Click **Actions** and select **Set team**.
3. Select an **Effective date**. The effective date is the date when the agents move to the new team.
4. Select what **Team** the agents will join.
5. Click **Save**.

Change employment details for agents

1. Find and select the agents to change contract, contract schedule or part-time percentage for according to the instruction above.
2. Click **Actions** and select **Set employment details**.
3. Select an **Effective date**. The effective date is the date when the new employment details take effect.
4. Select the new **Contract**, **Contract schedule** or **Part-time percentage** to apply.
5. Click **Save**.

NOTE For more information on how to configure contracts, contract schedules and part-time percentages for agents, see How work time is calculated.

Change a user to an agent

Change a user to an agent that can be scheduled from the selected effective date.

1. Find and select the users to add a team, a contract, a contract schedule and part-time percentage for according to the instruction above.
2. Click **Actions** and select **Set employment details**.
3. Select an **Effective date**. The effective date is the date when the new employment details take effect.
4. Select the new **Team**, **Contract**, **Contract schedule**, and **Part-time percentage** to apply.
5. Click **Save**.

NOTE For more information on how to configure contracts, contract schedules and part-time percentages for agents, see How work time is calculated.

Change shift bag for agents

A shift bag is a collection of shifts that can be assigned to an agent in automatic scheduling. See Overview of creating shifts in the WFM client for more information.

1. Find and select the agents to change shift bag for according to the instruction above.
2. Click **Actions** and select **Set shift bag**.
3. Select an **Effective date**. Agents are scheduled with shifts from the new shift bag from the effective date.
4. Select the **Shift bag** to apply to the agents.
5. Click **Save**.

Assign a new budget group to agents

Budget groups are used to create long-term staffing budgets and to set up absence request allowances for the agents who belong to the budget group. See How creating staffing budgets works for more information.

NOTE When you change the budget group for an agent, any previously scheduled absences are subtracted from the budget allowance of the new budget group, and the spot opens up again on the previous budget group.

1. Find and select the agents to assign a new budget group to according to the instruction above.
2. Click **Actions** and select **Set budget group**.
3. Select an **Effective date**. Agents belong to the new budget group from the effective date.
4. Select the **Budget group** to assign to the agents.
5. Click **Save**.

Assign a workflow control set to agents

Workflow control sets are rules that mainly define when agents can perform certain tasks and what rules and validations to apply for those tasks. See Manage workflow control sets for more information.

NOTE There is no effective date for workflow control sets. Changes take effect immediately.

1. Find and select the agents to assign a workflow control set to according to the instruction above.
2. Click **Actions** and select **Set workflow control set**.
3. Select the **Workflow control set** to assign to the selected agents.
4. Click **Save**.

Set rotations

1. Find and select the agents that you want to set a rotation for.
2. Click **Actions** and select **Set rotation**.
3. Select a start date, rotation, and start week.
4. Click **Save**.

Add skills to agents

Add additional skills to agents. The skills you add are counted as active skills with 100% proficiency.

1. Find and select the agents to add skills to according to the instruction above.
2. Click **Actions** and select **Add skills**.
3. Select an **Effective date**. The skills are added to the selected agents from the effective date.
4. Click the **Skills to add** field and select what skills to add.
5. Click **Add**.

Remove skills from agents

1. Find and select the agents to remove skills from according to the instruction above.
2. Click **Actions** and select **Remove skills**.
3. Select an **Effective date**. The skills are removed from the selected agents from the effective date.
4. Click the **Skills to remove** field and select what skills to remove.
5. Click **Remove**.

Edit start date, note, or optional columns with copy and paste

Change the start date, note, or any optional column value for several users at once.

NOTE An employment number must be set for the users to change their values by copy and paste.

1. Find and select the agents to edit values for according to the instruction above.
2. Click **Actions** and select **Edit with copy/paste**.
3. Select what **Column to edit**.
4. Click **Copy current values to clipboard**.

5. Open a spreadsheet software, for example Google Sheets or Microsoft Excel.
6. Paste your copied values.
7. Enter the new values in the **New value** column.

   > **NOTE** When you change the users' start date, the new start date must be entered in the YYYY-MM-DD format.

8. Select all four columns and copy the values.
9. Go back to the People tool and click **Paste values from clipboard**.
10. Paste the values in the **Paste area**.
11. Look at the preview of the pasted values to ensure that it looks correct.

    If any values are highlighted in red, these values will not be saved. This can be for example because the date format is not correct, because the user does not have an employment number, or because more than one user has the same employment number.

12. Click **Insert pasted values**.

    If there are any values which cannot be saved, the row is highlighted in read and the reason is shown in the **Error** column.

13. Click **Save**.

Set a leaving date

This removes any schedule data for dates after the leaving date immediately. See End an employment for WFM for more information on what happens when you set a leaving date.

1. Find and select the agents to set a leaving date for according to the instruction above.
2. Click **Actions** and select **Leaving date**.
3. Select an **Effective date**. The agents' leaving date is set to this date.
4. Click **Save**.
5. Click **OK** to confirm.

Related topics

- Manage WFM user and agent access
- Manage user information in the Custom view
- Display and edit user information
- Import new employees for WFM
- —Add and update users for the rest of the Webex WFO suite
- Configure QM global settings—Configure Webex WFO to display contacts in the user's time zone
- Configure the organization hierarchy for WFM

Display and edit user information

Click **Display** for a user in People to show information about the user's employment, team and skills. In this view you can update the user's name, email address and employment number. This is also where you adjust the employment start date and where you enter the leaving date if the user is leaving the company.

If the agent has participated in a bid process, their current shift pattern is shown.

All changes made in the web People tool are logged. Check the General Audit Trail report to see what changes were made, by who and when.

Prerequisites

- You have the Web > People permission and if needed additional underlying permissions.
    - View employment number to see a user's or agent's employment number.
    - View users to see users who are not connected to a team.
    - Edit basic person information to change the name, email address, employment number, employment start date, workflow control set or work week start.
    - Manage leaving date to enter or remove a leaving date.
- Users or agents are added.

Page location

WFM > People > Display

Procedures

View the agent or user information

The user information view has three tabs.

- **User info**—This tab contains basic information about the user, for example their name, email address, employment number, logon, roles, and time zone. Any optional columns are shown on this tab.
- **Employment**—This tab contains employment details, for example what team the agent belongs to, their contract details and their skills. The information in this tab is based on periods. Use the arrow buttons at the top to view any changes that are valid for earlier or later dates than the currently selected period. The effective date is the date from when the settings took effect. This tab is normally empty for users who don't belong to a team.

  > **NOTE** An orange line in the left part of a column or field indicates that there is a change in this period, compared to the previous period. An orange line in the right part of a column or field indicates that there is a change in the next period.

- **Shift patterns**—This tab shows the current shift pattern for this agent. If this agent has not participated in any bid process, this tab is not shown.

Update name, email address, or employment number for an agent or user

1. Select the **User info** tab.
2. Click **Edit** in the **Basic info** section.
3. Enter the new name, email address, or employment number.
4. Click **Save**.

> **IMPORTANT** A user's email addresses must be valid and configured on the customer SMTP prior to adding a new user to Webex WFO or updating an existing user's email address in Webex WFO. Otherwise, Webex WFO cannot send emails to the user's email address. This message is only applicable to organizations that have configured users to receive activation and welcome emails to set their passwords.

Add a reporting manager for an agent

1. Find the agent.
2. Click **Display**.

3. Click the pen icon beside **Basic info**.
4. Enter the name of the **Reporting manager**.
5. Click **Save**.

Adjust the start date for an agent or user

The start date is by default set to the start date of the first person period. If it is not correct, adjust it manually.

1. Select the **User info** tab.
2. Click **Edit** in the **Basic info** section.
3. Enter the correct **Start date**.
4. Click **Save**.

Set a leaving date for an agent or user

This removes any schedule data for dates after the leaving date immediately. See End an employment for WFM for more information on what happens when you set a leaving date.

1. Select the **User info** tab.
2. Click **Edit** in the **Basic info** section.
3. Enter the **Leaving date**.
4. Click **Save**.

Remove a leaving date for an agent or user

This reactivates the agent or user.

1. Select the **User info** tab.
2. Click **Edit** in the **Basic info** section.
3. Hover the leaving date and click the small **X** button to remove it.
4. Click **Save**.

Set or edit a note for an agent or user

Notes can be used to provide additional information about an agent or user.

1. Select the **User info** tab.
2. Click **Edit** in the **Basic info** section.
3. Enter the new **Note**.
4. Click **Save**.

Set or edit the workflow control set for an agent

Workflow control sets are rules that define when agents can perform certain tasks and what rules and validations to apply for those tasks.

1. Select the **User info** tab.
2. Click **Edit** in the **User settings** section.
3. Select a **Workflow control set**.
4. Click **Save**.

Set or edit the work week start for an agent

Select on what day of the week the work week starts. This affects for which period the contract rules are validated. These rules control the weekly rest, the maximum weekly work time, and the minimum weekly work time. The **Work week starts on** setting also affects the day off optimization settings that control the number of days off per week and the day off placement on weekends. The two last days of the work week are implicitly defined as weekend days.

> **EXAMPLE** If the first workday of the week for the agent is usually Monday, select Monday in the **Work week starts on** menu. This means the weekend is Saturday and Sunday.

1. Select the **User info** tab.
2. Click **Edit** in the **User settings** section.
3. Select what day the **Work week starts on**.
4. Click **Save**.

Set or edit values in optional columns

Optional columns are user-created columns to store any information related to the agents.

1. Select the **User info** tab.
2. Click **Edit** in the **Optional columns** section.

3. Enter information in the field of the appropriate optional column.
4. Click **Save**.

Related topics

- Manage WFM user information
- Manage WFM user and agent access
- Manage user information in the Custom view
- Import new employees for WFM
- —Add and update users for the rest of the Webex WFO suite
- Configure the organization hierarchy for WFM

Manage WFM user and agent access

Grant roles to give users or agents access to functionality and data in WFM. Revoke roles to limit access. This can be done for example for individual users or for multiple agents at once.

Change or remove identity logons.

All changes related to roles and logons in web People are logged. Check the General Audit Trail report to see what changes were made, by who and when.

Prerequisites

- You have the Web > People > Access management permission.
- To manage access for users who are not connected to any team, you have the Web > People > View users permission.
- Users or agents are added.

Page location

WFM > People > Access tab

Procedures

Search for and select agents and users to work with

1. Select the date to search by.

   The search result is dependent on the selected date. This is useful to find users who have a start date in the future, or to find who worked in a team on a given day in the past.

2. If you want to show agents for selected teams and sites, click the **Site/team** field and select the check boxes for the sites and teams to show.
3. Optionally, enter what to search for in the **Search** field to narrow the search further. You can search by name, employment number, role, skill, contract, part-time percentage and shift bag.
4. Click the **Search** button.
5. Click the respective column header to sort the search result on name or site and team.
6. Select the check boxes for the agents or users to work with. The selected agents and users are shown in the active selection panel to the right.

Grant roles

NOTE You must have the Super administrator role to grant the Super administrator role to another user.

1. Select the agents or users to grant roles to according to the instruction above. When you grant a role, it applies to all agents in the **Active selection** panel.
2. Click **Actions** and select **Grant role**.

   The roles which at least one of the selected agents or users have are shown in the **Current roles** field. The roles you can grant are shown in the **Available roles** field.

3. Select the check boxes for the roles to grant to the selected agents or users.
4. Click **Grant**.

Revoke roles

1. Select the agents or users to grant roles to according to the instruction above. When you revoke a role, that applies to all agents in the **Active selection** panel.

2. Click **Actions** and select **Revoke role**. The roles which at least one of the selected agents or users have are shown in the **Revokable roles** field.
3. Select the check boxes for the roles to revoke from the selected agents or users.
4. Click **Revoke**.

Define or change logons

IMPORTANT When you enter an email address as the identity logon in CiscoWFM, an email is immediately triggered and sent to the user. With this email, the user can create a password and log in. Therefore, do not enter agents' email addresses until you are ready for agents to log in.

1. Select the agents or users to define logons for according to the instruction above.
2. Click **Actions** and select **Manage identity logons**.

   Identity logon can use third-party authentication, such as authentication through Windows or Okta.
3. Enter the new logon names for the selected agents and users. The logon names are immediately validated on uniqueness to prevent defining identical logons for different agents or users.
4. Click **Save**.

NOTE The identity logon passwords are not set in WFM but in the third-party system.

Related topics

- Create roles for access to WFM
- Add or edit WFM agents manually
- Add or edit WFM users manually
- Manage WFM user information
- Manage user information in the Custom view
- Import new employees for WFM
- Manage roles and permissions for QM, Analytics, and Insights

Manage user information in the Custom view

Use the Custom view in People to show the information that is relevant to you.

All changes made in the web People tool are logged. Check the General Audit Trail report to see what changes were made, by who and when.

> **NOTE** All searches in the People tool are dependent on the selected date. This is useful for example to find users who have a start date in the future or to find who worked in a team on a given day in the past. This can also be used to check for example if a future team change has already been configured and if it was done correctly.

Prerequisites

- You have the Web > People permission and if needed additional underlying permissions to view or change data.
- Users or agents are added.

Page location

WFM > People > Custom view tab

Procedures

Select what information to show in the table

1. Click **Columns** (the gear icon).
2. Select the check boxes for the information to show in the table. The changes are automatically applied and saved.

Search for and select agents and users to work with

1. Select the date to search by.

   The search result is dependent on the selected date. This is useful to find users who have a start date in the future, or to find who worked in a team on a given day in the past.

2. If you want to show agents for selected teams and sites, click the **Site/team** field and select the check boxes for the sites and teams to show.
3. Optionally, enter what to search for in the **Search** field to narrow the search further. You can search by name, employment number, role, skill, contract, part-time percentage and shift bag.
4. Click the **Search** button.

5. Click the respective column header to sort the search result.
6. Select the check boxes for the agents or users to work with. The selected agents and users are shown in the active selection panel to the right.

Related topics

- Manage WFM user information
- Manage WFM user and agent access
- Import new employees for WFM

Manage WFM agent work rules

Assign the work rules that apply to the agents on the Person periods tab in the People module. The work rules defined by person period are site and team, skills, external logon, contract, contract schedule, part-time percentage, shift bag and budget group. These work rules are the foundation to a correct schedule for the agents.

When you add a new agent and create the first person period, the start date is normally the first day of the agent's employment. The person periods do not have any end dates. The last day of a person period is the day before a new person period starts. If there is not later period, the current person period is valid for the time being or until a leaving date is defined.

Create a new person period each time any parameter changes to keep the history. Click the plus sign next to an agent's name to expand and view all person periods for that agent. This includes historical periods, the current period and any future periods.

To add a new person period for each change also makes it possible to enter any changes in advance.

EXAMPLE An agent moves to a new team starting next month. When that is decided, you can create a future person period with the start date defined as the 1st of next month.

When you work on a future period for multiple agents, select a date within that future period in the ribbon bar to ensure that you are viewing the correct person period for all the agents.

When you add a new agent manually, it is often helpful to copy information from an existing agent who works in a similar way. Open for example the team that the agent is planned to work in when you add the new agent. Copy relevant information from one of the other agents to the new agent.

Prerequisites

- You have the People permission and the underlying permissions Add person and Can change and save.
- A business hierarchy with sites and teams is defined.
- Skills are created.
- External logons are available through a ACD integration.
- Contracts, contract schedules and part-time percentages are created to define the agents' work time.
- A shift bag is created.
- To approve absence requests based on budget allowance or use the Budgets module to create staffing budgets, a budget group must be created.
- The agent is added, and basic information entered. See Add or edit WFM agents manually.

Page location

Client > People > Person periods tab

Procedures

Add a new person period

NOTE If the agent is assigned a new contract schedule or part-time percentage in the new person period, this doesn't automatically update the personal account balance in relation to already planned future absences. The balance must be adjusted manually.

1. Select the agents to add a new person period for.
2. Click **New**.
3. Change the **Date** to the start date for the new period.
4. Select what **Team** the agent will belong to.
5. Select the **Skills** field for the agents and then go to the **Skills** tab to the right to select the **Has** check boxes for skills the agents have. The selected skills are listed in the **Skills** column.

   If the agent has a skill but is currently not working on it, clear the **Active** check box for that skill.

If the agent is not fully up to speed on a skill, you can choose to enter a **Proficiency** percentage. The proficiency affects the calculation of scheduled hours for the agent for this skill.

> **NOTE** You cannot use the proficiency value to distribute the agent's scheduled hours between skills. You must not use the proficiency for multi-skilled agents unless the proficiency percentage is the same for each skill assigned to the agent.

6. Connect external logons to the agents. External logons are used to connect statistics from external systems, such as CTIs, to the agents. The external logons are automatically populated from the external system every night.
    1. Select the **External logon** field for an agent and then select the **External logon** tab to the right.
    2. Select the check boxes for the external logons to connect to this agent. The selected external logons are listed in the **External logon** column.

        > **NOTE** One agent can have several external logons, to connect data from different external systems to this agent. Several agents can share one external logon. Sharing an external logon is generally not recommended, because that makes it impossible to view statistics per agent.

7. Select a **Contract**, **Contract schedule** and a **Part-time percentage** for the agents.

    The agent's contract time target for each schedule period is calculated based on these three settings. See How work time is calculated for more information.

8. Select the **Shift bag** to select shifts from for the agent.
9. To approve the agent's absence requests based on budget allowance, select a **Budget group**. To automatically load staff employed when creating staffing budgets, the agents must be connected to a budget group.

    > **NOTE** When you change the budget group for an agent, any previously scheduled absences are subtracted from the budget allowance of the new budget group, and the spot opens up again on the previous budget group.

10. Add a **Note** if needed.
11. Click **Save**.

12. If this is a new agent, continue to define a schedule period. See Manage schedule periods for more information.

Delete a person period

Delete a person period if it has been registered by mistake. Otherwise keep it.

1. Select a date within the person period to delete in the ribbon bar to show that person period.
2. Select the person period rows to delete.
3. Click **Delete**.
4. Click **Save**.

Related topics

- Add or edit WFM agents manually
- Manage schedule periods
- How work time is calculated
- Create a skill
- Overview of creating shifts in the WFM client
- Configure WFM with Real-Time Desktop Adherence

Manage schedule periods

The schedule period is the period within which you must balance the agents' target work time. This means that you can optimize the schedule and for example move days off within the schedule period but not between schedule periods.

Define the length of the schedule period. Use the same schedule period length and start for all agents that you want to schedule at the same time. See How work time is calculated for more information on what to consider when deciding the length of the schedule period.

If no following schedule period is created, that implicitly means to continue with identical periods. That is, a new schedule period with the same length and details starts when the previous schedule period ends. If the settings remain the same between periods, there is no need to create new schedule periods manually.

The other parameters for the schedule period are not mandatory.

You can choose to override the work time calculations based on the contract, contract schedule and part-time percentage. This is done by using the three **Override** columns for average daily work time, number of days off for the schedule period and total contract time for the schedule period. In most cases, this requires a target tolerance and a day off tolerance on the contract.

The schedule periods can also be used to balance work time between schedule periods if some periods of the year are busier than others or to keep track of agents' work hours if they deviate between periods.

When you work on a future period for multiple agents, select a date within that future period in the ribbon bar to ensure that you are viewing the correct schedule period for all the agents.

Prerequisites

- You have the People permission and the underlying permissions Add person and Can change and save.
- The agent is added, basic information entered, and a person period defined. See Add or edit WFM agents manually and Manage WFM agent work rules.

Page location

Client > People > Schedule periods tab

Procedures

Add a new schedule period

1. Select the agents to add a new schedule period for.
2. Click **New**.
3. Enter a start **Date** for the new period.

   The start date must be the first day of the week for week-based schedule periods and the first day of the month for month-based schedule periods. If for example a new agent starts their first person period on a Wednesday, and the organization uses 1-week schedule periods, the agent's first schedule period would start on the first day of that week, even if the agent has not started yet.
4. Enter the **Number** of months, weeks or days to define the schedule period.
5. Select the schedule period **Type**, that is **Month**, **Week** or **Day**.

6. The values in the columns **Hours per day** and **Days off** are calculated based on the agent's contract, contract schedule, part-time percentage and the length of the schedule period. Verify that these values are correct.

   NOTE
   If the first person period starts later than the schedule period, there are some additional considerations for the first schedule period.

   - The **Hours per day** value for the first schedule period is zero. Override this value according to the agent's contract.
   - The **Days off** value for the first schedule period per default only shows the days off after the person period starts. If needed, override this value.
   - Create the next schedule period. Remove any overrides to use the values calculated based on the contract settings.

7. Enter the number of available **Must haves** for the agent for the schedule period. The must haves are shift or day off preferences that are particularly important to the agent. The must haves can for example be used as a benefit for agents reaching their targets.
8. Click **Save**.

Override calculated period values

Override the calculated work time or number of days off for a schedule period. If you override a value, the new value is used when scheduling this schedule period. In most cases where you override calculated values, this requires a target tolerance or a day off tolerance on the contract.

NOTE If the override is only valid for this particular schedule period, remember to create another schedule period to follow it, with the override values removed.

1. Create a new schedule period, see the procedure above.
2. Enter a value in the appropriate column to override any values calculated based from the contract.
   - **Override hours per day**—to override the average work hours per day.
   - **Override days off**—to override the number of days off for this schedule period.
   - **Override period time**—to override the total contract time for the schedule period.
3. Click **Save**.

Balance work time between schedule periods

Balance the work time by transferring any deviations for one schedule period to the next schedule period. The deviation is calculated by comparing the agents' schedule in the default scenario to their work time target for the schedule period. Balancing time between schedule periods requires that you create each schedule period manually.

> **EXAMPLE** An organization has 1-week schedule periods with the target of 40 hours. An agent worked 44 hours one schedule period. When that period is closed, the additional 4 hours are transferred to the next period. This means that the agent only needs to work 36 hours the following period. If they work 40 hours that schedule period, the 4 hours will be transferred again to the next period.

- Create schedule periods manually for each schedule period. See the procedure above.
- The **Balance in** for a schedule period is filled in automatically when the previous schedule period is closed. If the agent was scheduled on more hours than their target for the previous schedule period, this is transferred to this period. If the agent was scheduled on less hours than their target for the previous schedule period, this is transferred to this period as a negative value. The **Balance in** adjusts the work time target for the period. The adjusted target for the period is shown in the Schedules module.
- Enter a value in the **Extra** column to adjust the work hour target. For example, enter -4:00 to deduct 4 hours and adjust the schedule period work time in connection to a half working day the day before a bank holiday.
- If you want to keep the normal target time for a schedule period, you can transfer any **Balance in** from a previous period to the next period. To do this, manually enter the value from **Balance in** in the **Balance out** field. Otherwise, the **Balance out** is filled in automatically when that schedule period is closed, based on the schedule and the period target.
- The **Balance out** value is added as the **Balance in** for the next schedule period when closing the schedule period.
- To close a schedule period, first create the next schedule period and select a date in that period. Click **Close previous period**.
- Click **Save**.

Adjust schedule period targets for seasonality

In some organizations, the work hours fluctuate over a longer period of time. Use the seasonality factor to adjust the schedule period target.

1. Create schedule periods for the season, for example the whole calendar year. See the procedure above.
2. For each schedule period where the target differs from normal, enter the **Seasonality** percentage. That is, in relation to the normal target time, how many percent do you want to schedule for this schedule period.

   EXAMPLE The schedule period is 1 week, and the normal target is 40h. To schedule 44 hours for one schedule period, enter 10% in the **Seasonality** column. To schedule 36 hours for one schedule period, enter -10% in the **Seasonality** column. To balance the seasonality over a year, the average seasonality should be 0%.

3. If needed, transfer the deviation from the normal target time by closing each schedule period once it is done. See the procedure to **Balance work time between schedule periods** above for details.

Delete a schedule period

Delete a schedule period if it has been registered by mistake. Otherwise keep it.

1. Select a date within the schedule period to delete in the ribbon bar to show that schedule period.
2. Select the schedule period rows to delete.
3. Click **Delete**.
4. Click **Save**.

Related topics

- Add or edit WFM agents manually
- Manage WFM agent work rules

Manage personal accounts for absences

Track the agents' use of certain absence types with personal accounts. This makes it possible to control that the agents' scheduled absences stay within the given allowance for each absence type. Absences can be tracked based on the number of days or the number of hours.

EXAMPLE An agent has a personal account with an allowance of 20 vacation days per year. The personal account is automatically updated with the number of vacation days that the agent has used and how many that remain, based on what is scheduled in the default scenario.

The personal account periods have a start date but no end date. The last day of a personal account period is the day before a new period starts.

Use the balance of the personal accounts in the automatic validation of agents' absence requests, to ensure that no absence requests are approved if that would cause the personal account allowance to be exceeded. If you exceed the personal account limits, a warning appears.

If the agent has remaining days or hours in their personal account when the personal account period ends, the remaining days or hours can be transferred to the next period.

Prerequisites

- You have the People permission and the underlying permissions Add person and Can change and save.
- Absence types are created, and the correct tracker type has been defined for those absence types. See Create absence types for more information.

Page location

Client > People > Personal accounts tab

Procedures

Add a new personal account period

1. Select the agents to add a personal account period for.
2. Click **New**.
3. Enter a start **Date**.
4. Select the type of **Absence** to track. The **Tracker type** is automatically selected based on the type of absence.
5. Enter the **Accrued** number of days or hours for the period. For example, enter the number of vacation days for the year.
6. Enter a value in the **Extra** field to add to the personal allowance. For example, add extra vacation days. It is possible to enter a negative value in the **Extra** column, for example to balance an advance given in a previous period.

7. Click **Save**.

   The total personal account allowance for an agent for the period is the sum of the values in the **Balance in**, **Accrued** and **Extra** columns.

Follow up on used and remaining days in the personal account

1. Select the absence type to follow up on in the top menu.
2. If needed, select a date that is within the period that you want to follow up on.
3. Follow up on the personal account allowance.

   The **Used** column presents the number of days or hours that have been scheduled for this personal account period. Used days or hours are both for days that have passed and for scheduled future absences.

   The **Remaining** column shows the remaining number of days or hours to schedule for this period.

Transfer remaining days or hours from one period to the next

If an agent has not used all days or hours of their allowance within the personal account period, transfer these days or hours to the next period.

1. If it's not already done, create the next personal account period.
2. Ensure to select a date that is within the new period, that is the period *directly following* the period that you want to close.
3. Select the agents to close the personal account periods for.
4. Click **Close previous period** and click **Yes** to confirm.
5. Click **Save**. The **Balance out** is calculated for the period that is closed, and the same value is added as the **Balance in** for the following period.

Delete a personal account period

1. Select the absence type to delete a period for in the top menu.
2. Select the rows for the personal account periods to delete. If needed, select a date within the period to delete to show that period for all agents.
3. Click **Delete**.
4. Click **Save**.

Related topics

- Create absence types

Create group pages to filter agents in WFM

Create your own group pages to filter agents on other criteria than the business hierarchy or the predefined group pages, such as skill or contract. The group pages are available in most places where you select agents or groups of agents.

The group pages you create can be based on existing information, such as the information in the **Note** column or an optional column within the People module.

Group pages based on optional columns are automatically updated with any changes to the information in the column if the **Dynamic group page** setting is selected for that optional column. Other created group pages are not updated automatically and must be updated manually to reflect any changes.

Prerequisites

- You have the People permission and the underlying permissions Modify group page and Modify people within group page.
- To define a group page as a dynamic group page, you have the Options permission.
- Agents are added.

Page location

This functionality can be accessed in different locations.

- Client > People
- Client > Schedules

Procedures

Create a manual group page

1. Click **Add new group page**.
2. Enter the name of the new group page.
3. Select what parameter to use to group the agents on as a starting point.

Select **Do not group** to not group the agents at all. If you select this option, you must create your own subgroups.

Select **Note**, **Contract**, **Part-time percentage**, **Contract schedule** or **Shift bag** to group the agents on one of those parameters as a starting point.

Select **Optional column** and select which optional column in the menu to group the agents based on the values in that column as a starting point.

> **NOTE** If you want the group page to be dynamically updated based on any changes to the information in the optional column, see the procedure **Create an automatically updated group page based on an optional column** below instead.

4. Click **OK**.
5. Continue by moving agents within your group page manually, if needed. See the procedure below.

Move agents within a group page

1. Among the tabs above the business hierarchy, select the group page to edit.
2. Click **Edit group page**.
3. Create subgroups if needed. Right-click the top node and select **New group**. Enter a name for the subgroup and click **OK**.

   To create more levels of subgroups, you can pull a subgroup into another subgroup.
4. Move agents into or between the subgroups.
   - Select the agents to move.
   - Drag them to the correct group.
5. Click **OK**.

Create an automatically updated group page based on an optional column

1. Open **Options**.
2. Select **Optional column**.
3. Select the optional column to create a group page for.

4. Select the **Dynamic group page** check box.
5. Click **Apply**.

Rename a group page

1. Among the tabs above the business hierarchy, select the group page to edit.
2. Click **Rename group page**.
3. Enter the new name.
4. Click **OK**.

Delete a group page

- Among the tabs above the business hierarchy, select the group page to edit.
- Click **Delete group page**.
- Click **Yes** to confirm.

Related topics

- Select agents and period to schedule
- Find, sort, and filter WFM agents and users

End an employment for WFM

Handle employees that end their employment correctly to ensure that they are not scheduled after their last day of work and that they cannot log in after their employment has ended.

Define a leaving date instead of deleting the employee to keep the person history up to a certain extent. This is important to cover all data in reporting, including the data of agents who have left the company.

When you save the leaving date, all agent-related schedule data is removed immediately for dates after the leaving date. This includes all scheduled shifts, absences, entered preferences and availabilities. The logon credentials are purged seven days after the leaving date of a user or agent. This makes it easier to re-use credentials if needed.

The data retention time frames in your installation can be configured on agreement with Cisco to automatically pseudonymize agents a certain number of months after their leaving date. The agent can also be automatically deleted a define number of years after the leaving date.

The standard purge settings for new installations is to pseudonymize personal data after three months and delete the employees that has left the company three years after their leaving date. This time frame is a balance between usability and legitimate purpose on one hand and the agents' right to privacy and deletion on the other. If needed, the purge settings can be adjusted with the help of Cisco support or a Cisco business partner.

An agent that has been pseudonymized will not be re-activated by removal of the leaving date nor seen in reports.

For more information on how to manage personal data and handle data subject requests in relation to GDPR, see Manage personal data in Webex WFO.

Prerequisites

- You have the People > Can change and save permission.

Page location

Client > People > General tab

Procedures

End an employment

1. Define a **Leaving date** for the agent or user who is ending their employment. The leaving date is defined as the last day of work.
2. Follow the steps at Manage personal data in Webex WFO to deactivate the user.

NOTE All schedule data for dates after the leaving date is deleted immediately.

Find an agent or user that has left their employment

You can find an agent or user who has left their employment if the number of months after the leaving date when the agent's or user's data is pseudonymized have not yet passed.

1. Open the **Find** function from the People main portal.
2. Enter the agent's or user's name or for example the employment number.
3. Select a date that is before the user's or agent's leaving date.

4. Click the **Search** button.
5. To re-activate the agent, delete the leaving date.

Related topics

- Manage personal data in Webex WFO
- Add or edit WFM agents manually
- Add or edit WFM users manually

Manage personal data in Webex WFO

Webex WFO deals with personal data in a similar way to any workforce optimization. You must process the personal data with respect, in a secure manner and in compliance with any applicable laws and regulations, like GDPR and CCPA.

You might have to handle data subject requests. This could for example be that one of your agents request access to their data in Webex WFO or that an agent who has left the company want their data deleted. Webex WFO can also pseudonymize an agent without interfering with historical data.

Limit the access to personal data as much as possible in Webex WFO, both in terms of the number of authorized people and what they can access. Keep that in mind when creating and assigning roles. You can assign and revoke roles in the Users tool with full audit trail, to see what changes were done when and by whom.

> **NOTE** If your implementation of Webex WFO includes New WFM, you must manage personal data in WFM separately to the rest of the Webex WFO suite. Therefore, if your Webex WFO implementation includes New WFM, you must pseudonymize the employee ID in both. The below procedures provide steps for this process.

Prerequisites

In Application Management

- You have the Application Management > Users > Can change and save permission.

In WFM

- You have the People > Can change and save permission.
- You have the Web > Schedules > Export schedules permission.
- You have the Web > Permissions permission.
- You have the Reports permission and access to the following reports.
    - Adherence per agent
    - Agent metrics
    - Agent queue metrics
    - Agent queue statistics
    - Agent skills
    - Agent statistics
    - Gamification leader board
    - Ready-time adherence per agent
    - Ready-time adherence per day
    - Team metrics

Page location

In Application Management

Application Management > User Configuration

In WFM

Client > People

WFM > Schedules

WFM > Permissions

Procedures

Make an agent unidentifiable

In Application Management

To make an agent unidentifiable, you can manually pseudonymize their personal data.

1. Go to **User Configuration** > **Users**.
2. Select **Edit an existing user**.
3. In the **Select User** field, enter the name. If you want to show inactive users, select the **Show inactive users** check box.
4. Change the **First name**, **Last name**, **User name**, and **Employee ID** to a pseudonym. It must be something that doesn't in any way relate to that individual.
5. Click **Save**.

NOTE If you also have WFM, you must complete steps 1 to 5 in Application Management and then in WFM, change Employment number to a pseudonym.

In WFM

The purge settings controls after how many months personal data is pseudonymized. If needed, you can manually pseudonymize the personal data before then.

1. Open the People module for the agent.
2. On the **General** tab, change the **First name**, **Last name** and **Employment number** to a pseudonym. It must be something that doesn't in any way relate to that individual.
3. On the **General** tab, remove any other personal information stored in for example the **Email** column and any optional columns. This could be for example the agent's phone number or address.
4. On the **Person periods** tab, remove any **External logon**.
5. Click **Save**.

NOTE If you also have Application Management, you must complete steps 1 to 5 in WFM and then in Application Management, change Employee ID to a pseudonym.

Delete an agent from the system

In Application Management

IMPORTANT An agent might request to be deleted from Application Management. We strongly recommend to pseudonymize the agent rather than deleting the agent and their data right away, to not interfere with the reporting data. Although, if needed it is possible to delete an agent.

1. Go to **User Configuration** > **Users**.
2. Select **Edit an existing user**.
3. In the **Select User** field, enter the name. If you want to show inactive users, select the **Show inactive users** check box.
4. Change the **First name**, **Last name**, **User name**, and **Employee ID** to a pseudonym. It must be something that doesn't in any way relate to that individual.
5. Clear the **Activate this user** check box to deactivate the user immediately.
6. Click **Save**.

In WFM

IMPORTANT An agent might request to be deleted from WFM. We strongly recommend to pseudonymize the agent rather than deleting the agent and their data right away, to not interfere with the reporting data. Although, if needed it is possible to delete an agent.

1. Open the People module for the agent.
2. Select the agent.
3. Click **Delete**.
4. Click **Save**.

Compile personal data when an agent requests access to it

In Application Management

An agent might request access to their personal data in Application Management. Go through the following steps to compile the requested personal data. You can for example compile the data in different sheets in an Excel document.

1. Go to **User Configuration** > **Users**.
2. Select **Import and Export**.
3. Click **Export**.

IMPORTANT In the Excel export, delete all other agents in this team manually. This is because the export only supports team exports.

In WFM

1. An agent might request access to their personal data in WFM. Go through the following steps to compile the requested personal data. You can for example compile the data in different sheets in an Excel document.
2. Open the People module for the agent.
3. Select the agent's row, copy the information and paste it to your document.
4. Repeat this for each tab where there is information stored for this agent: **General**, **Person periods**, **Schedule periods**, **Rotations**, **Personal accounts**, and **Person availability**.

   NOTE Column headings are not copied. That must be handled manually.
5. Go to the Schedules tool.
6. Click **Export schedules** .
7. Select the appropriate groupings.
8. Select the period to exported schedules for. You can export maximum 31 days at a time. If you need to export schedules for a longer time period, repeat the export for each month to export.
9. Select the **Scenario**, **Time zone** and any **Optional columns** (if needed).
10. Click **Start**.
11. In the Excel export, delete all other agents in this team manually. This is because the export only supports team exports.
12. Go to the Permissions tool.
13. Select the role that the agent has.
14. Take a screenshot of the function and data permissions connected to that role. Repeat for all roles that the agent has.
15. Go to Reports.
16. Select a report in the **Agent performance** section.
17. Define the parameters for the report, for example the team, agent and date period.

18. Select the report format to run the report.
19. Repeat steps 15 to 17 for all relevant reports in the **Agent performance** section.

Related topics

- About WFM data retention
- Manage data retention policies

Configure the organization structure for WFM

> **NOTE** The below procedures are for the client application. For the web application, follow the procedures at Configure the organization hierarchy for WFM

Create an organization structure in Cisco WFM to reflect your business.

The top node in the organization structure is the business unit. Add sites and teams to the business unit to define your organization structure. The sites often correspond to physical sites, for example offices or cities. The teams are groups within the sites. When the organization structure is complete, go to the People tool to connect the agents to the teams.

The organization structure you create is used in many parts of the system to select which agents to see and work with. When selecting based on teams and sites, the result is based on the date.

> **EXAMPLE** An agent changed from team A to team B on March 1. If you open a report for team A for a day in February, the agent is included. If you open the report for team A for a day in March, the agent will not be included.

Users who don't belong to any team are not shown in the organization structure, except for in People where they are available in the User folder.

> **NOTE** Most WFM settings are individually defined for each business unit. The only items that can be available in more than one business unit are users, external logons and queues. Business units are in most cases created during the initial installation. If you need to add an additional business unit, contact the Cisco support.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Organization hierarchy > Define organization

Procedures

Create a site

1. Right-click the top node and select **Add new**. A new site is added in the structure.
2. Enter a name for the site and select the **Enter** key.
3. Click **Apply** to save.

Create a team

1. Right-click the site for which you want to create a team and select **Add new**. A new team is added in the structure.
2. Enter a name for the team and select the **Enter** key.
3. Click **Apply** to save.

Delete a site or team

1. Right-click the site or team to delete and select **Delete**.

   NOTE To delete a site, you must first delete any remaining teams for that site.

2. Click **Apply** to save.

Rename a site or team

1. Right-click the site or team to rename and select **Rename**.
2. Enter the new name and select the **Enter** key.
3. Click **Apply** to save.

Related topics

- Manage WFM user information
- Add or edit WFM agents manually

- Add or edit WFM users manually
- Manage teams for QM and Analytics—Create teams and populate them with agents for the rest of the Webex WFO suite
- Manage groups for QM and Analytics—Create collections of teams (called “groups’) for the rest of the Webex WFO suite

Configure the organization hierarchy for WFM

NOTE The below procedures are for the web application. For the client application, follow the procedures at Configure the organization hierarchy for WFM

Create an organization hierarchy in Cisco WFM to reflect your business.

Add sites and teams to define your organization hierarchy. The sites often correspond to physical sites, for example offices or cities. The teams are groups within the sites. When the organization hierarchy is complete, go to the People module to connect the agents to the teams.

The organization hierarchy you create is used in many parts of the system to select which agents to see and work with. When selecting based on teams and sites, the result is based on the date.

EXAMPLE An agent changed from team A to team B on March 1. If you open a report for team A for a day in February, the agent is included. If you open the report for team A for a day in March, the agent will not be included.

Users who don't belong to any team are not shown in the organization hierarchy, except for in People.

NOTE Most WFM settings are individually defined for each business unit. The only items that can be available in more than one business unit are users, external logons and queues. Business units are in most cases created during the initial installation. If you need to add an additional business unit, contact the Cisco support.

Prerequisites

- You have the Define organization permission.

Page location

Web > WFM settings > Organization hierarchy

Procedures

Create a site

1. Click **Add new site**.
2. Enter a **Name** and **Max seats** for the site.
3. Select the **UseTimeZone** check box and choose a time zone, if required. If you select the **UseTimeZone** check box, the site open hours are based on the site time zone. If you clear the **UseTimeZone** check box, the site open hours are based on the agents' time zone.
4. Click **Save**.

Create a team

1. Click the site for which you want to create a team and click **Add new team**.
2. Enter a **Name** for the team.
3. Select a name from the **Team leader** drop-down list. You can add up to five team leaders.
4. Click **Save**.

NOTE For information about how to add a reporting manager, follow the "Add a reporting manager for one or more agents" procedure at Manage WFM user information.

Delete a site

NOTE You cannot delete a site that has one or more teams or if there is any user with a past or present person period tied to the site.

1. Click the trash can icon beside each team name to delete all of the teams for the site.
2. Click **Delete**.
3. Click the trash can icon beside the site name.
4. Click **Delete**.

Delete a team

NOTE You cannot delete a team that has one or more people or more teams or if there is any user with a past or present person period tied to the team.

1. Click the trash can icon beside the team name.
2. Click **Delete**.

Edit a site

1. Click **Edit** beside the site details.
2. Edit the **Name** and **Max seats**.
3. Select or clear the **UseTimeZone** check box and choose a time zone, if required. If you select the **UseTimeZone** check box, the site open hours are based on the site time zone. If you clear the **UseTimeZone** check box, the site open hours are based on the agents' time zone.
4. Edit the **Open hours**.
5. Click **Save**.

Edit a team

1. Click **Edit**.
2. Edit the **Name**.
3. Select a name from the **Team leader** drop-down list. You can add up to five team leaders.
4. Click **Save**.

NOTE For information about how to add a reporting manager, follow the "Add a reporting manager for one or more agents" procedure at Manage WFM user information.

Related topics

- Manage WFM user information
- Add or edit WFM agents manually
- Add or edit WFM users manually
- Manage teams for QM and Analytics—Create teams and populate them with agents for the rest of the Webex WFO suite
- Manage groups for QM and Analytics—Create collections of teams (called “groups’) for the rest of the Webex WFO suite

- Manage WFM user information
- Manage notification settings

Configure limits on seats for WFM

Configure limits on the number of seats, or workstations, that are available for each site. This is useful to limit the number of scheduled agents to ensure it does not exceed the number of seats.

Whether a scheduled activity requires a seat is set when creating the activity.

Select the **Maximum seats** option when optimizing the schedule to avoid scheduling too many agents on activities that require a seat.

Prerequisites

- You have the Options permission.
- Sites are created.

Page location

Client > Options > Organization hierarchy > Sites

Procedures

Configure the seats limit for a site

1. Select the **Max seats** field for the site where you want to define a seats limit.
2. Enter the maximum number of seats that are available on the site.
3. Click **Apply** to save.

Related topics

- Run automatic scheduling
- Optimize schedule

Configure how to display agent names in WFM

Configure how to display agent names in the system. The variables to use are the agent's first name, last name and employment number. Place them in the order you prefer and add any text and spacing.

There are two display setting. The main one defines how agent names are displayed in People, Schedules, Intraday, Adherence, MyTime and the standard Reports. The second one defines how agent names are displayed in the schedule exports in the Schedules module.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Agent settings

Procedures

Configure how to display agent names

Edit the agent description to define how to display agent names. Use the variables **First name**, **Last name** or **Employment number**. The example field shows you what the current description format will look like.

1. Select**Common agent description** or **Common agent description for schedule exports**.
2. Make the edits you want.
    - To add or remove a variable, click its button.
    - To move a variable, first click its button to remove it. Place the cursor where you want to place the variable and click the variable button again to add it back in the correct place.
3. Enter any text you want to add to the description.
4. Add spaces between the variables.
5. Look at the example field to verify that the description is correct and looks good.
6. Click **Apply** to save.

Related topics

- Change password and view settings for WFM

Create columns for agent information in WFM

Create optional columns to store any information related to the agents. The information stored in optional columns can be used to search or sort agents in People.

Optional columns can be set as dynamic group pages. This means that the agents are divided into groups based on the information in this column. These groups can be used to select agents in many areas of the system, for example in the reports. When values in the optional column change, the related dynamic group pages update automatically to reflect this change.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Optional column

Procedures

Create an optional column

1. Click **New optional column**.
2. Enter a **Name**. The name of the optional column is used as a header in People and as a name for the dynamic group page.
3. Select the **Dynamic group page** check box to create a dynamic group page based on this optional column.
4. Click **Apply** to save.

Delete an optional column

Delete optional columns that are no longer in use and for which you no longer need to keep the history.

1. Select the optional column to delete in the **Optional column** menu.
2. Click **Delete optional column**.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- Add or edit WFM agents manually
- Add or edit WFM users manually
- Create group pages to filter agents in WFM

Turn on schedule change notifications

Agents can be notified when there are changes in their work schedule. There are two types of schedule change notifications.

Notifications for all schedule changes to agents who are working

The notifications for all schedule changes are useful to highlight changes for today or tomorrow to agents who are at work. Agents see these notifications for example if their lunch is moved or they are moved from email to phone. These notifications are shown to agents who are logged in to MyTime, either in the main MyTime view or ASM.

Agents using the MyTime app can also see these notifications, but only if they are currently using the app when the notification arrives.

Push notifications for significant schedule changes

The push notifications are useful to ensure that agents get important schedule updates when they are not at work. They are shown in the mobile app or sent via SMS or email.

The push notifications are only sent for schedule changes that are considered significant and that are within the next 14 days, including today. The following changes are considered significant changes.

- The start or end time of a shift is changed.
- A working day is changed to a non-working day. This is when the scheduled shift is replaced with a day off, a full-day absence or no shift at all.
- A non-working day is changed to a working day. This is when a day off, full-day absence or non-scheduled day is replaced with a shift.

Prerequisites

- For agents to see the notifications for all schedule changes, their browser settings must allow browser notifications.
- To configure push notifications, you must have the Options permission.

- To use push notifications via SMS or email, the SMSLink license must be applied. The mobile app notifications work without that specific license.
- To use push notifications via SMS, there must be an optional column where agents' mobile numbers are stored.

NOTE

- The feature to send notifications via SMS is only available for on premise installations.
- The SMS and email notifications for on premise installations require additional configuration.
- Email notifications on cloud installations do not require any additional settings.
- Mobile app notifications do not require any additional settings.

Page location

Client > Options > System settings > Notification settings

Procedures

Turn on schedule change notifications for all schedule changes

Turn on schedule change notifications to be shown in the browser for agents who are at work and logged in to MyTime.

NOTE The schedule change notifications do not work if the system times out. For information about how to modify the global time out setting, see Configure global settings

1. Assign the MyTime > Agent schedule messenger permission to the agents.
2. Ensure that the agents' browser settings allow browser notifications and pop-ups.
3. Ensure that the computer settings allow for notifications from the browser.

Turn on mobile app push notifications

Turn on mobile app notifications to send schedule change notifications to the agents who are using the MyTime app.

1. Select the **Enable mobile app notifications** check box to turn on the app notifications.
2. Click **Apply** to save.

Turn on SMS push notifications

Turn on SMS notifications to send schedule change notifications to the agents via SMS.

1. Select **SMS** as the **Notification type**.
2. Select the column that contains the agents' phone numbers in the **SMS settings** menu.
3. Click **Apply** to save.

NOTE The phone numbers must be entered according to the requirements of the SMS service provider. A common way to enter a phone number is for example 46701234567, where 46 is the country code and 701234567 is the phone number.

Turn on email push notifications

Turn on email notifications to send schedule change notifications to the agents via email.

The email settings define the email address that will be the sender of the notification.

1. Select **Email** as the **Notification type**.
2. In the **Send email from** field, enter an email address with an @calabrio.com domain from which to send the notifications. For example, no-reply@calabrio.com. The agents cannot send a reply to this email address.
3. Click **Apply** to save.

NOTE For email notifications to be sent, the agents' email addresses must be added in the Email column in People.

Related topics

- Configure WFM system settings in client
- Create columns for agent information in WFM
- Notify agents—Notify agents by SMS or email: for example, that more agents are needed in the afternoon or that extra hours are available
- Configure notifications—Set up and assign notifications for the rest of the Webex WFO suite

Manage bank holidays

Create bank holiday calendars and define bank holidays to indicate to agents which dates that are bank holidays. The bank holiday dates are highlighted in red in the schedule views (week, month, preferences and availability views) in MyTime and in the day view in the Mobile app.

Create one or several bank holiday calendars and assign them per site.

Set up a process to regularly review the calendars and add future bank holidays.

> **NOTE** The defined bank holidays are highlighted in the agents' schedule views. They will not affect any other functionality.

Prerequisites

You have the Web > WFM settings > Bank holiday permission.

Page location

WFM > WFM settings > Bank holiday calendars

Procedures

Create a bank holiday calendar

1. Select the **Manage calendars** tab.
2. Click **Add new bank holiday calendar**.
3. Enter a **Name** for the new calendar.
4. Click in the calendar view to select bank holiday dates. The selected dates are added in a list to the right.
5. If you want to, replace the default text with the name for the bank holiday, for example New Year's Day. The agents can see this text when they hover the mouse pointer over a bank holiday in MyTime.

   The bank holiday calendar is automatically saved. Continue by assigning the bank holiday calendar to a site.

Assign a bank holiday calendar to a site

1. Select the **Assign calendars to sites** tab.
2. Select the **Calendar** to use for a specific site in the drop-down menu. Repeat for all sites where you want to use a bank holiday calendar.

Remove a bank holiday calendar from a site

1. Select the **Assign calendars to sites** tab.
2. Hover the mouse pointer over the assigned bank holiday calendar and click the **X** icon that appear.

Related topics

- View your schedule

Present a custom message to MyTime app users

Present a custom message to agents who are about to download the MyTime mobile app. This is useful for example when there are legal considerations, such as to inform agents that there is no requirement for them to use the app, or that they will not be paid extra when they use the app.

The custom message is shown on the MyTime app guide page, which is used by agents when they download and configure the app. See Download and set up the MyTime app for more information.

Prerequisites

- You have the Super Administrator role.

Page location

WFM > WFM settings > App guide message

Procedures

Set a custom message

1. Enter a heading for the message in the **Title** field.
2. Enter the **Message**.

   NOTE Both a title and a message must be added to make the information visible to agents.

3. Click **Save**.

Related topics

- Download and set up the MyTime app

Set WFM KPI targets for agents

Set targets for all available key performance indicators (KPIs) in WFM. The KPI's are used in the agent scorecards.

Available KPIs

- Absenteeism (%)
- Adherence (%)
- Answered calls per scheduled phone time
- Average after call work (s)
- Average handling time (s)
- Average talk time (s)
- Readiness (%)

Prerequisites

- You have the Options > Manage scorecards permission.
- You have the Performance Manager license for advanced reporting.

Page location

Client > Options > Set KPI targets

Procedures

Edit team target values

1. Select a **KPI to handle**.
2. Select a **Site**.
3. Enter target values for the selected KPI for each team on the site.
4. Enter a **Target** value and select a corresponding **Color**.
5. Enter a below target value in the **<** column and select a corresponding **Color**.
6. Enter an over target value in the **>** column and select a corresponding **Color**.
7. Click **Apply** to save.

Related topics

- Create scorecards for WFM
- Assign WFM scorecards to teams
- Configure KPIs—Configure KPIs for QM

Create scorecards for WFM

Create, review, edit and remove agent scorecards.

Available KPIs

- Absenteeism (%)
- Adherence (%)
- Answered calls per scheduled phone hour
- Average after call work (s)
- Average handling time (s)
- Average talk time (s)
- Readiness (%)

Prerequisites

- You have the Options > Manage scorecards permission.
- You have the Performance Manager license for advanced reporting.

Page location

Client > Options > Scorecards

Procedures

Create a scorecard

1. Click **Add scorecard**.
2. Enter a scorecard **Name**.

3. Select a period: **Day**, **Week**, **Month**, **Quarter** or **Year**.
4. Select the check boxes for the KPIs to include in the scorecard.
5. Click **Apply** to save.

Edit a scorecard

1. Select a scorecard from the **Scorecard** menu.
2. Change the period: **Day**, **Week**, **Month**, **Quarter** or **Year**.
3. Select the check boxes for the KPIs to include in the scorecard.
4. Clear the check boxes for the KPIs to remove from the scorecard.
5. Click **Apply** to save.

Delete a scorecard

1. Select a scorecard from the **Scorecard** menu.
2. Click **Delete**.
3. Click **Yes** to confirm.
4. Click **Apply** to save.

Related topics

- Set WFM KPI targets for agents
- Assign WFM scorecards to teams

Assign WFM scorecards to teams

Define which scorecards to use for each team in your organization.

Prerequisites

- You have the Options > Manage scorecards permission.
- Scorecards are created.
- You have the Performance Manager license for advanced reporting.

Page location

Client > Options > Set scorecard

Procedures

Assign a scorecard to a team

1. Select a **Site**.
2. Select which scorecard to use for the team.
3. Click **Apply** to save.

Related topics

- Set WFM KPI targets for agents
- Create scorecards for WFM

Manage trade settings

A part day shift trade is when an agent trades part of their shift with another agent or picks up hours. For part day shift trade requests, you can enable or disable validation rules. When an agent posts hours, the enabled rules are verified and, if any rules are broken, Webex WFO does not post the agent's hours. The rules are verified against the agent's contract and the workflow control set (WCS). For further information, see Create rules to handle shift trade requests,

Prerequisites

You have the Web > WFM settings permission

Page location

WFM > WFM settings > Trade settings

Procedures

Enable or disable the validation rules for part day shift trade requests

1. Toggle the following validation rule sliders on or off:
    - **Nightly rest**
    - **Minimum weekly rest**
    - **Maximum weekly work time**
    - **Minimum weekly work time**
    - **Contract time tolerance**
    - **Maximum consecutive days without day off**
2. Select one of the following radio buttons:
    - **Transfer lunch** - Agents can post full or partial lunch hours as part of their shift trade request.
    - **Block post if lunch requirements are not met** - Agents cannot post their lunch hours unless they have met the minimum working hours that were configured in the workflow control set.
3. Select the **Minimum duration** and **Minimum increments** for trade requests.
4. There are also the following optional steps:
    - Select the **Activate** check box for **Snap to interval** and select a number of minutes.

      NOTE The snap to interval feature is the increment by which you can drag and drop activities.
    - Select the **Activate** check box for **Enforce minimum gaps** and select a number of minutes. For example, you can set a 1-hour minimum gap between shifts when agents pick up hours. This ensures better scheduling alignment and avoids overlapping shifts.
    - Select the **Activate** check box for **Maximum segment in a day** and select a number of segments.
    - Select the **Replace non-skilled activities with skilled activity** check box if you want to allow agents to remove a non-skilled activity by replacing it with an underlying base activity when they pick up hours.
5. Click **Save**.

Related topics

- View your team's schedule
- Trade shifts with other agents
- Check the shift trade board for trades

Manage absence request settings

You can configure the absence request settings to automatically deny a part day absence request for a day that does not have a schedule. The setting is disabled by default. You can also hide the Full-Day Absence Request check box from agents who are submitting absence requests in MyTime.

Prerequisites

You have the Web > WFM settings

Page location

WFM > WFM settings > Absence request settings

Procedures

Enable or disable the validation rules for a part day absence request with no schedule

1. Toggle the validation rule slider on or off for **Deny part day absence when no schedule**.
2. Click **Save**.

Show or hide the full-day absence request check box

1. Toggle the slider on or off for **Hide full-day absence request**.
2. Click **Save**.

Related topics

- View your team's schedule

Configure activity request settings in WFM

Create and manage activity request settings to empower agents to schedule activities outside of their assigned shifts. With this feature, agents can request time slots for activities such as training, administrative tasks, or skill-building opportunities directly from MyTime.

Prerequisites

- This feature is available for Cloud customers only.
- You have the Super administrator role.
- The agents must have the MyTime > Activity requests permission.
- The agents must have a scheduled shift on their calendar. If the calendar is empty, the agent will not be able to submit an activity request.

Page location

WFM > WFM settings > Activity request settings

Procedures

Create a new rule for the activities

1. Click **Create activity rule**. The **New activity rule** window opens.
2. Create a new activity rule with the following details:
    - Enter a name for the activity in the **Enter rule name** field.
    - From the **Approval rule** drop-down list, select one of the following:
        - **Check staffing -** Approve or deny the request based on staffing availability for the agent's underlying activity.

          NOTE The Check staffing control checks whether approving the request would leave the agent's original activity (and its associated skill or skills) under scheduled. It does not consider staffing for the requested activity or whether the requested activity would become over scheduled. Currently, the control set used by this feature is **Intraday**. Support for **Intraday with Shrinkage** based staffing checks will be added in a future update.

> **EXAMPLE** If an agent requests time off, the system checks whether removing them from their current assignment (such as "Inbound Calls") would negatively impact staffing coverage for that activity.

- **Always approved -** Automatically approve the activity in the agent's schedule.
- **Manual approval -** Send the request to the manager for approval.

- From the **Applicable** drop-down list, select one of the following:
  - **Always -** The agent can request changes to an activity even after the activity has started and requests can be approved retroactively.

    When selected, enter the following:
    - Enter a value in the **Max days back to change activity** field.
    - Enter a value in the **Max days forward to change activity** field.
    - Enter a value in the **Max activity duration in minutes** field to limit the length of the activity the agent can request.
  - **Only before start -** The agent can request changes to an activity only before the intended start time of the activity.

    When selected, enter the following:
    - Enter a value in the **Minutes before start** field.
    - Enter a value in the **Max days forward to change activity** field.

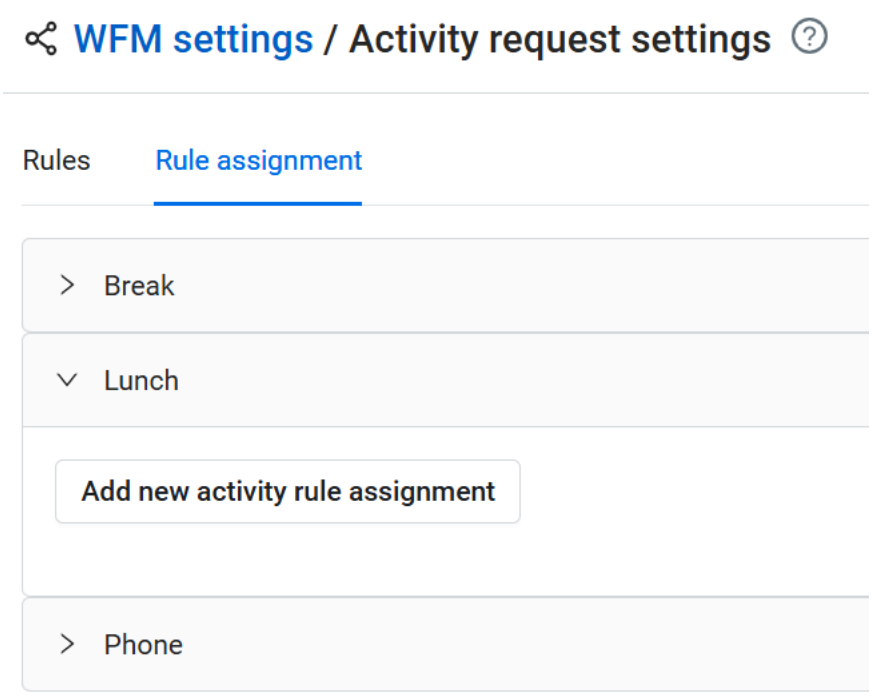
3. Click **Save**.
4. Once saved, the rule appears under **Your current rules** with **Edit** and **Delete** (trash icon on the left) options.
   - Click **Edit** to modify the rule.
   - Click the trash icon to delete it.

Apply the rule to the activities

Click the **Rule assignment** tab and assign a rule to each activity type.

> **NOTE** For each activity, you can choose one or multiple rules that can be assigned to one or multiple teams. However, only one rule can be assigned for the same activity and team.

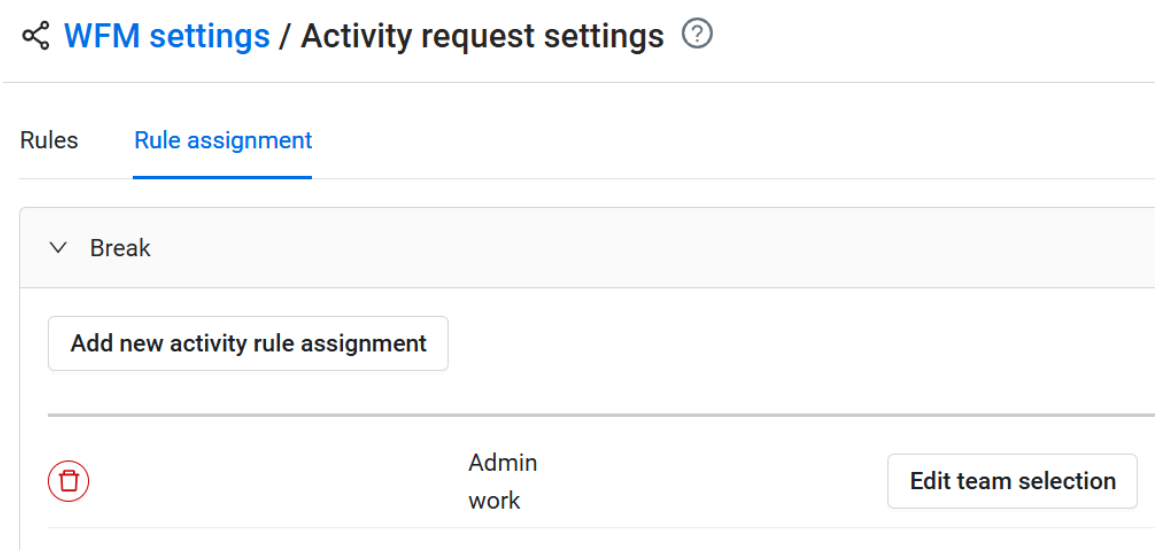
1. Expand the desired activity section.



2. Click **Add new activity rule assignment**. The **Activity rule assignment** window opens.
3. In the **Activity rule assignment** window:
    - Select an activity rule from the **Select activity rule** drop-down list.
    - Choose one or more teams from the **Select teams** field.
4. Click **Save**.

Edit team selection for an assigned rule

1. Expand the desired activity section.
2. Click **Edit team selection**. The **Activity rule assignment** window opens.



3. Update the teams as needed.
4. Click **Save**.
5. To delete the rule assignment, click the trash icon on the left.

Related topics

- Request activity
- Manage absence request settings
- Manage trade settings
- Set up basic workflow control set rules

Action required: Update allowlisted domains for Smart Desktop Client WebSocket support

To support upcoming performance enhancements to the Smart Desktop Client (SDC), Cisco is enabling WebSocket (AGWSS) support across all Webex WFO cloud environments. As part of this update, cloud customers who currently enforce network allowlisting or access control policies for SDC traffic must update their configurations to ensure continued connectivity. Follow the procedures detailed in Action needed: Smart Desktop Client update required for performance enhancements prior to completing the procedures detailed on this page.

> **IMPORTANT** IP allowlist updates are required for organizations that have an allowlist in place today. If the allowlist updates are not performed before the deadline of May 30th, then Smart Desktop will not be able to communicate with Webex WFO Cloud, resulting in Smart Desktop Client no longer functioning as intended.

What's changing?

We are introducing new domain names specifically for WebSocket connections. These must be added to your allowlist in addition to the existing Webex WFO platform domains. Both the original and new WebSocket-specific domains must remain allowlisted permanently for cloud customers who enforce access rules.

Who is affected?

Only cloud customers with:

- Allowlisting or firewall rules in place for Smart Desktop Client traffic
- Restricted outbound access from agents' desktops or local networks to Webex WFO Cloud.

What do you need to do?

By **May 30, 2025,** update your network/security configuration to include the new WebSocket domains listed below. Failure to do so may result in SDC connectivity issues once WebSocket support is fully enabled.

After May 30, 2025, you will be required to update your Smart Desktop Clients to version 11.0.2.1283 or greater to take advantage of the recent improvements. Further details on updating your Smart Desktop Client are available here: Action needed: Smart Desktop Client update required for performance enhancements.

> **NOTE** If your organization uses IP-based filtering in addition to domain allowlisting, refer to the AWS-managed IP ranges that correspond to the domains at the following link, AWS IP address ranges. AWS IP address ranges are hosted by Amazon and are therefore subject to change at any given time.

Domain mapping summary

Please ensure both domains for your environment are allowlisted.

> **IMPORTANT** Additionally, allowlist the universal websocket domain.
> `*.calabriocloud.com`

Region	Existing domain	New WebSocket domain
US1	calabriocloud.com	ws.us1.calabriocloud.com
US2	uswest2.calabriocloud.com	ws.us2.calabriocloud.com
US3	us3.calabriocloud.com	ws.us3.calabriocloud.com
US4	us4.calabriocloud.com	ws.us4.calabriocloud.com
US5	us5.calabriocloud.com	ws.us5.calabriocloud.com
US6	us6.calabriocloud.com	ws.us6.calabriocloud.com
Partners	partners.calabriocloud.com	ws.partners.calabriocloud.com
CXIS	cxis.calabriocloud.com	ws.cxis.calabriocloud.com
EU1	eu.calabriocloud.com	ws.eu1.calabriocloud.com
ZA1	af1.calabriocloud.com	ws.za1.calabriocloud.com
AE1	ae1.calabriocloud.com	ws.ae1.calabriocloud.com
IN1	in1.calabriocloud.com	ws.in1.calabriocloud.com
GB1	uk.calabriocloud.com	ws.gb1.calabriocloud.com
AU1	aus.calabriocloud.com	ws.au1.calabriocloud.com
SG1	sgp.calabriocloud.com	ws.sg1.calabriocloud.com
CA1	ca.calabriocloud.com	ws.ca1.calabriocloud.com

Related topics

- Action needed: Smart Desktop Client update required for performance enhancements

Action needed: Smart Desktop Client update required for performance enhancements

With the completion of the enhancements to our Smart Desktop client, all Webex WFO Cloud customers must update your Smart Desktop Client take advantage of these improvements.

BEST PRACTICE Cisco strongly recommends that you administer this Smart Desktop Client update. While the software update is not mandatory and your current setup will continue to function as expected, applying the update will enhance performance and ensure access to the latest improvements.

What you need to do:

After May 30, 2025, please update your Smart Desktop Client to version 11.0.2.1283 or greater. This update is required to take advantage of the performance and connectivity improvements Cisco recently rolled out.

Full details on how to update your Smart Desktop Client are available below.

After you update your Smart Desktop Client, you must update allowlisted domains for Smart Desktop Client WebSocket support by following the procedure in Action required: Update allowlisted domains for Smart Desktop Client WebSocket support.

Cloud customers using the Smart Desktop Auto-Update feature will need all agents to restart their PCs after May 30, 2025, to complete the update.

How to update Smart Desktop manually

If your organization does not use Smart Desktop automatic updates, follow these instructions to update Smart Desktop.

Option 1: Update from each agent's computer or a thin client server

1. From the agent's computer or the thin client server, log in to Webex WFO using administrator credentials.
2. On the Downloads page (Application Management > Global > Administration > Downloads), click **Calabrio ONE Smart Desktop**. Webex WFO provides an .exe file for manual installation.
3. Accept the End User License Agreement (EULA) when prompted.
4. Run the installer and follow the prompts in the installation wizard.
5. Select **Activate** if prompted and click **Finish**.
6. After running the Smart Desktop installer, restart your system.
7. Run the Client Verification tool. If you do not have a shorcut to the Client Verification tool, then navigate to `C:\Program Files (x86)\Calabrio ONE\Desktop\Active\bin` and open the **DCC.exe** file.
    - (Alternative) Open the **Services** application in your system. Verify that the **Smart Desktop Record Services** is running.

- (Alternative) Open the **Task Manager** application in your system. Verify that **DesktopRecordServer** and **DesktopRecordProcess** are running.

8. (Optional) Test Smart Desktop by making a phone call from the agent's desktop and then locating and playing the call on the Interactions page.

Option 2: Update using GPO

A Group Policy Object (GPO) is a collection of settings that define what a system will look like and how it will behave for a defined group of users. Microsoft provides a program snap-in that allows you to use the Group Policy Microsoft Management Console to define various options, including scripts options.

1. Log in to Webex WFO using administrator credentials.
2. On the Downloads page (Application Management > Global > Administration > Downloads), click **Calabrio ONE Smart Desktop**. Webex WFO provides an .exe file for manual installation.
3. Accept the End User License Agreement (EULA) when prompted.
4. Copy **CalabrioONEDesktopSetup_<TenantName>.exe** from your Downloads folder and paste it in the server share location.
5. Create a batch script to run the installer that contains the following script:

```
<host name or IP address of server share location>\CalabrioONEDesktopSetup_
   <TenantName>.exe /LOG /VERYSILENT /ACTIVATE /NORESTART
```

6. Start the Group Policy Management Editor and navigate to Computer Configuration > Policies > Windows Settings > Scripts (Startup/Shutdown) and add the batch script.

The /ACTIVATE and /NORESTART arguments

It is important that you understand the implications of using the /ACTIVATE and /NORESTART arguments in the batch script.

- The /ACTIVATE argument activates Smart Desktop as soon as it is installed. Call recording is stopped until the installation and activation process is completed. If you push a new version of Smart Desktop during a work period, do not include the /ACTIVATE argument. In that case, the new version will activate automatically the next time the agent logs in.
- The /NORESTART argument prevents a sudden reboot that can interrupt and lose call recordings.
- Adding the /FORCENPCAP argument forces the NPCAP installer to run when executing the Smart Desktop Client installation. The NPCAP installer is included with the Smart Desktop Client.
- Adding the /NONPCAP argument prevents the NPCAP installer from being installed on the target machine when executing the Smart Desktop Client installation.

NOTE Use the /FORCENPCAP and /NONPCAP arguments independently from each other. Do not use them within the same command.

The NPCAP arguments

NPACP arguments are optional and can be used to control the installation of NPCAP on client devices.

IMPORTANT The arguments are independent from each other, and only one of the arguments should be used during installation. Do not use them within the same command.

- The /FORCENPCAP argument forces the NPCAP installer to run when executing the Smart Desktop Client installation.
- The /NONPCAP argument prevents the NPCAP installer from being run when executing the Smart Desktop Client installation.

NOTE NPCAP enables Recording Controls enables an agent to start, pause, resume, and stop audio, screen, and keystroke recording for active calls, as well as tag calls and add metadata to them.

Refer to the image below if you are installing Smart Desktop without NPCAP.

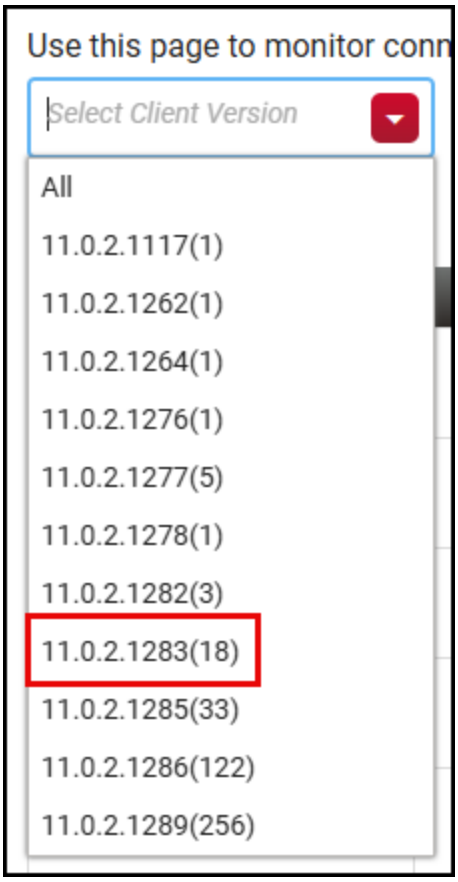


Check the currently deployed versions

Follow this procedure to validate that you are on Smart Desktop Client version 11.0.2.1283 or greater.

1. Navigate to **Application Management** > **Monitoring** > **Desktop Monitoring**.
2. Select the **Select Client Version** drop-down list. The list shows the version number and number of machines on the version.

   EXAMPLE The list shows version 11.0.2.1283(18), which means 18 machines are on this version.



3. Ensure your machines are on version 11.0.2.1283 or greater.

IMPORTANT Remember to complete the actions detailed in this topic to take advantage of the enhancements coming to Smart Desktop. Cisco strongly recommends that all Cloud customers should update your Smart Desktop Client to take advantage of these improvements.

Related topics

- Action required: Update allowlisted domains for Smart Desktop Client WebSocket support

Configure global settings

Use the Global Settings page to configure aspects of the system that apply to all users and applications.

Prerequisites

- You have the Administer Tenant permission

Page location

Application Management > Global > Administration > Global Settings

Session Timeout (in minutes)

(Cloud only) Users are automatically logged out after a period of inactivity. The Session Timeout field lets you enter the length of time in minutes that a session should be idle before the user is automatically logged out. The default value is 60 minutes. The maximum value is 1440 minutes, which is 24 hours. Numeric characters only. Letters and special characters are not permitted. Any change in this setting takes place the next time a user logs in or refreshes a page.

NOTE If a user opens Webex WFO in multiple windows, the timeout duration applies separately to each window.

Automatic User Creation

The Automatic User Creation check box controls whether new Webex WFO users are created when employees in your contact center log in to a PC where the Smart Desktop is installed.

- Cleared—(Default) New users are not created
- Selected—New users are created

BEST PRACTICE Most organizations should keep **Enable Automated User Creation** disabled. If you enable this setting, you risk duplicating users and then having to manually merge or delete the duplicated users. We recommend automatic user creation only for organizations that use end-point recording.

The following table describes what happens when a Windows user logs in to a PC where Smart Desktop is installed, depending on whether the Automatic User Creation check box is selected or cleared.

Automatic User Creation check box configuration	Login is associated with an active Webex WFO user	Result in PC and Webex WFO
Cleared	Yes	Webex WFO user is recorded by Smart Desktop as configured.
Cleared	No	No new Webex WFO user is added. Nothing is recorded by the Smart Desktop.

Automatic User Creation check box configuration	Login is associated with an active Webex WFO user	Result in PC and Webex WFO
Selected	Yes	Webex WFO user is recorded by Smart Desktop as configured.
Selected	No	New Webex WFO user with a Recording user profile is added. New Webex WFO user is recorded by Smart Desktop as configured.

Client Auto Update

Select the Client Auto Update check box to enable automatic updates of Smart Desktop. When this feature is enabled, at log on and at random times between midnight and 1:00 AM, Smart Desktop compares versions with the version on the server and, if they are different, downloads the newer version and installs it to maintain compatibility. This feature is not supported when the Smart Desktop Client (SDC) is running on a server version of Windows. This includes VDI solutions that use a server OS to emulate an agent environment, such as Citrix, Amazon Workspace, and so on.

Select Recording Format

Select the recording format to be used to record audio contacts.

VP8 Codec Video Encoding

Internet Explorer has been deprecated; therefore, you can leave this box unselected.

Generate Recording Encryption Key

This option appears only when your role has the Administer Encryption Keys permission enabled.

All stored recordings are encrypted. You can generate a new recording encryption key at any time using the Generate button. Existing recordings are not re-encrypted when you generate a new key. The new key takes effect the next time the clients are updated or reinstalled.

The new encryption key is displayed when you generate it. This key can encrypt and decrypt your recording files, so be sure to keep this key in a safe place.

In cloud deployments, the available encryption method is RSA-2048 (with asymmetric keys) and AES-256 for media recorded by Webex WFO.

Time Zone

Select the time zone to be used as the default time zone for the customer.

Default Language

Select the language to be used as the default language for the customer. This language can be overridden by an individual user selecting a custom language when logging in.

User Profile Precedence

You can change the precedence of user profiles from external sources (ACD and Recording) by reordering them in the User Profile Precedence table.

NOTE Override user profiles have the highest precedence by default. You cannot lower this precedence. If you want to identify a user with the values stored in an ACD or Recording user profile instead of the values stored in an Override use profile, you must manually delete that user's Override user profile.

This reordering does the following:

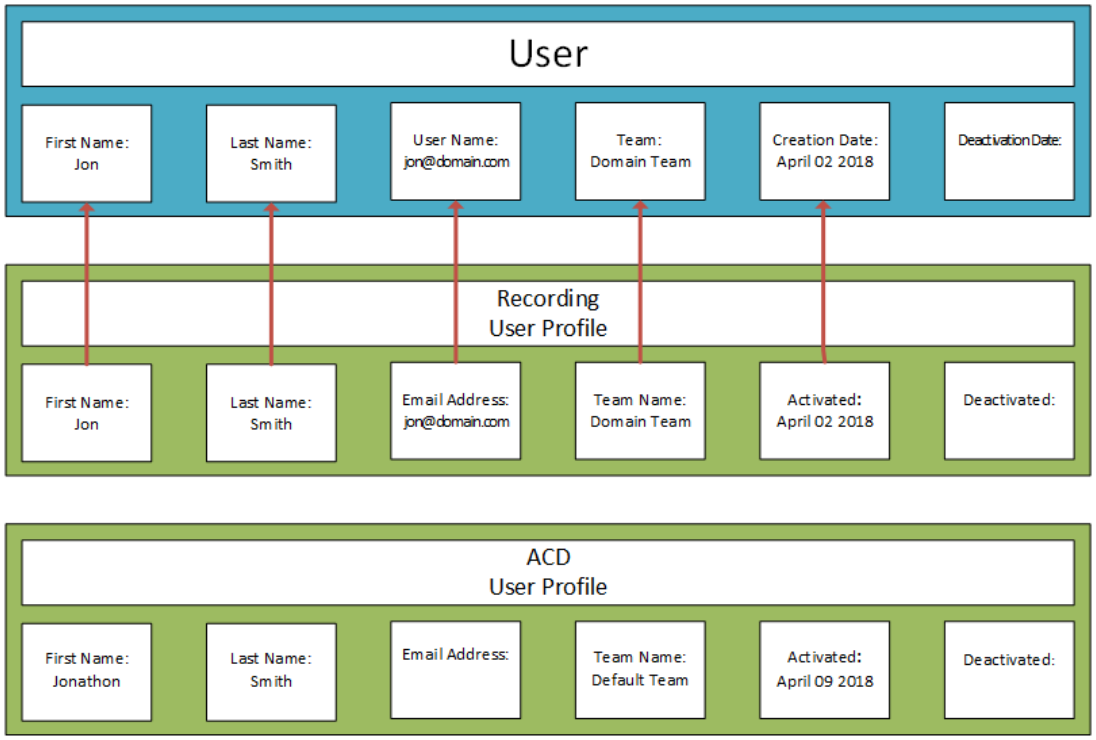
- It changes the order of the user profiles in the User Profiles table on the Users page.
- If a user has two user profiles with different values in any field, it can also change which value Webex WFO chooses to identify that user.

BEST PRACTICE Reordering the precedence of user profiles affects every user who has those user profiles. Set the precedence of user profiles once, when you first configure Webex WFO.

User profile precedence reordering example

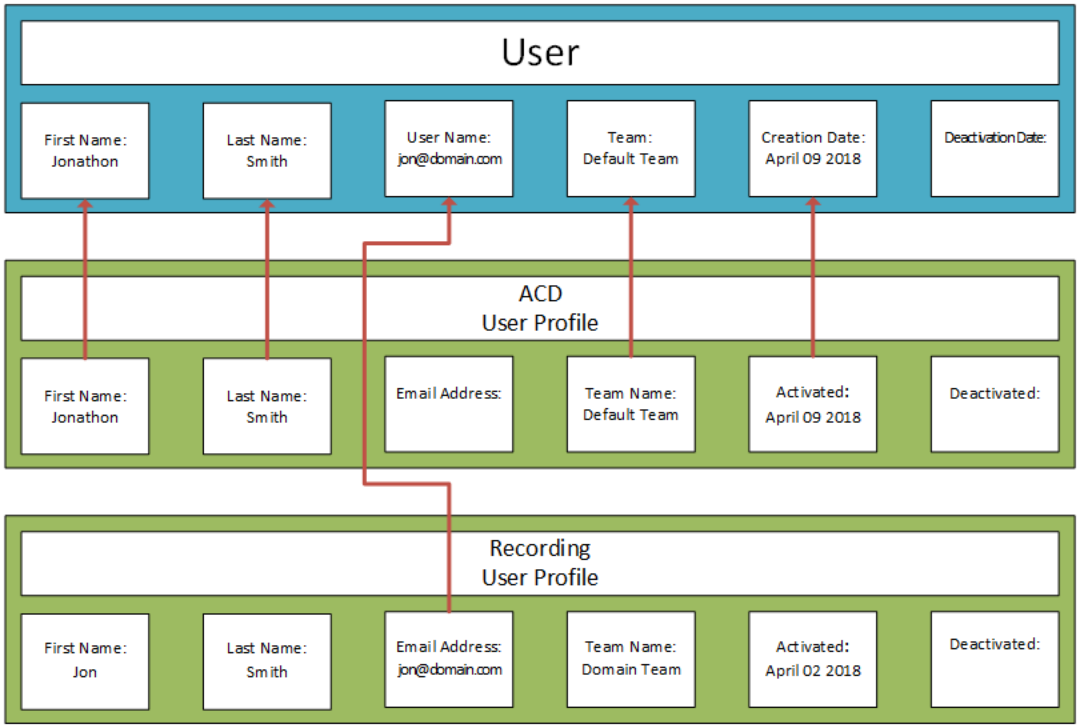
The following images show how a Webex WFO user's identity is modified when the precedence of that user's user profiles is reordered.

In the first image, the Recording user profile has a higher precedence than the ACD user profile, so Webex WFO selects values for most fields from the Recording user profile.



In the second image, the user profiles have been reordered so that the ACD user profile has a higher precedence than the Recording user profile. Now, Webex WFO selects values for most fields from the ACD user profile. This reordering changes the user's first name, team, and creation date.

The precedence of user profiles does not affect which value is selected from the External User ID field, even if a user has both a Recording user profile and an ACD user profile. Webex WFO maps the External User ID from the Recording user profile to the user's Windows Login, and it maps the External User ID from the ACD user profile to the user's ACD ID.



Related topics

- Configure QM global settings
- Security Update: TLS 1.1 and weak SSL/TLS 1.2 ciphers will be deprecated
- Manage WFM settings on web
- Configure WFM system settings in client

Configure QM global settings

Use the QM Global Settings page to configure settings for Quality Management that apply to all users. Changed settings do not take effect until the users log in again.

Prerequisites

You have the Administer QM permission.

Page location

Application Management > QM > QM Configuration > Global Settings

Note the following information about several fields on this page:

- Screen Recording Extension—When you enter a value in this field, after-call-work screen recording continues when a new call starts unless you select **Stop Extended Screen Recording on new call**. This additional screen recording can consume storage resources.

  IMPORTANT The **Stop Extended Screen Recording on new call** setting does not work with CCaaS ACD integrations.

- Screen Recording Quality—The quality level you select results in recordings files that are approximately the sizes below. Your organization's recording environment and the content of your screen recordings can significantly affect these sizes.
  - Good: 2.1 MB per minute per monitor
  - Better: 2.8 MB per minute per monitor
  - Best: 3.3 MB per minute per monitor
- Talk Over Events—The amount of time, in seconds, that talk over must take place to register as a talk over event. Enter 0 to ignore talk over events.
- Silence Events—The amount of time, in seconds, that silence must pass to register as a silence event. Enter 0 to ignore silence.
- Root Audio Recording Retention Time—To see audio root recordings on the Interactions page, use the Search Scope filter and select Root Calls.
- Root Screen Recording Retention Time—Screen root recordings never appear on the Interactions page.
- Non-Call Contact Retention Time—Non-call contacts have no audio or screen recordings associated with them. These contacts are usually created manually by clicking Create Contact on the Interactions page.
- First Calling/First Called—The first calling number and the first called number are both captured at the start of a call. A number is not captured if its check box is cleared. Instead, the second calling number or the second called number is captured.
- Display Contacts in User's Time Zone—This check box controls the Date and Time Zone fields on the Interactions and Contact Queue pages. All time filters (for example, Time Range) always search for contacts in the time zone of the capture source, even if this check box is selected.

- Smart Desktop Client - Screen Recording Priority—After saving any change to this setting, you must log in to the server where the CTI service is running and restart the CTI service for the change to take effect.
- STUN/TURN Server—After you make any changes to this server, restart the recording clients (Smart Desktop Capture and Virtual Record Server).

About screen recording priority

Smart Desktop Client - Screen Recording Priority allows you to select a preferred priority of which screen is recorded for screen monitoring when the same user is logged into both a thin client and an end-point (PC) concurrently. Meaning, the same user's AD login is used to sign into both an end-point and a thin client at the same time. Webex WFO registers **Thin Client Users** as Smart Desktop Client (SDC) connections to server operating systems such as Windows Server 2016. Webex WFO registers **End-Points Users (PC)** as SDC connections to desktop operating systems such as Windows 10. With screen monitoring, you can view an agent's screen activity, whether or not that agent is on a call. See Monitor agents in real time for more information about Live Screen Monitoring.

If the connection to a selected priority is lost, Webex WFO won't start recording on a different priority setting until the next active call.

EXAMPLE If **Thin Client Users** is selected as your screen recording priority, and the connection to your thin client is lost during a call, Webex WFO won't start recording on the lower, **End-Points Users (PC)**, priority until a new call starts.

NOTE If Screen Recording Priority is changed while an agent is on a call, the change does not affect that call but will take place with subsequent calls after the call has ended.

Related topics

- Configure global settings—Configure system-level settings
- Manage WFM settings on web
- Configure WFM system settings in client

Audit user and system changes for QM and Analytics

The Audit page lets you search, review, and identify changes made by users or the system in Webex WFO, forming an "audit trail." When a user makes a change in Webex WFO, Webex WFO adds an entry to the

Audit Trail table. This entry records who made the change (the user) and what the user changed (the object). Webex WFO retains information on the Audit Trail table according to the retention settings you have configured (see Manage data retention policies for QM and Analytics).

NOTE "Users" include system tasks (for example, syncing with an ACD) as well as logged in Webex WFO users. "Objects" include anything that you can create or edit in Webex WFO (for example, roles).

NOTE Not all objects in Webex WFO are audited, and the audit trail excludes changes made by system tasks. You can select **Include system events** to include changes made by system tasks.

Prerequisites

You must have supervisor or tenant permissions to view audit trails.

Page location

Application Management > Global > Monitoring > Audit

Procedures

You can use the Audit Filter to include only changes that meet specific criteria based on changes that specific users made or changes that were made to specific objects. The audit filter enables you to limit which entries Webex WFO displays in the Audit Trail table. The table contains an entry for each audited change in Webex WFO.

Add a filter:

1. Click **Filter**. The filter pane appears.
2. Configure the filter fields.
   You can filter the entries in the audit trail to find any or all of the following:
   - Users who made changes. You can filter by first name, last name, group name, and Email address.
   - APIs that were called to make changes. The audit trail includes all changes made by API calls to this endpoint.
   - Dates that changes were made.
   - Objects that were changed. The audit trail includes changed object types and how an object changed.

3. Click **Filter Results**.

> **NOTE** To be included in the filter results, entries must match the values in every field that you configure.

Remove a filter:

1. Click **Filter**. The filter pane appears.
2. Click **Clear filters**.

View additional details about a change:

1. Click on a entry from within the Audit Trail table to view additional details about what was changed.
2. To return to the audit trail table, click the entry again.

Best practices

- Wild card characters do not work within the fields. You must know the field value that you want to audit and enter the complete value name and be sure to spell the value name correctly. Abbreviated forms of a value name does not work.
- You use the Entity Label, Field Label, and Field Value fields to find specific objects that were changed so that the user who changed them can be identified. You must use these fields together. You cannot use them separately.
    - Entity Label—The changed object's type.
    - Field Label—The identification method that you want to use to find the changed object.
    - Field Value—The unique identifier of the changed object.

  EXAMPLE

  You want to find who added a permission to a role named "Agent," and you want to search for this role by name. You take the following actions:

    - In the Entity Label drop-down, you select **Role**.
    - In the Field Label drop-down, you select **Name**.
    - In the Field Value field, you type **Agent**.

The following examples show how to configure these fields to find specific core configuration and QM objects.

- The Core Configuration example demonstrates how to find a user who changed a common core configuration object.
  - Entity Label: Select **Person**.
  - Field Label: Select **Login**.
  - Field Value: Enter the user name of the user who was changed.
- To find which user changed common QM objects such as retention or an ACD configuration. Retention:
  - Entity Label: Select **Retention Policy**.
  - Field Label: Select **Name**.
  - Field Value: Enter the name of the retention policy that was changed.

  ACD Configuration:
  - Entity Label: Select **Server**.
  - Field Label: Select **ID**.
  - Field Value: Enter the Enter the ID of the ACD.

    NOTE To find the ID of an ACD, navigate to **Application Management** > **ACD Configuration**. The ID of an ACD is included after its name in the **Select ACD** table.

- When viewing additional details about an object in the audit trail the details refer to objects in Webex WFO by an internal ID and not a name. The following table describes common phrases that refer to internal IDs and where to find those IDs in Webex WFO.

Common Phrase	Description
“A Person identified by the id of <ID>”	On the Users page, export users. In the exported CSV file, this ID appears in the User ID column. **NOTE** This ID is an internal Webex WFO ID, not the user’s ACD ID or employee ID.
“A Group/Team identified	On the Groups page, export groups. In the exported CSV file, this

Common Phrase	Description
by the id of <ID> was updated”	ID appears in the Group ID column.
“A Group/Team identified by the id of <ID> was updated”	On the Teams page, export teams. In the exported CSV file, this ID appears in the Team ID column.

Related topics

- Manage data retention policies for QM and Analytics—Retention policies determine how long data appears on the Audit page
- Schedule Audit Trail report—Audit changes to schedules in New WFM
- General Audit Trail report—Audit all non-schedule changes in New WFM

Review Active Directory sync results for QM and Analytics

Use the Active Directory Sync page to check which users from Active Directory (AD) are and are not matched with Webex WFO users or to export the list of AD users as a CSV file. A **Matched** status indicates the AD user is matched with a Webex WFO user. A **Not Matched** status indicates the AD user is not matched with any Webex WFO user.

By checking the results of your Active Directory synchronization you can verify:

- Everything synced as intended.
- Users were matched who should be unmatched:

  If you no longer want a Webex WFO user to be linked with an AD user, you can unlink them. When a Webex WFO user is unlinked from an AD user, Webex WFO stops updating the user and the user’s Recording user profile when properties are changed in AD, and it enables the user’s Windows login for editing. See Connect to an Active Directory server for QM and Analytics for more information on unlinking users.

- Users were unmatched but should be matched. If so, ensure active directory was correctly configured. See Connect to an Active Directory server for QM and Analytics

Prerequisites

- A configured Active Directory
- The Administer Active Directory Authentication permission
- The Administer Tenant permission

Page location

Application Management > Monitoring > Active Directory Sync

Procedures

Filter results

To narrow the results of your Active Directory synchronization, select the desired filter from the **Filters** drop-down list.

NOTE The filter does not affect which users are included in the CSV file.

Export results

To export the synchronization results in a CSV file format, click **CSV Export**.

A CSV file is created that contains all AD users, both matched and unmatched, where:

- Active Directory Login is the “User logon name (pre-Windows 2000)” property of the AD user.
- SMTP Address is the “E-mail” property of the AD user.
- Status

NOTE Your AD configuration determines the users who appear in the table, the frequency that Webex WFO updates the table, and the properties that Webex WFO uses to match users.

Related topics

- Connect to an Active Directory server for QM and Analytics
- Manage roles and permissions for QM, Analytics, and Insights

Download Data Server logs

On the Data Server Logs page, you can request log files from the data servers in your system, monitor the progress of the logs as they are compressed into a ZIP file, and download the logs when they are ready. If the Retrieve Data Server Logs Error and Retrieve Data Server Logs Success notifications are enabled, you can also download the logs from the notification you receive when Webex WFO has finished processing your request.

You can request logs for only one Data Server at a time.

Prerequisites

You have the Agent Monitoring permission.

Page location

Application Management > Global > Monitoring > Data Server Logs

Procedures

Download Data Server logs

The Data Server Logs page has three sections: Data Server Logs, Log Filter, and Log Requests.

1. In the Data Server Logs table, select the Data Server with the logs you want to retrieve.

   Logs can have a **Connected** status of **True** or **False**. *True* indicates the Data Server is connected. *False* indicates the Data Server is disconnected. You cannot request logs for shared Data Servers or for Data Servers that have a Connected status of false.

   > **NOTE** In the **Version** field, if the version of the Data Server is earlier than 10.3.4, Webex WFO does not add your request to the Log Requests table. Instead, you receive a notification when the logs are ready to be downloaded. To be notified, you must be enabled to receive the Retrieve Data Server Logs Error and the Retrieve Data Server Logs Success notifications (see Configure notifications).

2. Configure the **Log FilterDate Range** (optional, leave the **Start Date** and **End Date** fields blank to request the entire log) and **File Type**.

   The File Type options are as follows:

- **ctiService.dbg** — The debug log files for the CTI service.
- **ctiService.log** — The log files for the CTI service.
- **dataGathering.dbg** — The debug log files for the Data Gathering service.
- **dataGathering.log** — The log files for the Data Gathering service.
- **siprec.dbg** — The debug log files for the SIPREC service.
- **siprec.log** — The log files for the SIPREC service.
- **voiceRecordServer.dbg** — The debug files for the Voice Record Server service.
- **voiceRecordServer.log** — The log files for the Voice Record Server service.

3. Click **Request Logs**. Webex WFO adds your request to the Log Requests table. Logs can have the following statuses: **Success**, **Timed Out**, and **In Progress**. You can also receive an error message. Check that the data server is connected if you receive an error message.
4. Once your request has a status of Success, click the **Download** icon. The logs are downloaded as a ZIP file named data_server_logs_<request number>.zip.

   You can download the logs for up to three days after your request.

Related topics

- Configure the Data Server for QM and Analytics —Learn more about data server configuration for tenants.
- Monitor Data Server status

Monitor Data Server status

The Data Server Status page allows you to monitor the status of the configured Data Servers. You can view if the connection status is currently connected or disconnected, and you can view the date and time of the last received event for each data server.

Page location

Application Management > Global > Monitoring > Data Server Status

Procedures

View data server status

A list of configured data servers displays. Click **Refresh** to update the list. Among the fields for each data server are:

- **Connection** — The connection status of the configured Data Server, which can either be connected or disconnected.
- **Enabled Features** — A list of the configured Data Server configuration features found on the 2517 page.
- **Data Server** — Displays the shared server ID from the database.
- **Actions**— Click **Edit** to go to the Data Server Configuration page.

Related topics

- Configure the Data Server for QM and Analytics—Learn how to configure data servers for tenants.

Monitor connections to the Webex WFO server

Use the Desktop Monitoring page to monitor client connections to the Webex WFO server. From the Desktop Monitoring page you can discover the connection status of multiple tenants, download the logs of your Smart Desktop instance, and view other connection details to troubleshoot customer issues.

NOTE The Desktop Monitoring page does not provide screen monitoring functionality.

Prerequisites

- You have the View Desktop Monitoring permission.
- One or more tenants are configured.
- The Desktop Client Async Logs Error and Desktop Client Async Logs Success notifications are configured to retrieve logs.

Page location

Application Management > Global > Monitoring > Desktop Monitoring

Procedures

Filter connections

You can filter the information displayed in the table by tenant and the connection and activation status of the tenant's installed instances of Smart Desktop. You can also sort the information displayed by clicking a column header in the table.

1. Click **Show Filters**.
2. Select or clear the check box next to the desired filter options. By default, all options are selected and the time period is set for the last seven days.

Retrieve Smart Desktop logs

With the **Get Logs** button, you can retrieve a ZIP file of the logs for each Smart Desktop instance that is connected to your tenant's Webex WFO server.

1. Locate the Smart Desktop instance you want logs from, and then click **Get Logs**. You will receive a notification when a ZIP file of the logs is ready to download.

   > **NOTE** To be notified, you must be enabled to receive the Desktop Client Async Logs Error and the Desktop Client Async Logs Success notifications (see Configure notifications). If these notifications are disabled, you will receive the following error message:
   > You will need to subscribe to the 'desktop client async logs success' and 'desktop client async logs error' notifications to receive these logs.

2. Open the notification, and then follow the instructions to download the ZIP file.

Field descriptions

The fields on the Desktop Monitoring page are described below.

Field	Description
Select Tenant	(System administrators only) Select the tenant whose connections you want to view. You can also select All to view connections for all tenants.
Select Client Version	Select the version of Smart Desktop you want to view. You can also select All to view connections for all versions of Smart Desktop.
Reset	Restores the default filter selections.

Field	Description
Export	Export the displayed desktop monitoring data as a CSV file called MachineDetails.csv. You are given the option to open the file or save it to your Downloads folder.
Status	The status of a specific installation of Smart Desktop. ■ Green—Connected and the installed version is the active version. ■ Yellow—Connected and the installed version is not the active version. ■ Red—Connected and there is an alert. ■ Gray—Disconnected.
Tenant Name	The name of the tenant.
Machine Name	The network name for the client.
Machine ID	The universally unique identifier (UUID) of the user's machine.
IP Address	The IP address of the user's machine.
Activated Client Version	The Smart Desktop version currently running on the client's PC.
Installed Client Version	The latest Smart Desktop version downloaded to the agent's PC. If the Active Client Version and Installed Client Version match, the agent is using the most current version of Smart Desktop.
Connected	Indicates that Smart Desktop is currently connected to the Webex WFO server.
Logs	The Get Log button generates a request for the logs of the Smart Desktop instance.
Config	The **Edit Config** button allows you to view and edit the logging level, number of debug files, and the size of those debug files for this instance of Smart Desktop.

Related topics

- Configure notifications

Manage telephony servers

Use the Telephony Monitoring page to monitor the status of the active and standby signaling and record servers in telephony groups.

If you have a primary and backup signaling server, you can use this page to switch call processing to the backup server prior to performing maintenance on the primary server. At the beginning of this workflow, the primary server is in Active status, and the backup server is in Standby status.

NOTE Only servers in Active/Standby pairs can be placed in maintenance mode.

Place a server into Maintenance mode

1. Select a telephony group.
2. Select the server you want to put into Maintenance mode.

   NOTE The server to be placed into Maintenance mode must be in Active status.
3. Click **Maintenance**.

   When you click Maintenance, the backup server changes from Standby mode to Active mode, and the active server changes from Active mode to Draining mode. The calls that were already on this server continue to be processed until done (“draining” the server), at which time the server goes into Maintenance mode. New calls are directed to the new active server, which begins processing them.

   Once the server is in Maintenance mode, maintenance can be performed and the server rebooted if necessary. When maintenance is complete, the server goes into Standby mode.

Activate a server in Standby mode

1. Select the server in Standby mode that you want to activate.
2. Click **Active**.

   When you click Active, the server changes from Standby mode to Active mode, and the active server changes from Active mode to Draining mode. The calls that were already on this server continue to be processed until done, at which time the server goes into Standby mode. New calls are directed to the new active server, which begins processing them.

Field descriptions

The Telephony Monitoring page displays the status for both signaling servers and recording servers. The fields in these sections are defined in the tables below:

Field	Description
Filters	Select a telephony group from the drop-down list.
Component	The type of server: signaling or recording.
Priority	The priority of the server: Primary, Secondary, or Backup.
Server Name	IP address or server name of the signaling or recording server.
Group	Name of the signaling or recording group. **NOTE** The name of the group should indicate whether the group is a signaling or recording group.
State	Indicates if the server is connected or not connected.
Status	Current status for the server: ■ Active = Server is active and processing calls. ■ Inactive = Server is not active. ■ Standby = Server is running and ready to be activated. ■ Draining = Server is processing data in queue and not accepting new data. ■ Maintenance = Server is down for maintenance.
Calls	Number of calls being processed by each server.
Last Updated	The date and time the server information was updated in the table displayed in GMT.
Maintenance Status	Current maintenance status for the signaling or recording server: ■ Active = Server is active and processing calls. ■ In Maintenance = Server is in maintenance.

Manage what contacts are recorded

Use the Inclusion/Exclusion page to proactively manage which contacts Webex WFO automatically records and which contacts it automatically excludes from being recorded. You can have multiple include and exclude rules.

EXAMPLE Create rules to exclude all outgoing contacts from recording, record all contacts that begin with “612822,” or record all calls from the United Kingdom.

IMPORTANT Settings on the Inclusion/Exclusion page only apply when Webex WFO records the contacts. These settings do not apply if contacts are recorded outside of Webex WFO, such as with most contact center as a service (CCaaS) integrations.

Prerequisites

- You have the Administer QM permission.
- Your organization records contacts through Webex WFO.

Page location

Application Management > QM > QM Contact Flows > Inclusion/Exclusion

Procedures

IMPORTANT By default, Webex WFO records all calls. If fields in the exclusion rule (such as the pattern type or direction) are missing, are incomplete, or use wildcard characters inaccurately, Webex WFO records these calls.

EXAMPLE You create an Inclusion rule to record only calls with a Called Number of 1234567. A call comes in, but the ACD does not supply a Called Number. You have not created an Exclusion rule to exclude calls with an empty Called Number. Webex WFO records this call.

Create a recording rule

1. Click **Add**.
2. Enter the phone number in the **Pattern** field. Do not use hyphens. You can use wildcards in this field to create rules that apply to multiple numbers:
   - ? — A single digit

     EXAMPLE 612822???? = all numbers that begin with 612-822.
   - * — Any number of digits

     EXAMPLE 612* = all numbers that begin with 612.

- + — Country code indicator (must be the first character in the field)

  EXAMPLE +44* = contacts in the United Kingdom.

- EMPTY — The ACD does not supply data for this field.

3. Select the characteristics of the call from the **Pattern Type** field.
   - Calling Number—The ANI
   - Called Number—The DNIS
   - Extension
   - Phone Number—Some ACDs populate data in a field named Phone Number if the Calling Number or Called Number is empty. You can create rules with this pattern type if your ACD does this.
   - Any—Some ACDs populate data in a field named Any if the Calling Number or Called Number is empty. You can create rules with this pattern type if your ACD does this.
4. Select the call **Direction**.
5. Click **Add**. The rule appears on the page.

Edit a rule

1. Click the pencil icon next to the rule.
2. Edit the rule as needed.
3. Click **Update**.

Delete a rule

1. Click the trash can icon next to the rule. The **Confirm Delete** window opens.
2. Click **Delete**. The rule disappears from the list.

Import a list of recording rules

BEST PRACTICE To make sure that your import is formatted correctly, first Export a list of recording rules, edit the list as needed, and import it.

1. Click **Import** at the upper right corner of the page. The **Import** window opens.
2. Click **Choose File**.

3. Select the file to upload. The **Import** window previews the new and existing rules that are in the file.
4. Click **Import**. The new rules appear on the page.

Export a list of recording rules

IMPORTANT If you export a list that includes an international calling code with the plus (+) sign, Excel treats the number as a mathematical expression. To use these lists, convert the exported .CSV file to text (.TXT), open the file in Excel, and define this as a text formatted column.

- Click **Export** at the upper right corner of the page. The file inclusion_exclusion_list.csv downloads to your device.

Related topics

- Automate QM workflows—Create rules that tell Webex WFO what to do with recordings.

Webex WFO Pause and Resume

This topic details the different ways to achieve Webex WFO initiated pause and resume functionality for compatible Webex WFO integrations. If Webex WFO initiates pause and resume, the Webex WFO side of the integration is conducting pause and resume. However, if Webex WFO ingests pause and resume, the third-party system Webex WFO integrates with is conducting pause and resume. Whether Webex WFO ingests or initiates pause and resume varies per integration.

NOTE Consult the integration guide for your CCaaS vendor or consult with your Cisco Account Representative to learn if Webex WFO initiated pause and resume is supported for your integration.

Webex WFO initiated manual pause and resume for audio and screen recordings

Webex WFO initiated manual screen recording pause and resume can be achieved using recording controls. Webex WFO offers three recording control options. All recording control options offer audio and screen recording pause and resume, with the exception of the standalone recording controls application for certain CCaaS vendor deployments.

- Recording Controls standalone application —

  The Recording Controls standalone application is automatically installed with Smart Desktop. Recording Controls enables an agent to start, pause, resume, and stop audio, screen, and keystroke recording for active calls, as well as tag calls and add metadata to them.

Using Recording Controls is optional.

> **NOTE** The Recording Controls application is not supported with certain CCaaS vendor deployments.

The Recording Controls executable is installed here:

```
C:\Program Files (x86)\Calabrio ONE\Desktop\Active\bin\DCC.exe
```

In the Start menu, the application is named Webex WFORecording Controls and by default is under Webex WFO.

- Recording Controlspage — The Recording Controls page in Webex WFO allows you to manually pause and resume audio and screen recordings directly. Additionally, you can perform all of the actions available in the Recording Controls standalone application such as tagging calls.
- Recording Controls API —The Recording Controls API exists at the server level. It provides a means for users to create an external application that interfaces with Webex WFO. The API allows you to pause and resume audio and screen recordings. See "Recording Controls API" in the *Webex WFO API Reference Guide*.

Webex WFO initiated automated pause and resume for audio and screen recordings

You can conduct Webex WFO automated audio and screen recording pause and resume using desktop item events. Desktop item events consists of triggers and actions. Triggers are what a user does that causes Smart Desktop to perform an action. Desktop item events can be configured on the Desktop Manager page, which allows you to control how Webex WFO responds when users access websites and applications. These events are triggered by Smart Desktop on the agent's computer at run time. Smart Desktop monitors for events throughout a user's logged in session, and Smart Desktop triggers an action when it detects an event. Therefore, you must have Webex WFO Smart Desktop and a Webex WFO Desktop Analytics extension for your browser.

Prerequisites

- Smart Desktop Client
- Desktop Analytics extension for your browser
- A configured desktop item event to automate pause and resume actions

The following is an event example.

Start trigger	What the user does that starts the system action **The agent clicks in the Credit Card Number field.**
System action	What Smart Desktop does when the Start Trigger happens **Smart Desktop stops audio and screen recording**.
Action duration	How long before a stop action happens automatically instead of by a stop trigger **Smart Desktop restarts audio and screen recording one minute after the agent clicks in the Credit Card Number field.**
Stop trigger	(optional) What the user does that stops the system action **The agent clicks out of the Credit Card Number field.**
Stop action	(optional) What Smart Desktop does when the Stop Trigger happens **Smart Desktop restarts audio and screen recording.**

See Configure desktop item eventsto learn how to configure desktop item events.

***Cisco Webex Contact Center (CWCC) has two options for pause and resume. One option is for manual pause and resume, which uses Cisco Agent Desktop. The second option is for automated pause and resume, which requires Cisco APIs. For the API-based option, the API commands have to be sent to the Cisco Smart Desktop software for it to redact audio. Redacted audio from the pause and resume data is synced from CWCC to Webex WFO. Once Webex WFO ingests the redacted audio, if screen recording is involved, Webex WFO auto-redacts the screen based off of the redacted audio prior to the contact being presented in Webex WFO. Both manual and automated pause and resume options require the user to have Cisco Agent Desktop software installed. The Webex WFO manual and automated pause and resume options are not applicable to the CWCC integration. Webex WFO automatic pause and resume is not available because the RTP signal, which is required for Webex WFO initiated automated events, is not going through Webex WFO.

Related topics

- Identify website fields to be tracked by Analytics
- Configure desktop item events

- Record on demand
- How Recording Controls work

Associate phones with agents, recording groups, and recording types

After you sync devices through the Data Server (see Configure the Data Server for QM and Analytics), use the Device Associations page to associate devices from your ACD with Webex WFO users, recording groups, and recording types.

You cannot add new devices on this page. To add new devices, you must sync them through the Data Server.

Prerequisites

- Devices have been synced through the Data Server.
- You have the Configure Device Associations permission.
- You have scope over your entire contact center organization.
- To associate an agent with multiple devices, you must have Cisco UCCE or PCCE version 12 or 12.5 as your ACD, and the devices must share the same ACD line (DN). Additional configuration within the Cisco ACD is needed.

Page location

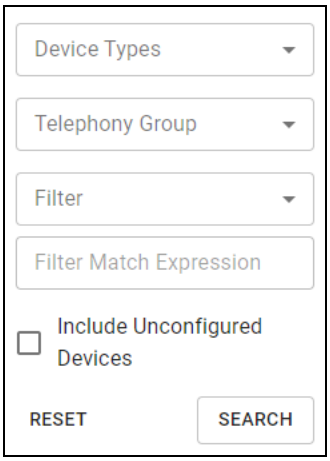
Application Management > QM > QM Configuration > Device Associations

Procedures

Search for a device

- Use the search menu to find devices whose associations you want to configure or edit. You can use the asterisk (*) wildcard in the **Filter Match Expression** field to represent any number of

characters.



Associate an agent with multiple devices

1. After locating the devices (see Search for a device), select the agent from the **Agent** drop-down menu for both devices.
2. Click **Save**.

Edit device associations in bulk

You can edit the associations of existing devices only. You cannot add new devices via CSV import.

1. Click the options icon (three dots) and select **Export Devices**. A CSV file downloads to your device.
2. Edit the CSV file to associate the devices with users, recording groups, and recording types as desired.

> **NOTE**
>
> To associate a device with an agent, at least one of these fields must be populated:
>
> - Username
> - DomainName
> - LastName
> - FirstName
>
> To disassociate a device from an agent, delete the values in all four fields.

3. Click the options icon and select **Import Devices**.

4. Import the CSV file.
5. Click **Save**.

The following table describes which fields in the exported CSV file you can and cannot edit in order to associate devices.

Field	Editable?	Description
DeviceName	N	The name of the device in your call environment.
DeviceType	N	The type of device in your call environment.
Extensions	N	The extension associated with the device in your call environment.
VirtualDeviceName	N	The non-physical device associated with a physical recorded device in your recording environment.
TelephonyGroup	N	The telephony group associated with the device in your call environment.
DisplayID	N	The ID of the device in your call environment.
IsRecordingTones	Y	If TRUE, the device uses recording tones (not common).
Username	Y	The user name (email address) of the Webex WFO user who is associated with the device. This field is required.
DomainName	Y	The Windows login of the user associated with the device. This field is optional.
LastName	Y	The last name of the user associated with the device. This field is optional.
FirstName	Y	The first name of the user associated with the device. This field is optional.
MonitorServer	Y	Not used.

Field	Editable?	Description
RecordingCluster	Y	The recording group associated with the device. This value is not case-sensitive. The recording group must already exist in Webex WFO.
RecordingType	Y	The recording type associated with the device. The following are allowed values for this field: ■ Event Notification ■ Multiple Registration Recording ■ Network Recording ■ None ■ Reconciliation ■ Single Step Conference

Related topics

- Configure the Data Server for QM and Analytics—Sync devices into Webex WFO.

Automate QM workflows

Use the Workflow Administration page to determine which recordings to keep and which recordings to delete based on workflow rules, and to specify how long the recordings are retained. You can also use workflows to perform other tasks, such as assigning evaluations.

End of Interaction and Daily are the two event types that specify when a workflow is set to run. Once you select an event type, you then further configure the workflow's rules. Rules are evaluated and followed in the order they appear on the Workflow Administration page until a matching rule is found. There is a **Default (locked)** rule that is always the last rule in the list. It can be modified, but it cannot be deleted.

Once the rules are set, you then create one or more conditions that the rule must follow. When the conditions for a rule are met, the actions configured for that condition are followed. These actions can range from inserting metadata, recycling contacts, keeping a percentage of recordings, and more.

Prerequisites

- You have the Administer Workflow permission.
- (To automatically assign an evaluation form to contacts) You have created and published an evaluation form.
- (To automatically assign a custom retention policy to contacts) Your organization does not have a Basic QM license. If your organization has a Basic QM license, only the Default retention policy applies to your contacts.

Page location

Application Management > QM > QM Contact Flows > Workflow Administration

Procedures

To create a complete workflow you must create a rule, create conditions for that rule, and then set up actions for the conditions you created.

Create a new rule

When you create a rule, you are creating a container for the conditions you want for your workflow.

1. Select **End of Interaction Event** or **Daily Event**.

   End of Interaction Event—The workflow processes the recording at the end of a call.

   Daily Event—The workflow processes all recordings once a day. If there are calls still being recorded when the Daily Event workflow is executed, those calls will be uploaded when the next Daily Event runs.

2. (Daily Events only) Enter the time for the Daily Event to run in the **Time** field.

   Time —The time when workflow processing starts. This is also the start time for the recordings retention period. If the time is changed, the new time goes into effect immediately, and calls will be processed using the new time.

3. Enter a name for the rule in the **Name** Field.
4. Click **Save Rule**. The rule is added to the workflow.

   NOTE Selecting **Save Rule** does not save the entire workflow. Save workflows by clicking the **Save** button.

5. Select the rule from the **Rules** list.
6. (Optional) Use the keyboard arrows to change the order of the rules. Rules are generally followed in the order they appear on the Workflow Administration page.

Delete a rule

You can delete one rule at a time.

1. Select a rule from the **Rules** list.
2. Click **Remove Rule**.
3. Click **Save**.

Create conditions for a rule

Each rule follows a set of conditions.

1. In the **Conditions** section, select **All** or **Any** from the **Match** drop-down list. When one or more conditions are set to an **Any** or **All Match** category, those conditions form a condition group.

   All—The workflow must match all conditions in the condition group.

   Any—The workflow must match any of the specified conditions in the condition group.

2. In the **Conditions** section, select an option from the **Condition** drop-down list.

   - **Agent**, **Group**, or **Team**—You can select the name of an agent, group, or team as the value. The condition applies to the call recordings of this specific agent, group, or team only. If the name of the agent, group, or team is edited, Webex WFO automatically updates the value in your condition to match the new name.
   - **Call Direction**—You can select **Inbound** or **Outbound** as the value. The condition applies to all inbound or outbound call recordings.
   - **Contact Type**—You can select **Call**, **Screen Only**, **Email**, **Text**, **Chat**, or **SMS** as the value.
   - All others—You can enter a string as the value. The condition applies to all call recordings that contain the specified string in their metadata.

3. Select an option from the **Operator** drop-down list.

   - **Contains**—Search for values that contain the string in the Value field. This field is not case-sensitive. Contains implicit wildcards before and after the entered text. The asterisk (*) and question mark (?) wildcards are allowed.

- **Contained in list**—Loads values from a file in a single column of values (or CSV). This automatically creates an Any condition group with the values. Each value allows the asterisk (*) and the question mark (?) wildcards.
- **Is**—Search for an exact match. The asterisk (*) and the question mark (?) wildcards are allowed.
- **Equals**—Search for score values that match your specified value. Number conditions allow "Less than" (<), "Greater than" (>), and "Equals" (=) operators.

  NOTE When you use the Equals operator, the Value field is case-sensitive. If you are uncertain about the case of the string in the Value field, use the "Contains" operator.
- **Begins With**— Search for values that begin with the string in the Value field.
- **Less than**—Search for score values that are less than your specified value.
- **Greater than**—Search for score values that are greater than your specified value.
- **<metadata operator>**—Choose the metadata field to use. The value works like an "Is" operator that allows asterisk (*) and question mark (?) wildcards.

4. Select an option from the **Value** drop-down list. You can either select an option or enter a string, depending on the condition.

   Wildcards can be used for both "Is" and "Contains" operators. "Contains" has implicit asterisk wildcards at the beginning and end of the text.

   - The asterisk wildcard (*) can represent any quantity of any characters, as long as the other characters in the string match.

     EXAMPLE 61* matches any number that starts with 61, such as 6124, 61555, and 613.
   - The question mark wildcard (?) can replace a single character in a string.

     EXAMPLE 61?? matches any number that starts with 61 and is four digits long, such as 6124, 6125, and 6126.

5. (Optional) Click + to add a condition, – to delete a condition, or  to create a new condition group and repeat steps 1 through 4 for the new condition or condition group.
6. Click **Save**.

Create actions for a condition

Actions define what happens when the conditions for a rule are satisfied.

1. Select and configure one or more of the following actions.

   - **Retention Policy** — An option for **Keep <n> % of random voice**, **matching screen**, and **unmatched screen recordings**. Choose the retention policy for the contacts that meet the workflow rules. The retention policy determines how long recordings are kept. The retention time starts based on the contact's start time.

     NOTE Only one retention policy is allowed per contact.

   - **Retention Policy** — An option for **Keep <n> % of random voice recordings**, **matching screen recordings**, **unmatched screen recordings**, and **text interactions**. Choose the retention policy for the contacts that meet the workflow rules. The retention policy determines how long recordings or text records are kept. The retention time starts based on the contact's start time.

     NOTE Only one retention policy is allowed per contact.

   - **Keep <n> % of random voice recordings Keep <n> % of <type> voice recordings**— Keeps the specified percentage of voice recordings that match the specified type of contact.
   - **Keep <n> % of random matching screen recordings Keep <n> % of <type> screen recordings**— Keeps the specified percentage of matching screen recordings that match the specified type of contact.
   - **Keep <n> % of random unmatched screen recordings Keep <n> % of <type> unmatched screen recordings**— An unmatched screen is recorded without audio for screen-only contacts. This action keeps the specified percentage of unmatched screen recordings that match the specified type of contact.
   - **Keep 100% of text interactions**—Use this action for text contacts. The 100% setting cannot be changed.
   - **Immediate Upload** — An option for **Keep <n> % of random voice**, **matching screen**, and **unmatched screen recordings**. Audio recordings and screen recordings (matched or unmatched) associated with this workflow are immediately uploaded after the workflow completes. In an End of Interaction workflow, the recording is uploaded immediately after the recording ends. In a Daily workflow, the recording is uploaded when the daily workflow is scheduled to run. If this option is not selected, the normal upload setting rules are in effect. This option applies to all recording types. If you change this option during the day, the change goes into effect immediately.

Files that are uploaded immediately can affect bandwidth.

> **BEST PRACTICE** If you are using Desktop Recording without a staged upload server, select Immediate Upload to limit the potential loss of audio recordings that are waiting to be uploaded when an agent's PC shuts down.

- **Recycle Immediately** — Voice recordings, screen recordings, and text records go immediately to the recycle bin and are not processed by any other event.

  A typical example is for Do Not Keep phone numbers in the End Of Interaction event. Contacts that have these phone numbers as Calling/Called should not be recorded. Selecting Recycle Immediately sends them to the recycle bin, and they are not processed again in the Daily Event. This prevents a Do Not Keep list from being maintained in both End Of Interaction and Daily events.

- **Insert Metadata**— Allows you to insert the text specified in the field into the user-defined metadata field for the contacts that meet the workflow. You can Manage custom metadata fields from the Metadata Manager page.
- **Set the evaluation form to <Evaluation Name>**— Select the evaluation form that you want to associate with contacts that meet the workflow.
- **Set the reason for the interaction to <Reason>** — Choose the reason that will be associated with this recording. If you do not choose a reason, Archive is assigned by default.
- **Set the survey form to <Survey Name>**— Select the survey form you want to associate with contacts that meet the workflow conditions.

  You must also select the Voice of the Customer (VoC) question and the evaluation threshold for that question. The VoC question must have a numeric answer format. If the customer's response for the VoC meets the evaluation threshold you define, the associated contact is marked for evaluation.

  Survey forms are sent by email. Enter the Send From email, Reply To email, sender name, and email subject. For more information about sending survey forms, see Configuring online survey providers.

  > **NOTE** If the value of this field is set to IVR, the **Send From Email**, **Reply To Email**, **Sender Name**, and **Email Subject** fields are not available.

2. Click **Save**.

Field descriptions

Use the Workflow Administration page to create, edit, or delete a workflow.

Configuring rules

Configure the rules for the workflow.

Field	Description
Reset	Restore the last saved changes to the section.

Configuring conditions

Configure the conditions for the workflow. The conditions determine which contact meets a rule.

Field	Description
Import	Browse to a CSV or TXT file that contains a single column of data based on the selected condition. This button appears only when the operator is “Contained in list.”
<number> Rows	(Read-only) Displays the number of rows in the imported CSV file.
	(Export Table Data to CSV) Export the selected data to CSV.

The following conditions are available by default. You can also select any custom metadata that you add.

Condition	Description
Agent	Applies only to the specific agent that you select as a value. The operator is Equals by default and cannot be changed.
Group	Applies only to the specific group that you select as a value. The operator is Equals by default and cannot be changed.
Team	Applies only to the specific team that you select as a value. The operator is Equals by default and cannot be changed.
Agent First Name	Applies to all users’ first names that match the operator you select

Condition	Description
	and the value you enter.
Agent Last Name	Applies to all users' last names that match the operator you select and the value you enter.
Agent Username	Applies to all users' Windows logins that match the operator you select and the value you enter. In an Active Directory environment, this condition is the Active Directory login of your users.
Agent Email	Applies to all users' user names that match the operator you select and the value you enter. In Webex WFO, this condition is the email address of your users.
Team Name	Applies to all teams that match the operator you select and the value you enter.
Group Name	Applies to all groups that match the operator you select and the value you enter.
Call Direction	Applies to all calls that match the direction you select: inbound or outbound.
Call Duration (seconds)	Applies to all calls whose length matches the operator you select and the value you enter.
Calling Number	Applies to all calls whose calling number matches the operator you select and value you enter.
Called Number	Applies to all calls whose called number matches the operator you select and the value you enter.
Phone Number	Applies to all calls whose calling number or called number matches the operator you select and the value you enter.
Agent Length of	Applies to all agents whose length of employment matches the

Condition	Description
Employment (days)	operator you select and value you enter.
Contact Type	Applies to all contacts whose type matches the value you select.

Configuring actions

Configure the actions for the workflow. The actions define what happens to contacts that satisfy the rules.

Field or button	Description
Convert on Upload	An option for Keep <n> % of Random voice, matching screen, and unmatched screen recordings. The server converts uploaded recordings from the recording format to the storage format. If you do not select this option, the recording is not converted until it is played back. Screen recording and storage formats are the same by default (WebM Video - VP8). For audio recordings, the recording format is encrypted OPUS, and the storage format is WebMA Audio - Vorbis.

Related topics

- How workflow administration works—Learn more about workflow event types and how Webex WFO handles conflicting workflows.
- Manage workflow control sets—Create workflows for New WFM

How workflow administration works

Learn more about QM workflows, including the differences between End of Interaction (EOI) and Daily event types and how Webex WFO handles conflicting workflows.

Event types

The EOI and Daily event types determine at which point after a contact the workflow process takes place. After you select an event type, you can configure workflows to take a variety of actions. See Automate QM workflows for a complete list of workflow actions.

The logic applied to the three actions listed below varies depending on if the action is applied to a daily or EOI event. Details on the differing logic can be found in the sections on Daily events and End of Interaction events.

- Keep <n> % of random voice recordings
- Keep <n> % of random matching screen recordings
- Keep <n> % of random unmatched screen recordings

  Where <n> indicates a text field, check box, or drop-down list where a unique value can be set.

Daily events

Daily events are when a workflow processes all recordings once a day. If there are calls still being recorded when a daily workflow is executed, those calls are uploaded when the next daily workflow runs. Daily workflows can be configured for actions that allow you to keep a certain percentage of voice or screen recordings. Webex WFO calculates daily workflows using an exact percentage. Meaning, if you configure a workflow to keep 20% of random voice recordings, then 20% of random voice recordings will be kept when the workflow processes.

End of Interaction events

End of Interaction (EOI) events are when the workflow processes the recording at the end of each individual call. Unlike daily workflows, EOI workflows are calculated at the end of each contact using a calculated approximate percentage. Webex WFO estimates the percentage for all contacts because only the data for the current contact and earlier contacts is available at the time of processing. To estimate this percentage, the system uses logic similar to a deck shuffle model to decide what happens to the contact.

In the deck shuffle model, a theoretical deck is assigned to each agent. This deck consists of cards to keep and cards to discard in proportion to the configured keep <n> % of media action, such as keep <n> % of voice recordings. Where <n> indicates a text field, check box, or drop-down list where a unique value can be set. Webex WFO shuffles the deck, and then for each contact Webex WFO draws the card from the top of the deck and keeps or discards the contact based on that card. The deck is reshuffled when Webex WFO reaches the end of the deck. The deck shuffle model ensures that contacts are not over represented or under represented in proportion to the percentage of contacts you configured Webex WFO to keep.

IMPORTANT If an agent takes fewer than 10 calls in a day, then the actual percentage is not guaranteed to match the percentage you configured for the EOI workflow.

QM workflow conflicts

For most workflows, you can select multiple concurrent actions. However, conflicts can happen when you configure actions that are not compatible. Every action that can potentially trigger conflicts is listed below.

NOTE These actions on their own do not trigger conflicts. It is only a few select combinations of these actions that can trigger conflicts.

- Keep <n> % of random voice recordings
- Keep <n> % of random matching screen recordings
- Keep <n> % of random unmatched screen recordings
- Recycle Immediately Voice Recordings
- Recycle Immediately Screen Recordings.

EXAMPLE A workflow is configured to **Keep 10 % of random voice recordings**, and **Recycle Immediately Voice Recordings**. The system is being asked to do two opposing actions, which are keeping and recycling voice recordings. This creates a conflict.

Conditional statements

The conditional statements below show all of the specific scenarios that trigger conflicts by showing the configurations of two conflicting actions in head-to-head match ups and the final outcome of which of the competing actions wins. When an action wins, Webex WFO follows the winning action and disregards the losing action.

If:	Then:
There is an EOI Recycle Immediately workflow and Daily Keep <n> % of media workflow.	The EOI Recycle Immediately workflow is followed.
There is an EOI Recycle Immediately workflow and Daily Recycle Immediately workflow.	The EOI Recycle Immediately workflow is followed.
There is an EOI Keep <n> % of media workflow and Daily Recycle Immediately workflow.	The EOI Keep <n> % of media workflow is followed. The EOI configured Upload Time and Retention Policy are followed.

If:	Then:
There is an EOI Keep <n> % of media workflow and Daily Keep <n> % of media workflow.	The EOI Keep <n> % of media workflow is followed. The EOI configured Upload Time is followed and the Daily Retention Policy is followed.

IMPORTANT Generally, if there is a conflict between two workflows, then the workflow that is configured to run first is followed.

IMPORTANT Generally, if there are two workflows with conflicting retention policies, then the workflow that was most recently updated is followed.

Related topics

- Automate QM workflows—Learn more about how to configure workflows.

How root calls and reconciliation work

A root call is a recording made via Gateway Recording. This recording is not associated with any user and must be reconciled to associate the root recording with an agent. Reconciled recordings can be used with Quality Management and Analytics.

A root call is a recording of the entire call from the time it enters the gateway until the time it leaves the gateway, including transfers and consultations that can involve multiple people.

NOTE You cannot use Gateway Recording with hoteling users. (See Manage hoteling users for QM and Analytics.)

Reconciliation is the process of associating root calls with agents and screen recordings by looking at PBX/ACD Call Detail Records (CDRs), Webex WFO agent-to-device associations, and end user login events. The reconciliation process runs every 10 minutes against calls that are at least 20 minutes old. Reconciliation creates assigned calls that are copies of the root call segments that belong to specific agents. Webex WFO runs reconciliation automatically.

You can view root calls in the Recording Contacts window (see).

Webex WFO handles root calls according to the default storage profile only. If you create any additional storage profiles, they do not apply to root calls. (See Configure storage profiles for QM and Analytics.)

Identify websites and apps to be tracked by Analytics

Use the Desktop Manager page to configure Webex WFO to perform various actions automatically when a user opens or interacts with a Windows application or website. These configured automated actions are called **desktop item events**.

> **EXAMPLE** To prevent recordings from capturing sensitive data, you want Webex WFO to pause the recording when an agent clicks in the Credit Card Number field in your order management application and to resume the recording when the agent clicks out of the Credit Card Number field.

You can add the target applications and websites manually or in a batch using the Import function. The Export function allows you to obtain a list of all the applications and websites set up in Desktop Manager.

You can also mark specific applications and websites as “approved” or “not approved” on this page. This enables you to identify agents who are accessing applications and websites that your company has not approved for use.

Prerequisites

- Your organization has one of the following licenses:
  - Analytics Essentials
  - Analytics Enterprise
  - Desktop Analytics

    > **NOTE** The Desktop Analytics license lets you mark websites and apps as approved or unapproved for agents to use. (See Create and manage desktop items for instructions.) It does not allow you to configure automated actions like pausing and resuming recording of a call.
- You have the Administer Desktop Analytics permission.

Page location

Application Management > Analytics > Analytics > Desktop Manager

Procedures

- Create and manage desktop items—Add, edit, and set the status of desktop items; import and export desktop item data; set the status of desktop items, and push updated configurations to Smart

Desktop users.

- Configure desktop item events—Create and edit automated desktop item events.
- Use the Application Field Marker tool—Obtain the information you need to configure a desktop item event that involves fields in a Windows application.

Create and manage desktop items

Before you can create an automated desktop item event, you must have a list of the applications and websites those event run against.

Procedures

Filter the list of applications and websites

1. Use the **Search** field and the **View**buttons in the toolbar to filter what appears on the Desktop Manager page.
   - Enter any string in the **Search** field to limit the list to applications and websites whose names contain that string.
   - Click the **App** or **Web**buttons to show only applications or websites, or both. A selected button is dark gray. A deselected button is light gray.
   - Click the **Application State** button to select the states you want to view.
2. Clear the **Search** field and select all buttons to view the entire list of applications and websites.

Add a new desktop item

1. Click **New Desktop Item**. The **Add New Desktop Item** page opens.
2. Select the type of item you want to add from the What Do You Want to Do? options. Fields appear based on the type of item you select.
3. Complete the fields as described below. This table contains all the possible fields you might see.

Field	Description
Application, Website, or Field Name	Enter a unique and easily identifiable name for the desktop item.

Field	Description
Application File	Enter the executable file name of the Windows application you are adding. **EXAMPLE** word.exe
Application or Website Status	Select the status of the application or website from the drop-down list. **NOTE** Each time a desktop analytics task finds a new application or website, it assigns the New status to it (see Create Analytics tasks). When the New status appears, you must change the status to Approved, Not Approved, or Ignore.
URL	Enter the website's URL. Use only the pieces of the URL that do not have slashes (/). **EXAMPLE** Yes: www.example.com Yes: www.example.com:1234 No: http://www.example.com No: www.example.com/website
Application Properties	This section is used to define a text field within an application. You must use the Application Field Marker tool to obtain this information. This tool is available on any desktop that has Smart Desktop installed. See Use the Application Field Marker tool to learn how to use the tool and populate the fields in this section.

4. Click **Save**. The fields on the page clear, and you are ready to add another new desktop item. If you are done adding new items, click**Cancel** to return to the Desktop Manager page.

Edit an existing desktop item

- Click the desktop item in the left pane to view the details of that item in the right pane. Edit as desired and then click **Save**.

Assign a status to multiple items

1. In the left pane, select the applications and websites whose status you want to change.
2. Select a status from the **Application Status** drop-down list.
3. Click **Save**.

Import data to Desktop Manager

1. In the **Import** section of the page, navigate to the CSV file you want to import using the **Browse** button.

   The CSV file must contain the following columns in order as listed from top to bottom. Every field in a row must contain a value. The CSV generated when you export data follows this format.

   > **NOTE** Files exported from a pre-11.0 version of Webex WFOcontain an additional column, “handleCode.” To import these files into Cloud/11.0 or newer, you must remove that column and associated data from the CSV file.

Column	Description
key	The executable name for an application or the URL for a website.
name	The name of the application or website.
status	The status of the application or website.
type	The type of desktop item: application, content (website), or system.

2. Click **Import**.

Export information from Desktop Manager

- In the Export section, click **Export** to save or open the file. By default, the export file is named **desktopuse.csv**.

NOTE Exported files contain only the applications that have been acted upon. Not all applications in the Desktop Manager application list appear in the exported file.

Push updated application and website configurations to user desktops

- Click the **Push Configuration** button to push any changes made to applications or websites in Desktop Manager to your user's desktops.

Related topics

- Configure WFM with Real-Time Desktop Adherence

Configure desktop item events

The Desktop Manager Event Configuration page allows you to control how Webex WFO responds when users access websites and applications. You can configure one or more events for any desktop item on the Desktop Manager page. These events are triggered by Smart Desktop on the agent's computer at run time.

NOTE See Webex WFO Pause and Resume for information on using desktop item events for Webex WFO initiated automatic pause and resume functionality in Webex WFO integrations. Webex WFO initiated automatic pause and resume using desktop item events is not available for all integrations.

An event consists of the following components:

Start trigger	What the user does that starts the system action **The agent clicks in the Credit Card Number field.**
System action	What Smart Desktop does when the Start Trigger happens **Smart Desktop stops audio and screen recording**.
Action duration	How long before a stop action happens automatically instead of by a stop trigger **Smart Desktop restarts audio and screen recording one minute after the agent clicks in the Credit Card Number field.**
Stop trigger	(optional) What the user does that stops the system action **The agent clicks out of the Credit Card Number field.**

Stop action	(optional) What Smart Desktop does when the Stop Trigger happens **Smart Desktop restarts audio and screen recording.**

When you play back a call associated with an event in the Media Player, the event is highlighted in yellow in the Media Player's Desktop panel and in Agent Explorer.

Smart Desktop does not track new or updated desktop events until one of the following happens:

- A user logs in or out of Smart Desktop.
- You click **Push Configuration** on the Desktop Manager page.
- A daily refresh occurs (by default, a random time between 4:00 and 4:30 AM).

Page location

Application Management > Analytics > Desktop Manager > Add Event

Procedures

Create a new desktop item event via the Desktop Manager page

1. On the Desktop Manager page, select the desktop item to which you want to add an event.
2. Click **Add Event** to open the Desktop Manager Event Configuration page.
3. Select **Create a new event**.
4. (For applications only) In the **Event Type** section, choose the type of event you want to create.
    - Desktop event—The start trigger for the event is something that a user does in an application.
    - Automated event—The start trigger for the event is an RTP signal that Webex WFO automatically detects. For more information about RTP signaling, see Configure QM global settings.
5. In the **Event Name** field, enter a name that clearly identifies the event.

    IMPORTANT Each event in Desktop Manager must have a unique name.
6. In the **Start Event Trigger** drop-down list, select the trigger that initiates the event. The triggers listed vary based on whether the desktop item is an application or a website.

NOTE Using multiple methods of triggering pause and resume (such as Recording Controls, web events, APIs, and third-party signaling) at the same time can result in unpredictable behavior. To avoid these issues, use only one method on a call at a time.

Application (desktop event)

Trigger	Description
Program gets focus	The application window or dialog box has the keyboard focus.
Program loses focus	The keyboard focus ends for the application window or dialog box.
Create	A window or dialog box for the application is created. You can use Create to indicate when an application is started if you specify the top-level window title as the window text.
Destroy	A window or dialog box is destroyed. You can use Destroy to indicate when an application is closed if you specify the top-level window title as the window text. If multiple instances of the same application are running, closing one instance will generate this event, but the other instances will continue running.
Click on text field	The user performs an action that gives keyboard focus to a text field in the application.
Click out of text field	The user performs an action that removes the keyboard focus for a text field in the application.
Button click	The user clicks a button in the application.
Title change	The title of the window changes.

Application (automated event)

Trigger	Description
RTP call starts	Webex WFO detects an inbound or outbound RTP signal.
RTP call stops	Webex WFO no longer detects an inbound or outbound RTP signal.

Website

Trigger	Description
Click on text field	The user performs an action that gives keyboard focus to a text field on a web page.
Click out of text field	The user performs an action that removes the keyboard focus for a text field on a web page.
Request website	The user navigates to the URL specified in the trigger details.
Page makes background request	The URL specified in the trigger details sends an XHR.

7. In the **Start Trigger Details** section, enter the details that define which applications or websites set off the start trigger.

Application

Item	Description
Window title	The name of the window or dialog box associated with the event. **NOTE** This field is not case sensitive. However, the text must match the name of the window or dialog box for the event trigger to succeed. **BEST PRACTICE** Do not specify a window that contains variable text.

Item	Description
	NOTE If you leave this field blank, any window in the associated application can trigger the event unless the trigger is a title change. For title change triggers, this field must contain text.
Button	The name of the button associated with the event. **NOTE** Users must use their mouse to click the button to trigger an event. Webex WFO does not recognize the trigger if a user uses a key on their keyboard. For example, a user must click the Save button, not use the key combination Ctrl+S.
Field	The field that triggers the system action when a user clicks on or out of it. The field must be configured in the Field Manager (see Identify website fields to be tracked by Analytics). Used with the "Click on text field" and "Click out of text field" triggers only.

Website

Item	Description
URL	The path for the website that is associated with the event. Enter the part of the URL that comes after the hostname. **EXAMPLE** If the website's full URL is **http://www.example.com/website/page**, enter **/website/page**. **BEST PRACTICE** Always enter the resolved address of the website. Users frequently use shortcuts when entering a URL in their browser's address field. The browser uses DNS or some other

Item	Description
	service to resolve the address and will display the resolved address in the address field (the address includes the omitted “www” or “http,” for example). **NOTE** When you enter the resolved address in this field, Webex WFO automatically triggers an event when a user enters a shortcut for the resolved address. If an agent accesses a website and the page for that website is cached, then no request goes through Smart Desktop. In this instance, Webex WFO cannot hit any triggers for the website and will not display the website’s URL.
Field	The field that triggers the system action when a user clicks on or out of it. The field must be configured in the Field Manager (see Identify website fields to be tracked by Analytics). Used with the “Click on text field” and “Click out of text field” triggers only.

8. In the **Start System Action** section, click **Add** to add the actions that occur when a start trigger happens. You can configure more than one action for a trigger. When more than one action is used, the actions are treated as operands evaluated with a logical AND. See Add a system action for how to add actions and descriptions of the actions available.
9. In the **Action Duration** section, enter the length of time (in seconds) before a configured stop action happens automatically instead of by a stop trigger. The maximum duration you can set is 3,600 seconds. If you set a value in this section, you must also configure one or more stop actions.

   NOTE If you set the duration to zero seconds, the stop action will never happen automatically.

10. (Optional) In the **Stop Event Trigger** drop-down list, select the trigger that ends the event. The triggers listed vary based on whether the desktop item is an application or a website. See Step 6 above for descriptions of the available triggers.

11. If you selected a stop event trigger, configure the **Stop Trigger Details** section. See Step 7 above for descriptions of the details fields.
12. (Optional unless you configured an action duration) In the **Stop System Actions** section, add the actions that occur when a stop trigger happens. You can configure more than one action for a trigger. When more than one action is used, the actions are treated as operands evaluated with a logical AND.
13. Click **Save**. The event is saved, and the fields on the page clear so you are ready to add another event to the desktop item. If you are done adding new events, click **Cancel** to return to the Desktop Manager page.

Add a system action

1. In the **Start System Actions** or **Stop System Actions** field, select the action you want to occur when a trigger happens. These actions are described in the table below.

Action	Description
Make available in Analytics	Displays the event in Agent Explorer. Webex WFO displays events in Agent Explorer even if you do not select this trigger.
Pause recording	Temporarily halts any audio or screen recording occurring on the agent's desktop. A "Pause recording" system action does not affect Live Screen Monitoring.
Resume recording	Restarts audio and screen recording after a "Pause recording" action.
Access a website	Navigates to the website that you enter in the Start Request URL field.
Scrape metadata	Searches for a field you have marked with the application field marker, then attaches any text in that field as custom metadata to the active call. If no call is active, Webex WFO attaches this metadata to the most recent call.
Add to custom metadata	("Click on text field" and "Click out of text field" triggers only) Attaches the text in a field that you designate in the

Action	Description
	Field section of the Start or Stop Trigger Details as custom metadata to the active call. If no call is active, Webex WFO attaches this metadata to the most recent call.
Start segment	Starts a new recording and deletes any previous portion of the recording. On the Recording Controls page, this action is called Segment and Delete (see Record on demand).
Stop segment	Starts a new recording and keeps any previous portion of the recording as a separate recording. On the Recording Controls page, this action is called Segment and Save (see Record on demand).
Associate segment	Starts a new recording and associates it with the previous recording.
Tag contact	Applies the Tagged reason to the active call. If no call is active, Webex WFO applies this reason to the most recent call.
Start screen recording	Starts a screen-only recording.
Stop screen recording	Stops a screen-only recording.

2. Depending on your action choice, you might need to complete one or more of the other fields. If the field is disabled, it is not required for your chosen action.
    - Windows Field—This drop-down list is populated with fields configured on the Field Manager page.
    - Metadata Field—This drop-down list is populated with metadata configured on the Metadata Manager page.
    - Start (or Stop) Request URL—Enter a website URL. Smart Desktop makes a GET request to this URL.
3. If you want to add another action, click **Add** and repeat steps 1 and 2.

Create a pause-and-resume event via HTML

If you control the page where recording should pause and resume, you can create pause and resume triggers as HTML events. This method is especially helpful for pages where the Cisco browser extension might not get field-level events, such as pages customized with Salesforce Lightning components.

IMPORTANT Do not combine HTML event triggers with other pause-and-resume methods.

- Add these commands to elements that should trigger pause and resume when agents interact with them:
  - document.dispatchEvent(new CustomEvent('CALABRIO_PAUSE'))
  - document.dispatchEvent(new CustomEvent('CALABRIO_RESUME'))

Overlapping events

Do not configure events that frequently overlap each other. When multiple events do overlap, remember the following points:

- Multiple runs of the same event will not overlap.

  EXAMPLE

  An event named “PCI Compliance” has the following configuration:

  - Start Trigger—Agent clicks in the credit card field.
  - Start Action—Smart Desktop stops recording.
  - Event Duration—Thirty minutes (in seconds)
  - Stop Trigger—Agent clicks in the address field.
  - Stop Action—Smart Desktop starts recording.

  In this event, it is possible for the agent to click in and out of the credit card field several times before clicking in the address field. However, new runs of the PCI Compliance event do not start every time the agent clicks in the credit card field. The PCI Compliance event runs only the first time.

- Each event trigger can be viewed independently. When any event is triggered, the actions associated with the event are performed.
- If more than one event that uses a pause or a resume action is triggered at the same time (that is, they overlap each other), the first start trigger automatically starts the event, the first stop trigger stops all overlapping events, and the following triggers are ignored.

EXAMPLE An agent clicks a field that is set as a pause action and then clicks in another field that is also set as a pause action. The second pause action is ignored. Likewise, the pause events that these actions triggered will end the first time the agent clicks a field that is set as a resume action. The second resume action is ignored.

Related topics

- Identify website fields to be tracked by Analytics
- Manage custom metadata fields
- Webex WFO Pause and Resume

Use the Application Field Marker tool

The Application Field Marker tool obtains the information you need to configure the Application Properties section of the New Desktop Item page when the new desktop item is a Windows application and field.

NOTE The Application Field Marker tool does not work on website fields. For that you must have your browser correctly configured and use the Ctrl+M shortcut keys. See Identify website fields to be tracked by Analytics for more information.

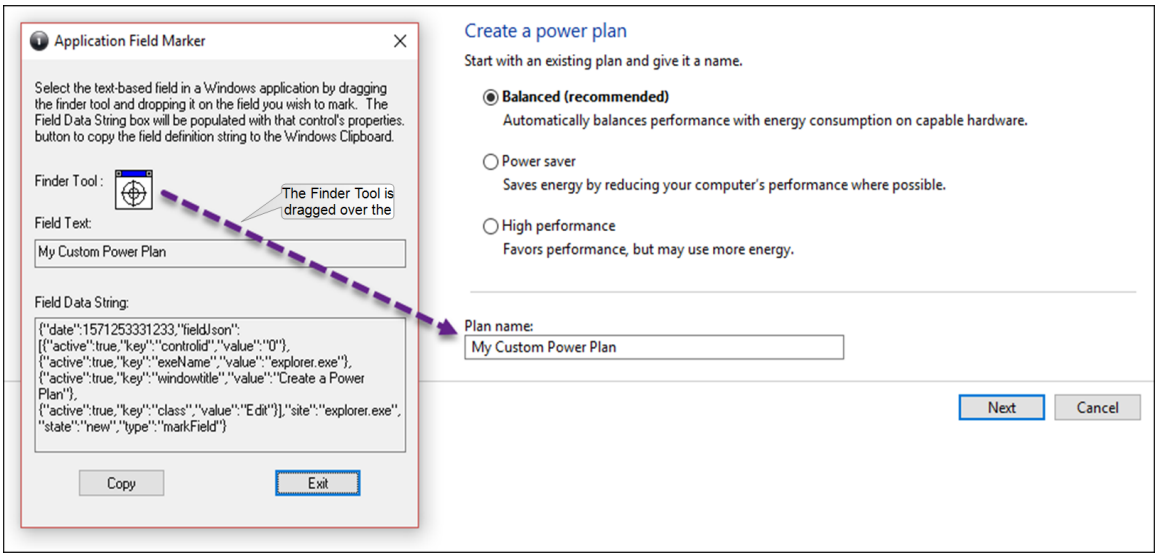
Procedures

Use the Application Field Marker tool

1. On your PC, navigate to the location where the Application Field Marker tool executable is located. The default location is:

   ```
   C:\Program Files (x86)\Webex
      WFO\Desktop\Active\bin\ApplicationFieldMarker.exe
   ```

2. Double-click the executable to launch the tool.
3. Open the application that contains the field you want to configure as a desktop item.
4. In the Application Field Marker tool, click the **Finder Tool** and drag the bullseye onto the field in the target application. When the finder is positioned over the field, the field is highlighted with a heavy border.
5. When you release the mouse, the data strings for the field are displayed in the Field Data String pane, as shown in this example.



6. Click **Copy** to copy the text to your computer's clipboard.
7. On the **Add New Desktop Item** page, paste the text in the **Definition String** field.
8. Click **Parse Fields**. The relevant fields from the definition string text are loaded into the fields to the right of the Definition String pane.

Related topics

- Create and manage desktop items
- Identify website fields to be tracked by Analytics

Desktop Manager toolbar overview

The Desktop Manager toolbar lets you create, search, and filter the applications and websites in the left pane.



The fields and buttons on the toolbar are described below in left-to-right order.

Search field

The Search field enables you to locate one or more items quickly in the list of desktop items in the left pane. Enter a string, such as a portion of a desktop item name or the state of the item. Wild cards are not supported.

New Desktop Item

The New Desktop Button opens the Add New Desktop Item page. Use this page to add an application, a specific field in an application, or a website as a desktop item. See Create and manage desktop items for more information.

Push Configuration

The Push Configuration button allows you to push changes made to desktop items in Desktop Manager to users' desktops.

View: Apps | Web | Application State

These three buttons are filters that filter the list of desktop items in the left pane. You can view just apps, just websites, or just specific application states. By default all items and application state are enabled.

The following list defines the application states:

- Approved — The website or application is approved
- Not Approved — The website or application is not approved
- Ignore — The website or application is not approved or disapproved
- New — No state is assigned yet to the website or application
- Discard — Removes the selected website data from the Analytics and Agent Explorer
- Exclude — Prevents the Smart Desktop from detecting fields on the page

Manage custom metadata fields

The Metadata Manager page is used to configure and manage custom metadata fields in your system.

Metadata allows you to add information to a customer conversation. The metadata can be captured from your ACD and other applications to pass the data to the following APIs:

- Schedule Details by Agents and Date API
- Shifts by Agent API

Webex WFO also displays these metadata fields in the Details panel in the Media Player.

Prerequisites

- You have the Administer Metadata Fields and Send Metadata Command permissions.
- To view custom metadata, you need the View Custom Metadata permission.
- To edit custom metadata, you need the Edit Custom Metadata permission.

Page location

Application Management > QM > QM Configuration > Metadata Manager

Procedures

Metadata fields you configure are displayed in a table. Use the table to view, edit, or delete a metadata field from your system.

Add a new metadata field

NOTE You can add up to 100 custom metadata fields using the steps below. Custom metadata that is created by importing media from an ACD does not count toward this total. There is no limit on the number of custom metadata fields that Webex WFO can create via media import.

1. Complete the fields as described below
2. Click **Save**. The new metadata field appears in the table.

Edit a metadata field

1. Double-click the metadata field in the table.
2. Edit the fields on the page as needed.
3. Click **Save**.

Delete a metadata field

1. Double-click the metadata field in the table.
2. Click **Delete**.

The fields on the Metadata Manager page are described below.

Field	Description
Metadata Key	(Automatically generated) A unique identifier for the metadata field, used by APIs. The metadata key is generated based on the text you enter in the Metadata Label field. Spaces are replaced with hyphens, and "-key" is added at the end. For example, if you enter **example text** in the Metadata Label field, the Metadata Key field displays **example-text-key**.

Field	Description
	The Metadata Key field does not allow ampersands (&) or equal signs (=). If those symbols appear in the Metadata Label field, they are removed automatically in the Metadata Key field. Max characters = 39.
Metadata Label	The name associated with the metadata field that appears in search results and contact information.
Metadata Type	The type of information contained in the metadata field: date, hyperlink, number, or text.
ACD Data	This field is only applicable to on-premise deployments of Webex WFO. Identifies the metadata imported from the ACD. Webex WFO reconciles ACD data by matching contact information in Webex WFO with call information stored in the ACD and changes the contact information in Webex WFO. The data is updated periodically. When you map metadata to ACD Data, you must select Text in the Type field.
Data Explorer Key	(Optional) A unique identifier to map metadata with Data Explorer. You can map up to 20 metadata fields with Data Explorer.
Encrypted Check Box	(Optional) Select this option if you want to report on contacts based on custom metadata fields. If you select this box, Webex WFO encrypts the metadata when stored. The Encrypted check box is enabled only if the Exportable check box is cleared. **NOTE** You cannot search for encrypted metadata.
Exportable Check Box	If selected, you can export the metadata via Webex WFO or an

Field	Description
	API. This check box is selected by default.
Read Only	If selected, the metatdata is read-only. You cannot add or edit metadata to a contact through Webex WFO. **NOTE** If the metadata is ACD data, this check box is selected by default and is disabled.

Related topics

- Export contact metadata
- Edit custom metadata associated with a contact
- View data associated with a contact
- Add metadata tags to data sets and collections
- Delete or update multiple contacts at once

Cisco metadata fields

The following metadata fields are available with Cisco ACDs.

Field	Description
AgentPeripheralNumber	Peripheral number of the agent who handled the call. **NOTE** Can be null when the source or destination party is unmonitored or if the agent is not logged in.
AgentSkillTargetID	Identifies which agent handled the call. This value is unique among all skill targets in the enterprise. It is taken from the Agent table in the Unified ICM central database. AgentSkillTargetIDs are generated automatically when the agent is first configured in the Agent Configuration window of Unified ICM Configuration Manager. **EXAMPLE** 5001
CallReferenceID	Unique identifier of the call in a Unified CM cluster.

Field	Description
CallGUID	Global unique call identifier.
DateTime	Date and time that the Termination_Call_Detail table record is generated by the Peripheral Gateway (PG). The Termination_Call_Detail table record is generated by the PG when the call has either physically left the PG (for example, IVR routes the call to an agent) or when wrap-up is completed for the call after the call has left the agent device (either by disconnect or through transfer completion).
DigitsDialed	Digits dialed for an outbound call initiated on the ACD. These digits are not provided by all ACDs. Currently, only IVRs, the Aspect CallCenter, and the DEFINITY ECS provide values in the DigitsDialed field. If a call is translation routed, the receiving PG also reports this field even though the call is inbound.
Duration	Duration of the call in seconds. This is the time that the switch is processing the call. The Duration field comprises several fields of the Termination_Call_Detail table: **LocalQTime** + **RingTime** + **TalkTime** + **WorkTime** + **HoldTime** + **DelayTime** + **NetQTime**
PeripheralCallKey	Identifier assigned to the call by the peripheral (ACD, IVR). The range and type of value used in this field varies depending on the type of peripheral. This can be one of the following: ■ An original call, a transfer, and a consultative call as three separate calls (e.g., Call IDs 1001, 1002, 1003) ■ All three calls as a continuation of the same call (e.g., Call IDs

Field	Description
	1001, 1001, 1001) ■ The original and transfer as the same call, but the consultative call as a second call (e.g., Call IDs 1001, 1002, 1001) ■ The original call as one call and the original and transfer as another call (e.g., Call IDs 1001, 1002, 1002) These values used might not be unique, depending on the peripheral's implementation. For example, the Aspect CallCenter and the DEFINITY ECS ACDs reuse identifiers in this field.
RecoveryKey	Unique ID assigned to each record and used internally by Unified ICM/Unified CCE to track the record.
RingTime	The number of seconds that the call spent ringing at the agent's teleset before it was answered. Ring time occurs after any DelayTime and LocalQTime. For diverted calls (that is, calls that rang at an agent's teleset before being redirected on failure to answer), RingTime is the sum of the time that the call spent ringing at each teleset.
TalkTime	The cumulative time, in seconds, that the call was in a talking state on the destination device. TalkTime is a completed call time, not an agent state time. The cumulative time, in seconds, that the call was in a talking state on the destination device. TalkTime is a completed call time, not an agent state time. **NOTE** In the Termination_Call_Detail, Skill_Group, and Agent_Skill_Group tables, TalkTime does not include HoldTime; however, in the Services and Route tables, TalkTime does include HoldTime.
Variable1	Variable used for call segmentation. Can also contain data entered

Field	Description
	during call wrap-up. This field maps to Aspect variable A.
Variable2	Variable used for call segmentation. This field maps to Aspect variable B.
Variable3	Variable used for call segmentation. This field maps to Aspect variable C.
Variable4	Variable used for call segmentation. This field maps to Aspect variable D.
Variable5	Variable used for call segmentation. This field maps to Aspect variable E.
Variable6	Variable used for call segmentation.
Variable7	Variable used for call segmentation.
Variable8	Variable used for call segmentation.
Variable9	Variable used for call segmentation.
Variable10	Variable used for call segmentation.
WrapupData	Data entered by the agent during call wrap-up. **NOTE** WorkTime is used to calculate Duration in the Termination_Call_Detail table and HandleTime in the Unified ICM Service, Route, and Call_Type tables.

Security features for recordings

All recordings have the following security features:

- Encryption—All data is encrypted and transported via HTTPS/SSL from a customer's premises to the Webex WFO cloud platform for processing and storage.
- Role-based permissions—Only authorized users can play back or export recordings.
- Audit trail—The system tracks who accesses recordings, what they access, and when they access it.

- Payment Card Industry (PCI) compliance—Webex WFO complies with the industry standard comprehensive requirements for enhancing payment account data security.

In cloud deployments, the available encryption method is RSA-2048 (with asymmetric keys) and AES-256 for media recorded by Webex WFO.

Add post-call surveys to contacts

You can integrate Webex WFO with one or more external survey providers to distribute post-call customer surveys after a contact has ended and collect the responses. Survey responses can provide valuable information about your customers' contact experiences and general perceptions about your organization, as well as help you target contacts for evaluation. Responses can be reviewed in the Post-Call Survey tab in the media player, and the Recent Surveys widget. The survey score and other survey-related fields also appear on the Interactions and your Contact Queue. See "Importing Post Call Survey IVR Data" in the *Webex WFO Data Import/Export Reference Guide* for more information on importing using CSV files.

Surveys and survey questions are created using an external survey provider. You can integrate Webex WFO with the following survey providers:

- Qualtrics (online)
- SurveyMonkey (online)

Configuring online survey providers

Online survey providers Qualtrics and SurveyMonkey deliver surveys to customers by email. Survey distribution requests and response retrieval are executed on a user-defined schedule. You can also import an IVR using the Generic Import Service (GIS).

> **NOTE**
> You must set up the regional data server GIS file location on the Data Server Configuration page before you import your generic IVR (see Configure the Data Server for QM and Analytics). Use this file location for import files:
>
> `C:\Program Files\Common Files\Calabrio ONE\Data Server\GIS\NewImport`
>
> After files are successfully imported, they will be moved to this folder:
>
> `...\GIS\NewImport\archives\<archive date>\<file name>`

You must set up your online survey provider before configuring it with Webex WFO. To configure Webex WFO with a Qualtrics account, you must have the following:

- Each survey must have a configured “Embedded Data” question that has type `cid`.
- A configured Qualtrics account and user name
- A custom API token
- The Library ID for the account
- The Message ID for the survey-delivery message

To configure Webex WFO with a Survey Monkey account, you must have the following:

- A configured SurveyMonkey developer account and user name
- A developer API token
- The developer API key
- The developer API shared secret code

Generic IVR provider connections are created automatically when the IVR is imported. The post call survey administrator can specify which survey identifier the form uses. The following table lists the survey identifier fields:

Field	Description
contactId	The ID number of the contact.
associatedCallId	The ID number of the associated call. This is the default.

You must also create a custom email metadata field in Metadata Manager (see Manage custom metadata fields) with which to mark calls for survey distribution (see Marking contacts for online survey distribution below).

Create a custom email metadata field

1. Navigate to Application Management > QM Configuration > Metadata Manager.
2. Enter a unique value for key in the Metadata Key field (for example, “SurveyEmail”).
3. Enter a unique value for the label in the Metadata Label field. This can be, but does not have to be, the same as the Metadata Key.
4. Select **Text** from the Metadata Type drop-down list.
5. Select **None** from the ACD Data drop-down list.
6. Click **Save**.

For more information about creating a custom metadata field, see Manage custom metadata fields.

Configure your online survey provider with Webex WFO

1. Choose **Create a new survey form** from the What Do You Want To Do? section.
2. Select your online survey provider (Qualtrics or SurveyMonkey) from the drop-down list.
3. Set the survey distribution request/response retrieval schedule, in minutes. This value determines how frequently Webex WFO checks for contacts that require a survey, and whether there is any new survey-response data available. If contacts awaiting a survey are found, a survey distribution request is sent to the survey provider according to your survey distribution request workflow.
4. Select the custom email metadata field that you created in the above section with which to mark calls for survey distribution.
5. Enter a unique name for this survey-provider connection.
6. Enter the survey-provider account information. This information must be collected from the survey provider.
    a. Enter the user name and token for the configured survey-provider account.
    b. (Qualtrics only) Enter the Library ID and Message ID.
    c. (SurveyMonkey only) Enter the API Key and Shared Secret.
7. Click **Save**.

Test your survey provider connection and view surveys

1. Choose **Edit an existing survey form** from the What Do You Want To Do? section.
2. Click **Test Connection & View Surveys**. Upon successful connection, the surveys configured with the survey provider appear at the bottom of the page. You can click on each survey to view the individual questions.

After you set up and test your survey-provider connection, you must create a workflow to determine which survey should be requested for different contacts that have been marked for survey distribution. This is particularly useful when you have different survey providers and/or surveys for contacts.

You must also use the workflow to identify a survey question as the Voice of the Customer (VoC) question. The customer's response to this question determines whether the associated contact should be marked for evaluation.

Set up a survey distribution request workflow

1. Navigate to the Workflow Administration page.
2. Choose whether to create an end-of-interaction or daily event. An end-of-interaction event prepares the survey request immediately after a contact is marked for survey distribution. A daily event prepares the survey requests for all contacts marked for survey distribution each day.
3. Select the workflow rule to which you want to apply the survey form action. Select the default rule to use a single survey form for all contacts that are marked for survey distribution, or create and select a new rule to define the contact conditions for a particular survey form.
4. If you created a new workflow rule, define the contact conditions for the survey form you want to distribute.
5. Select the "Set the survey form to <survey form>" check box in the Actions section.
    a. Select the survey from the drop-down list.
    b. Select the Voice of the Customer (VoC) question. You can only select questions that are in a numeric-answer format.
    c. Set the threshold to mark for evaluation. If the customer's response to the VoC question meets this threshold, the associated contact is marked for evaluation.
6. Enter the email information for delivering the survey.
    a. Enter the Send From email address. This is the email address that the survey is delivered from.
    b. Enter the Reply To email address. This is the email address that the survey recipient responds to. This is generally the same as the Send From address, but does not have to be.
    c. Enter the Sender Name. This is the name that the email appears to be from to the recipient.
    d. Enter the subject line for the email.
7. Click **Save**.

For more information about configuring workflows, see Automate QM workflows.

Marking contacts for online survey distribution

Once you have created the custom Email metadata field, configured one or more survey providers with Webex WFO, and set up a survey distribution workflow, you can mark a contact for online survey distribution by entering the customer's email address into the custom Email metadata field. This can be done by the agent using the Metadata command in the Recording Controls application or by any user with access to the custom metadata fields in the Media Player's Details tab.

When you enter the customer's email address into this field, that contact is marked for survey distribution. According to the user-defined distribution request schedule, Webex WFO then sends a request to the survey provider for the appropriate survey to be sent to that address as determined by your configured workflows.

NOTE With SurveyMonkey, there might be a delay between the time a survey distribution request is received and when the survey is distributed.

Related topics

- Configure predictions—Use survey data to predict contacts' net promoter score.

Troubleshoot issues with recording

Problem	Things to check
A single user is not recording	■ Does the user have the correct permissions for Webex WFO? ■ Is the user assigned to a phone in Webex WFO? ■ Is the user on a team that is configured for call recording within a Webex WFO workflow? ■ Are there any call recording inclusion or exclusion lists configured in Webex WFO? ■ Is the phone configured properly on the telephony side?

Recording is down for all users	■ Check the telephony monitoring in Webex WFO. If servers are not appearing as connected and active, a service restart might be required.
	■ Do you see signaling in the data servers logs?
	  ■ For gateway recording, check the SIPREC logs.
	  ■ For network recording, check the CTI Signaling logs.
	■ Is there space available on the Capture servers(s)?

NOTE You can find the logs at `Calabrio ONE\Data Server\logs directory`

Troubleshooting Webex WFO Dataserver logs

C1siprecSignalingSerivce logs

For all phone calls that flow through the Session Border Control (SBC), there will be SIPREC signaling sent to Webex WFO. Ensure that you have the following strings in the SIPREC logs:

1. SIP: IN|INVITE
2. SIP: IN|ACK
3. SIP: OUT
4. MEDIA_START
5. MEDIA_STOP
6. Sending to <Client[/10.248.121.151:49690][RECORD_SERVER]

Troubleshooting Webex WFO Dataserver logs – CISCO Network Recording

CTISignalingService logs

If call recording is down, you should check the CTI logs.

1. Search for INVITE and MEDIA_START. There will not be any call recordings without SIP Invites and Media start messages.
2. Search for the MAC address of a phone that is not recording. For example, SEPE41F7B76D1BF.
3. Search for STACK to see if there are any Stack errors.

VoiceRecordServer logs

1. Search for MEDIA_START. There will not be any call recordings without media start messages.
2. Search for the MAC address of a phone that is not recording. For example, SEPE41F7B76D1BF.

Troubleshooting Webex WFO Dataserver logs – Avaya Network Recording

CTISignalingService logs

1. Search for MEDIA_START. There will not be any call recordings without media start messages.
2. If the phone is not recording, it means that the device is not registered to the CTI through the Avaya DMCC. Search for the Avaya device name in the logs. For example, deviceName=1547 or ch.ecma.csta.errors. The latter appears if there are Avaya licensing issues or DMCC phone

registration issues.

3. Check the VoiceRecordServer logs.

Configure QM archive settings

The Archive Configuration page allows you to save or delete your QM archive preferences. Use this page if you want to keep audio and screen recordings after they have reached the end of their retention period. The files exported to the archive server will contain one CSV file and all the related audio and screen recordings. The screen and audio files are decrypted.

IMPORTANT The Archive Configuration page is deprecated. It is available only to existing Cisco customers who are already using it. If you need to keep contacts beyond their retention period, we encourage you to use the Bulk Contact Export feature. See Export contacts in bulk.

Prerequisites

- External storage
- The Administer QM permission

Page location

Application Management > QM > QM Contact Flows > Archive Configuration

Procedures

Configure QM archive preferences

1. Select a configured external storage location from the **External Storage** drop-down list.

   NOTE External Storage is configured at Application Management > Global > System Configuration > External Storage.

2. Select a format from the **Video Format** drop-down list.

   Listed are m4v and webM, the format options for video files only. *M4v* is a video container format similar to MP4. M4v files have the option of DRM copy protection. *WebM* video streams are compressed with the VP8 or VP9 video codecs.

3. Select a format for audio files only from the **Audio Format** drop-down list.

WAV audio files are lossless and uncompressed. *WebMA* audio streams are compressed using the Vorbis or Opus audio codecs.

4. Select an **Archive Time**. The time of day when the archive process runs. The format is HH:MM.

   NOTE The archive process runs once a day only. If you change this setting to a later time after the process runs, it will not run at the new time until the next day.

5. Select an **Archive Mode** from the drop-down list.

   Archive Mode options are Audio and Full. *Audio* exports the audio recordings only. *Full* exports audio and screen recordings.

6. Enter a **Filename Pattern**.
7. Click **Save**.
8. (Optional) Click **Delete** to remove your archive preferences.

Related topics

- Export contacts in bulk
- Add external storage locations
- Configure storage profiles for QM and Analytics

Manage data retention policies for QM and Analytics

Use the Retention page to create a retention policy that defines how long each contact is retained, and then assign the policy to a workflow (see Automate QM workflows).

You can specify retention times for voice recordings, screen recordings, and text records for these contact categories:

- Archive contact
- Unscored contact
- Scored contact
- HR contact
- Training contact
- Tagged contact

Each component of a contact (audio recording, screen recording, or root recording) can have its own retention policy. Webex WFO deletes the recording storage files when all applicable storage policies expire. A recording storage file might be associated with zero or more contacts as well as zero or one root recordings. (See Configure QM global settings to set the retention policy for root recordings.)

Prerequisites

- You have the Administer QM permission
- (To create new retention policies) Your organization does not have a Basic QM license. If your organization has a Basic QM license, only the Default retention policy applies to your contacts. You can edit the default policy, but any new policies you create don't do anything.

Page location

Application Management > QM > QM Contact Flows > Retention

Procedures

Create a retention policy

1. Select **Create a new retention policy**.
2. Enter the policy's name in the **Retention Policy** field.
3. In the **Settings** section, select the retention periods for each type of contact.

   NOTE The maximum retention time for voice, screen, and text is two years. If you need to increase this limit, contact Webex WFO Support.

4. Click **Save**.
5. Go to the Workflow Administration page (Application Management > QM > QM Contact Flows > Workflow Administration) to assign the retention policy to a workflow (see Automate QM workflows).

Edit a retention policy

NOTE Shortening a retention period can result in recordings being deleted. Lengthening a retention period will use more storage space.

1. Select **Edit an existing retention policy**.
2. Select the policy from the **Retention Policies** drop-down list.
3. Edit the policy as needed and then click **Save**.

If a call is tagged, Webex WFO deletes its screen and voice recordings at the end of the Tagged retention times for screen and voice. Webex WFO deletes metadata associated with a call when the longest Tagged retention time is reached.

Teams assigned to a workflow share the same retention period. Once Webex WFO assigns a retention period to a call, the period does not change if a team is moved from one workflow to another workflow. Only calls that are recorded after the switch to the new workflow use the new workflow's retention period.

Related topics

- Automate QM workflows—Assign contacts to retention policies via workflows
- Configure QM global settings—Set the retention policy for root recordings
- Delete or update multiple contacts at once—Assign a new retention policy to multiple contacts at once.

Export contacts in bulk

Export multiple contacts to an external storage location using Bulk Contact Export. After a license is assigned to the tenant, anyone with bulk export permissions can create an export. This feature creates a directory within a selected external storage location that contains audio files or video files in the format you specify, a CSV file with contact metadata, and, if applicable, Analytics data with transcriptions.

NOTE The Webex WFO administrator determines the metadata that can be exported. Only exportable metadata is saved to CSV format.

NOTE The bulk contact export of root recordings is not supported.

IMPORTANT You can export up to 1,000 total contacts per day per tenant with Bulk Contact Export. To export more than 1,000 contacts per day, add an Advanced Bulk Contact Export license to your tenant. Contact your Customer Success Manager to request this license.

Prerequisites

- You have the Bulk Contact Export permission. See Manage roles and permissions for QM, Analytics, and Insights.
- You have a configured External Storage location. See Add external storage locations.

Page location

Interactions

Procedures

Schedule the bulk contact export feature to run automatically at regular intervals you specify, or run a bulk contact export immediately. Monitor the status of an export request on the Bulk Contact Export Audit page (Application Management > Global > Monitoring > Bulk Contact Export Audit).

Schedule a recurring bulk contact export

1. On the Interactions page, create and save a filter set (see).

   IMPORTANT You must fully configure all the filters you add to your filter set. If you do not fully configure all the filters, the bulk contact export will fail.

   EXAMPLE You add the **Predictive Net Promoter Score** filter to your filter set. You select **Equals** from the **Operator** drop-down list but do not enter a number in the **Score** field. Not fully configuring this filter will cause the bulk contact export to fail.

2. Click the **List options** icon, and then click **Bulk Contact Export**.
3. Click the **New Export** tab.
4. Configure the export as defined in the described fields below.

   Export Name — Enter a name for the bulk contact export file.

   Saved Search — Select your saved filter set.

   Storage Location — Select the external storage location to which you want to export the contacts.

   Audio/Screen File Type — Select the file format in which Webex WFO exports audio and video files.

- **Audio/Video Formats** — Select the file format in which the audio/video media should be exported. Only available for contacts with both audio and screen recordings.
- **Audio-only Formats** — Select the file format in which the audio-only media should be exported. Only available for contacts with audio recordings.
- **None** — Select **Transcriptions Only** to export transcriptions only.

Transcript Output Format — Select the file format in which you want to export Analytics transcription data: JSON or XML. If you select **None**, Webex WFO does not export any Analytics transcription data. Select **None** to export only a CSV file with metadata.

5. Select **Send Scheduled Export**, and then schedule the export as described below.

   Weekly — Select one or more days of the week, and then select the time on those days that Webex WFO will export the contacts.

   Monthly — Select the day of the month, and then select the time on that day that Webex WFO will export the contacts.

6. Click **Create**.

   When you create a scheduled bulk contact export, Webex WFO saves the export. To edit the export, click the **Saved Contact Export** tab and select the export from the **Saved Export File Name** drop-down list.

   NOTE The first scheduled export (weekly or monthly) must occur after the next scheduled run of the App Dynamic Refresher task. Otherwise, the first scheduled export will not happen, although future exports will. By default, the App Dynamic Refresher task runs every fifteen minutes. Contact your system administrator to verify this schedule.

Export contacts immediately

1. On the Interactions page, create and save a filter set (see).

   IMPORTANT You must fully configure all the filters you add to your filter set. If you do not fully configure all the filters, the bulk context export will fail.

   EXAMPLE You add the **Predictive Net Promoter Score** filter to your filter set. You select **Equals** from the **Operator** drop-down list but do not enter a number in the **Score** field. Not fully configuring this filter will cause the bulk contact export to fail.

2. Click the **List options** icon, and then click **Bulk Contact Export**.
3. Click the **New Export** tab.

4. Configure the export as described below.

   Export Name — Enter a name for the bulk contact export file.

   Saved Search — Select your saved filter set.

   Storage Location — Select the external storage location to which you want to export the contacts.

   Audio/Screen File Type — Select the file format in which Webex WFO exports audio and video files.

   - **Audio/Video Formats** — Select the file format in which the audio/video media should be exported. Only available for contacts with both audio and screen recordings.
   - **Audio-only Formats**—Select the file format in which the audio-only media should be exported. Only available for contacts with audio recordings.
   - **None** — Select **Transcriptions Only** to export transcriptions only.

   Transcript Output Format — Select the file format in which you want to export Analytics transcription data: JSON or XML. If you select **None**, Webex WFO does not export any Analytics transcription data. Select **None** to export only a CSV file with metadata.

5. Select **Send Export Immediately**.
6. Click **Create**.

Licensing requirements for bulk contact export

Cisco requires you to select a license type for bulk contact export.

- **Standard license**—Export up to 1,000 contacts daily through the UI.
- **Performance license**—Export contacts in bulk by configuring multiple contact export jobs periodically throughout each day.

NOTE By default, each export batch is limited to 10,000 per job with the max amount of total contacts per day at 40,000 with the Performance license. If there is a need for an increase in these limits, please contact Cisco Professional Services or Cisco Support Services.

Data included in the bulk contact export CSV file

The following table describes the data fields included in the bulk contact export CSV file. If the contact is recycled but not yet permanently deleted, all fields except Contact ID display "######."

Field	Type	Max Length	Description
Contact ID	Integer	64	The unique ID of the contact.
Last Name	String	60	Agent's first name.
First Name	String	60	Agent's last name.
Group Name	String	60	Name of the agent's group.
Team Name	String	60	Name of the agent's team.
Calling Number	String	64	The caller ID or Automatic Number Identification (ANI) of the calling party. Displays "unknown" if the calling number is unlisted or blocked. This field applies only to calls.
Called Number	String	64	The DID or Dialed Number Identification Service (DNIS) number of the phone that received the call. Displays "unknown" if the called number is unlisted or blocked. This field applies only to calls.
Date	Date	10	Date of the contact. The format is DD/MM/YYYY.
Time	Time	5 + 2	Start time of the contact. The format is HH:MM AM or PM.
Time Zone	String	60	The time zone where the contact was created and the call was recorded. **EXAMPLE** America/Chicago **NOTE** This field is not in UTC format.
Score	Integer	64	The evaluation score given to the contact.
Reason	String	64	The reason the conversation was recorded. This reason is set in the recording rule.

Field	Type	Max Length	Description
Recording Type	String	64	The recording type associated with this device. Valid values: ■ AACC MLS Recording ■ Acme Packet Recording ■ AudioCodes Recording ■ AWS Connect Recording ■ BroadSoft Recording ■ CUBE Recording ■ End Point Recording ■ Event Notification ■ Five 9 VCC Recording ■ Genesys Recording ■ IP Office Recording ■ MediaSense Recording ■ Multiple Registration Recording ■ Network Recording ■ None ■ Reconciliation ■ RTP Logger Recording ■ Serenova Recording ■ Single Step Conference Recording ■ Sonus Recording ■ Unknown Recording Type Not all recording types may be available to you.

Field	Type	Max Length	Description
Call Duration	Duration	8	The length of time between the call being answered and the call being dropped, including ring time and extended screen time (if any) in HH:MM:SS. The call duration is received from the signaling service. This field applies only to calls. The call duration shown in the Contacts table and the Media Player might not be the same due to the difference in "event duration" (the time between events) and "recording duration" (the duration within the actual recorded file). In these scenarios, the call duration would be different: ■ When you use the Recording Controls API to pause, resume, or restart recording, the recording duration would be shorter than the actual call duration. For example, if a recording is restarted one minute into the call, the call duration is one minute longer than the recording duration. ■ When you archive or clean a call with a long ring time, the Contacts table shows the event duration in the call duration field, while the Media Player shows the recording duration in the call duration field.
Agent ID	String	64	Agent's system ID.
HR	Boolean	3	Indicates whether the contact has been marked for HR. The format is Yes/No.
Training	Boolean	3	Indicates whether the contact has been marked for training. The format is Yes/No.

Field	Type	Max Length	Description
State	String	32	The current evaluation state of the contact. Valid values: ■ Unscored ■ Scored ■ In Progress ■ Needs Approval
Contact Type	String	60	Type of contact. Possible values: ■ CALL ■ NON_CALL ■ SCREEN_ONLY ■ EMAIL ■ TEXT ■ CHAT ■ SMS
External Party	String		For chat or SMS contacts, the email, phone number, or other identifier of the person who interacted with the agent.
From Address	String	512	Filters email associated with non-call contacts based on the email addresses in the From field. **NOTE** This option is only available when Analytics is enabled.
To Address	String	no limit	Filters email associated with non-call contacts based on the email addresses in the To field. **NOTE** This option is only available when Analytics is enabled.

Field	Type	Max Length	Description
Subject	String	1000	Filters email associated with non-call contacts based on the Subject field.
Evaluator Name	String	256	The name of the person who evaluated the contact.
Date Evaluated	String	10	The date when the contact was evaluated. Format is MM/DD/YYYY.
Approved By	String	256	The name of the person who approved the evaluation.
Evaluation Form	String	64	The name of the evaluation or calibration form used to score the customer conversation.
Calibrated	Boolean	3	Indicates whether the contact has been marked for calibration. The format is Yes/No.
MAX Silence	Duration	8	Maximum length of a silence event in the contact. The format is HH:MM:SS.
MIN Silence	Duration	8	Minimum length of a silence event in the contact. The format is HH:MM:SS.
AVG Silence	Duration	8	Average length of a silence event in the contact. The format is HH:MM:SS.
Total Silence Duration	Duration	8	Total length of all silence events in the contact. The format is HH:MM:SS.
Silence Events	Integer	64	Number of silence events in the contact.
% Silence	Decimal	3	The percentage of the call spent in a silence state (during which neither the caller or the agent is speaking). Format is .99.

Field	Type	Max Length	Description
MAX Talk Over	Duration	8	Maximum length of a talk over event in the contact. The format is HH:MM:SS.
MIN Talk Over	Duration	8	Minimum length of a talk over event in the contact. The format is HH:MM:SS.
AVG Talk Over	Duration	8	Average length of talk over events in the contact. The format is HH:MM:SS.
Total Talk Over Duration	Duration	8	Total length of all talk over events in the contact. The format is HH:MM:SS.
Talk Over Events	Integer	64	Number of talk over events in the contact.
% Talk Over	Decimal	3	The percentage of a call that is talk over. Format is .99.
Hold Events	Integer	—	Number of detected hold events.
MIN Hold Duration	Duration	—	The duration of the shortest hold event. Format = HH:MM:SS.
MAX Hold Duration	Duration	—	The duration of the longest hold event. Format = HH:MM:SS.
Total Hold Duration	Duration	—	The total duration of hold time. Format = HH:MM:SS.
AVG Hold Duration	Duration	—	The average hold time in HH:MM:SS.
% Hold	Decimal	—	The percentage of the call spent in a hold state.
End of Interaction Workflow	String	64	Name of the end-of-interaction workflow used for the contact.

Field	Type	Max Length	Description
Daily Workflow	String	64	Name of the daily workflow used for the contact.
Predictive Evaluation Score	Decimal	3	The predicted score of a contact without an evaluation score. Webex WFO bases this predicted score on Analytics data and previous evaluation scores. Webex WFO uses the following pieces of Analytics data: call attributes, agent attributes, speech hits, and desktop activity. Format is .99.
Net Promoter Score	Decimal	—	The net promoter score for the contact provided by the caller.
Predictive Net Promoter Score	Decimal	3	The predicted score of a contact without a net promoter score. Webex WFO bases this predicted score on Analytics data and previous net promoter scores. Webex WFO uses the following pieces of Analytics data: call attributes, agent attributes, desktop applications, desktop activity, speech hits, and call metadata. Format is .99.
Sentiment Score	String	—	The contact's sentiment score: positive, negative, or neutral.
Survey Score	Decimal	3	If the contact has an associated survey, provides the survey score, expressed as a percentage in decimal form.
Survey Name	String	255	If the contact has an associated survey, provides the survey name.
Agent ACD ID	String	256	ACD ID for the agent.

Field	Type	Max Length	Description
Associated Call ID	String	256	If the call involves a conference or transfer, the ID of the other agent.
Text Preview	String	—	A preview of search results for your search with the Text Search filter. If your organization removes sensitive information from transcripts with the Transcription Redaction feature, redacted text appears as #####.
<custom metadata>	varies	—	The custom metadata associated with the contact.

Related topics

- Add external storage locations—Learn how to configure an external storage location.
- —Learn how to create and save a filter set.
- Monitor scheduled bulk contact exports—View the status of your export.

Monitor scheduled bulk contact exports

Use the Bulk Contact Export Audit page to monitor the status of scheduled bulk contact exports.

Prerequisites

- You have configured an external storage location for exported contacts to go to.
- You have created a recurring or ad hoc bulk contact export. (Create these on the Interactions page.)
- (To see exports created by other people in your organization) You have the View Bulk Contact Export permission.

Page location

Application Management > Global > Monitoring > Bulk Contact Export Audit

Procedure

Access exported files

Exported files are located in the Exports folder on your configured external storage location. The files are ZIP files in CSV format. File names use the following naming convention: `<“immediate” or “scheduled”>-<saved search name>-<datestamp>-<timestamp>`

IMPORTANT We have released an updated version of the bulk contact export audit monitoring page. The monitoring table you see on the page varies depending on if the updated version has been rolled out to your organization.

Updated bulk contact export audit monitoring table

Column	Description
Date	The date and time the export was created.
Name	The name given to the export by the person who created it.
Status	The current state of the export job.
Contacts Evaluated	The total number of contacts that Webex WFO has processed. Webex WFO evaluates the search results to determine which contacts are valid, which means the contacts do have audio to export. The number of contacts evaluated may differ from the number of contacts exported if the results have valid and invalid contacts.
Invalid Contacts	The number of contacts that were deemed invalid after evaluation and are not be submitted for processing. An example of an invalid contact is a contact that does not have media to export.
Contacts Submitted	The total number of contacts submitted for a bulk contact export.
Contacts Exported	The number of files Webex WFO has successfully exported to your organization's external S3 bucket.
Job Owner	The name of the person who created the bulk contact export job.

Classic Bulk contact export monitoring audit table

A bulk contact export has two stages: the *task* (optional) and the *upload*. During the *task* stage, Webex WFO converts files from the format in which they were recorded to the format in which they will be stored in the external storage location.

If you do not set the export to convert files, Webex WFO skips this step. During the *upload* stage, Webex WFO moves the files to the external storage location.

Column	Description
Date	When the export was created.
Name	The name given to the export by the person who created it.
Export Status	The status of the export. **NOTE** If the status is Failed, the most common reason is problems communicating with the external storage location. Verify that it is possible to transfer files based on the credentials provided with a third-party tool (for example, Filezilla).
Task Count	How many contacts the export task includes.
Tasks Queued	How many files are waiting to be converted to the export file format.
Tasks in Progress	How many files are currently being converted to the export file format.
Tasks Finished	How many audio or video files Webex WFO has attempted to convert, including failed conversions.
Uploads Queued	How many files are waiting to be moved to the external storage location.
Uploads Succeeded	How many files were successfully moved to the external storage location, plus one.
Uploads Failed	How many files Webex WFO was unable to move to the external storage location.

Related topics

- Add external storage locations—Create locations for exported files to go to.
- Export contacts in bulk—Create bulk contact exports.
- Configure QM archive settings
- Configure storage profiles for QM and Analytics
- Manage roles and permissions for QM, Analytics, and Insights—Learn more about the Bulk Contact Export and View Bulk Contact Export permissions.

Configure storage profiles for QM and Analytics

On the Storage Profiles page, you can choose which storage location Webex WFO uses to store a team's audio and screen recordings and Analytics data, based on the age of the recording and data files. This lets you keep older recordings and Analytics data that you do not need to access immediately in long-term, lower-cost storage locations while keeping newer recordings and data in storage locations that cost more but allow immediate or instant access.

Also, you can associate a compression rate for audio recordings with each storage location. This lets you lower your storage costs by converting audio recordings into higher-compression file types when they are moved into longer-term storage locations.

Page location

Application Management > Global > System Configuration > Storage Profiles

Storage overview

Webex WFO Cloud uses intelligent tiering for storage with a single price per GB per month for your total usage. New files and files that have been accessed recently are available immediately. Older files that have not been accessed recently are retrieved from a slightly slower storage tier that they may have been moved to. Older files typically only take a few seconds to be retrieved.

Understanding storage profiles

A storage profile is assigned to a team either by default or manually, and the policies in that storage profile determine where the recordings and Analytics data associated with that team's users are stored.

Webex WFO can have up to two preconfigured storage profiles: Default Storage Profile and WAV Storage Profile.

You can select one storage profile as the default. The default storage profile is automatically assigned to all teams that have not had a storage profile manually assigned to them. If you change the default storage profile, the storage profile of all teams that have been assigned to a default storage profile also changes. Teams that have been manually assigned to a storage profile are not affected by the change of the default storage profile.

Root recordings use the default storage profile only. (See How root calls and reconciliation work.)

For more information about how to manually assign a storage profile to a team, see Manage teams for QM and Analytics.

Understanding storage policies

A storage profile is made up of at least one storage policy. A policy controls the following:

- The storage location where the audio recordings, screen recordings, and Analytics data associated with a storage profile are kept
- How long the recordings and data are kept in the storage location
- The compression rate of the audio recordings that are associated with a storage profile

If you select different Media Quality compression rates for a storage profile's policies, audio recordings are converted when they change storage locations.

You can change the media quality of the default policy, but you cannot remove it, and you cannot edit its Audio, Screen, or Analytics fields.

Each policy contains the following fields.

Storage Location

Once a policy takes effect, Webex WFO places the recordings and Analytics data associated with the storage profile in the policy's storage location.

Storage locations have the following types.

NOTE The system administrator configures the locations and types that are available.

- ($$)—The storage is in a medium-cost location. Recordings and Analytics data stored in locations of this type can be accessed immediately.
- ($$$)—The storage location is high-cost network storage. Recordings and Analytics data stored in locations of this type can be accessed instantly.

The order of a storage profile's policies determines the order that Webex WFO stores recordings and Analytics data in each storage location:

- Top—Webex WFO begins by storing recordings and Analytics data in this policy's storage location.
- Middle—Webex WFO stores recordings and Analytics data in a middle policy's storage location after it stores them in the storage location of the policy above but before it stores them in the storage location of the policy below.
- Bottom (Default)—Webex WFO finishes by storing recordings and Analytics data in this policy's storage location.

Audio

The Audio field controls how long (in days, months, or years) Webex WFO stores audio recordings in a policy's storage location. The maximum amount of time that Webex WFO can store audio recordings for all the policies in a profile appears in the Total Available Storage field.

Media Quality

The Media Quality field controls the compression rate of audio recordings in a policy's storage location:

- Low Compression (WAV)
- Med Compression (Opus - Stereo)
- High Compression (Opus - Mono)

> **NOTE** From Webex WFO Version 10.3.1 onward, Low Compression (16-bit WAV) is the default. Audio recordings created before the release of Version 10.3.1 are stored in Med Compression (Opus - Stereo).

If you select different media quality compression rates for the policies in a storage profile, audio recordings are converted when they change storage locations. Order the policies in a storage profile so that audio recordings are converted from a lower to a higher compression rate. Webex WFO can convert audio recordings from a higher to a lower compression rate, but doing so does not improve the quality of audio recordings.

Screen

The Screen field controls how long (in days, months, or years) Webex WFO stores screen recordings in a policy's storage location. The maximum amount of time that Webex WFO can store screen recordings for all the policies in a profile appears in the Total Available Storage field.

Analytics

The Analytics field controls how long Webex WFO stores Analytics data in a policy's storage location. The maximum amount of time that Webex WFO can store Analytics data for all the policies in a profile appears in the Total Available Storage field.

Procedures

Create a new storage profile

The order that you add policies to a storage profile determines their order on the page. The default policy is always below all other policies. When you add a new policy, Webex WFO inserts it above the default policy and below any policies that you have added already. You cannot reorder policies after you add them.

> **NOTE** Root recordings use the default storage profile only. (See How root calls and reconciliation work.)

1. Select **Create a new storage profile**.
2. In **Name**, enter a unique name for this storage profile.
3. (Optional) If you want this storage profile to be automatically assigned to all teams that do not have a storage profile manually assigned, select **Default**.

   > **NOTE** Only one storage profile can be the default. When you make a storage profile the default, it replaces the current default storage profile.

4. Configure the default policy.
5. (Optional) Click **Add storage policy** for each policy that you want to add, and then configure the policies.

   > **NOTE** To create a policy that moves files without changing the file format, select **No change (move only)** from the **Media Quality** drop-down list. If you are working with the default storage profile, this option is not available for the top policy on the page. (This is because the top policy is the default, and the default policy needs to control storage, not movement.) For more information about how to configure policies based on their order, see Understanding storage policies.

6. Click **Save**.

Edit an existing storage profile

You can edit the storage policies in an existing storage profile, but you cannot reorder them.

1. Select **Edit an existing storage profile**.
2. Select the storage profile that you want to edit.
3. (Optional) To change the name of the storage profile, edit the **Name** field.
4. (Optional) If you want this storage profile to be automatically assigned to all teams that do not have a storage profile manually assigned, select **Default**.

   NOTE You cannot manually clear the Default check box on the current default storage profile. To change the default storage profile, select the Default check box on the storage profile that you want to make the default.

   NOTE Root recordings use the default storage profile only. (See How root calls and reconciliation work.)

5. (Optional) Edit the policies that you want to change.

   NOTE Editing an existing storage policy can cause Webex WFO to move or convert large numbers of audio recording, screen recording, and Analytics data files. For more information about how editing an existing storage policy can impact the files associated with a storage profile, see Understanding storage policies.

6. Click **Save**.

Move files without changing the file format

1. Select **Edit an existing storage profile**.
2. Select the storage profile from the **Choose Profile** drop-down list.
3. Select the files' destination from the **Storage Location** drop-down list.
4. Select **No change (move only)** from the **Media Quality** drop-down list.

   NOTE If you are working with the default storage profile, this option is not available for the top policy on the page. If necessary, click **+ Add Storage Policy** to add an additional storage policy that allows you to move files.

5. Click **Save**.

Add external storage locations

The External Storage page lets you add storage locations outside of Webex WFO. You can use these external storage locations when you export audio and screen recordings in bulk (see Export contacts in bulk). External storage is available as Amazon S3 buckets or Azure blobs.

Unlike the Webex WFO-hosted storage locations where you store audio recordings, screen recordings, and Analytics data during their retention period (see Configure storage profiles for QM and Analytics), your organization needs to create and manage these external storage locations independently. You cannot associate external storage locations with a storage profile.

Prerequisites

- You have the Administer Tenant permission.
- If you are using an Azure blob, you have the name of your organization's Azure container name and connection string.
- If you are using an Amazon S3 bucket:
  - You have the name of your organization's Amazon S3 bucket. This is where Webex WFO exports your files.
  - If you are using role assumption to grant access to your Amazon S3 bucket, you have the ARN for a role that is assigned the following:
    - A policy with these permissions for your S3 bucket: ListBucket, GetBucketLocation, and PutObject
    - A trust policy that allows a Cisco production AWS account to assume a role. The policy must allow access by any role in Cisco's external pass-through production account. The ID for this account is 774305586788.

EXAMPLE

This is an example of a trust policy you could use:

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "AWS": [
                    "arn:aws:iam::774305586788:root"
                ]
            },
            "Action": "sts:AssumeRole",
            "Condition": {
                "StringEquals": {
                    "sts:ExternalId": "<EXTERNAL ID
GENERATED BY EXTERNAL STORAGE PAGE>"
```

```
                },
                "ArnLike": {
                    "aws:PrincipalArn": [
                        "arn:aws:iam::774305586788:role/*"
                     ]
                }
            }
        }
    ]
}
```

- If you are not using role assumption to grant access to your Amazon S3 bucket, you have the access key and a secret key of an IAM user that is assigned to a policy that has these permissions for your S3 bucket: ListBucket, GetBucketLocation, and PutObject. Webex WFO accesses your S3 bucket with this user's keys.

EXAMPLE

The following policy grants the required permissions. You can assign this IAM user to a similar policy.

```
{
“Version”: “<current policy language version>”,
“Statement”: [
{
“Sid”: “Bucket”,
“Effect”: “Allow”,
“Action”: [
“s3:ListBucket”,
“s3:GetBucketLocation”
],
“Resource”: [
“arn:aws:s3:::<name of your S3 bucket>”
]
},
{
“Sid”: “BucketContents”,
“Effect”: “Allow”,
“Action”: [
“s3:PutObject”
],
“Resource”: [
“arn:aws:s3:::<name your S3 bucket>/*”
]
}
]
}
```

Page location

Application Management > Global > System Configuration > External Storage

Procedures

Add an Amazon S3 bucket as an external storage location using role assumption

1. Select **Create External Storage Location**.
2. In the **Name** field, enter a unique name for the S3 bucket.

   NOTE This name identifies the external storage location in Webex WFO. It can be different from the name of the S3 bucket.

3. From the **Type** drop-down list, select **Amazon S3 (Immediate Access)**.
4. Configure the **AWS Storage Configuration** section as follows. The values for the fields listed below come from your organization's AWS instance. Find the values and enter them into each of the fields listed below in Webex WFO.

   NOTE Refer to AWS documentation for more information on creating an IAM role or managing access keys for IAM users.

Field	Description
Use AWS IAM Role Assumption	Keep this check box selected.
Bucket Name	Enter the name of the S3 bucket. This name is case-sensitive.
Choose Region	Select the Amazon region where the S3 bucket is located.
Role ARN	The Amazon Resource Name (ARN) for the role in your AWS account that grants access to the S3 bucket (or more generally, the AWS services) Webex WFO accesses. This role ARN should be in the standard AWS format: arn:aws:iam::<CUSTOMER_AWS_ACCOUNT_NUMBER:role/<ROLE_NAME>

5. Click **Save**. The page refreshes.

6. Select the storage location you just created from the **Choose a storage location to edit** drop-down list.
7. In the **AWS Storage Configuration** section, select **Show external ID**.
8. In AWS, configure your role's Trust Policy to use the string of numbers and letters in the **External ID** field.

   IMPORTANT The connection will not work until you complete this step.

   EXAMPLE

   This is an example of a trust policy that you can add to the role:

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "AWS": "<Workforce Optimization account ARN>"
            },
            "Action": "sts:AssumeRole",
            "Condition": {
                "StringEquals": {
                    "sts:ExternalId": "<Workforce Optimization-
generated external ID>"
                }
            }
        }
    ]
}
```

9. (Optional) To verify your settings, click **Test Connection**.

Add an Amazon S3 bucket as an external storage location without using role assumption

1. Select **Create External Storage Location**.
2. In the **Name** field, enter a unique name for the S3 bucket.

   NOTE This name identifies the external storage location in Webex WFO. It can be different from the name of the S3 bucket.

3. From the **Type** drop-down list, select **Amazon S3 (Immediate Access)**.

4. Configure the **AWS Storage Configuration** section as follows. The values for the fields listed below come from your organization's AWS instance. Find the values and enter them into each of the fields listed below in Webex WFO.

   NOTE Refer to AWS documentation for more information on creating an IAM role or managing access keys for IAM users.

Field	Description
Use AWS IAM Role Assumption	Clear this check box.
Bucket Name	Enter the name of the S3 bucket. This name is case-sensitive.
Choose Region	Select the Amazon region where the S3 bucket is located.
IAM Access Key	Enter the access key ID of the IAM user who is assigned to a policy that grants the permissions required to access the S3 bucket.
IAM Secret Key	Enter the secret access key of the IAM user who is assigned to a policy that grants the permissions required to access the S3 bucket.

5. Click **Save**.
6. (Optional) To verify your settings, click **Test Connection**.

Generate a new external ID for an existing Amazon S3 storage bucket

If the external ID that Webex WFO uses becomes compromised, you can generate a new one. An external ID is like a password for your organization's AWS account role. It is a unique identifier in AWS that Webex WFO uses when assuming the role in your AWS account for cross-account role access.

1. Select **Edit External Storage Location**.
2. Select the storage location from the **Choose a storage location to edit** drop-down list.
3. In the **AWS Storage Configuration** section, click **Generate new external ID**. A confirmation message appears.
4. Click **Yes**.
5. In AWS, configure your role’s Trust Policy to use the new external ID in the condition element.

   IMPORTANT The connection will not work until you complete this step.

EXAMPLE

This is an example of a trust policy that you can add to the role:

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Effect": "Allow",
            "Principal": {
                "AWS": "<Workforce Optimization account ARN>"
            },
            "Action": "sts:AssumeRole",
            "Condition": {
                "StringEquals": {
                    "sts:ExternalId": "<Workforce Optimization-
generated external ID>"
                }
            }
        }
    ]
}
```

6. (Optional) To verify your settings, click **Test Connection**.

Add an Azure blob as an external storage location

1. Select **Create External Storage Location**.
2. In the **Name** field, enter a unique name for the Azure blob.

   NOTE This name identifies the Azure blob in Webex WFO. It can be different from the name of the Azure blob.

3. From the **Type** drop-down list, select **Azure Blob**.
4. In the **Azure Storage Configuration** section, enter the **Container Name** and the **Connection String**. These come from your organization's Azure instance.
5. (Optional) To verify your settings, click **Test Connection**.
6. Click **Save**.

Related topics

- Export contacts in bulk
- Configure storage profiles for QM and Analytics

Configure staged upload

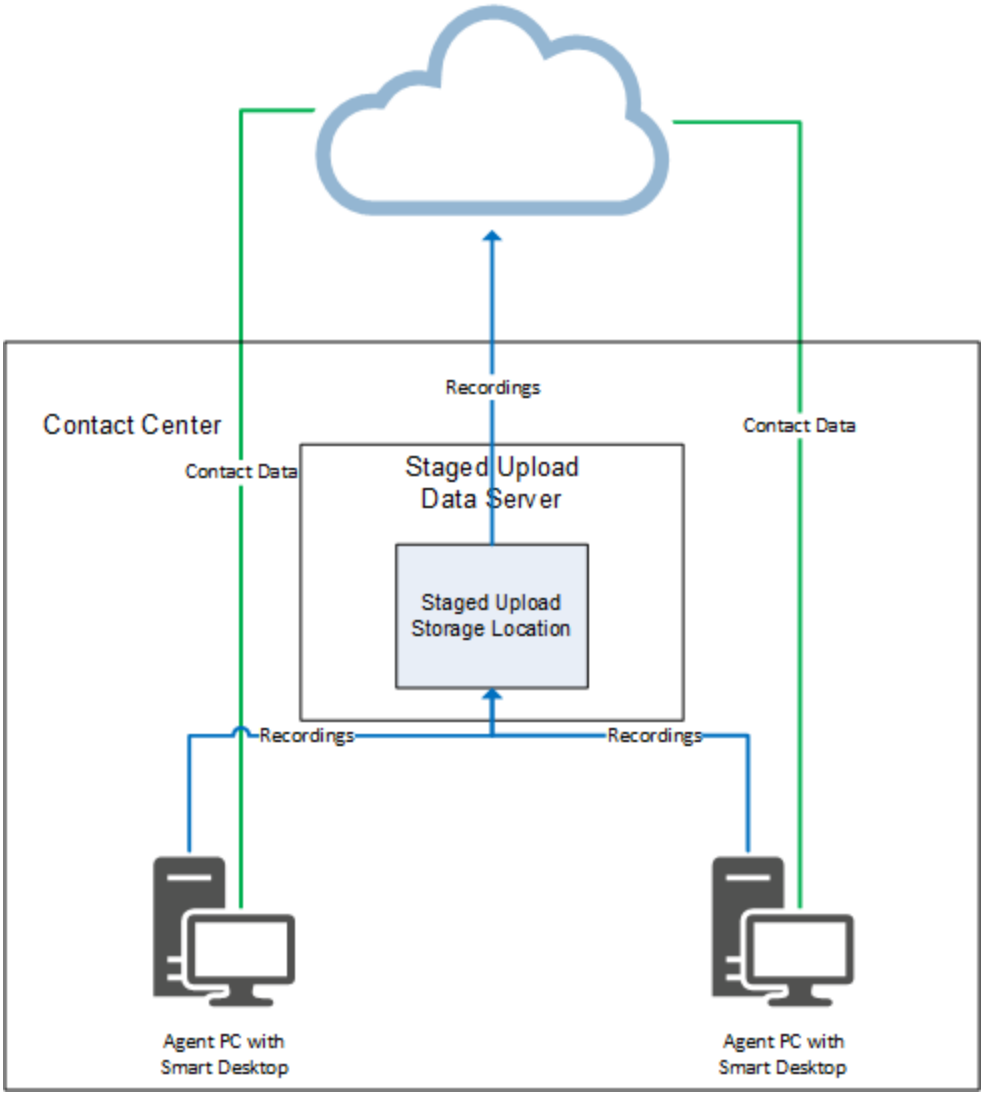
Recordings can be moved from agent PCs to the cloud in three different ways. All three methods require QM workflow events and agent PCs with Smart Desktop.

- Upload recordings to the cloud immediately after a contact completes.
- Store recordings on an agent's PC and then upload them to the cloud once a day.
- Upload recordings to a Data Server in your contact center immediately after a contact completes (stage one) and then move them to the cloud once a day (stage two).

This topic covers only the third option, called "staged upload." Staged upload lets you keep your recordings in a secure location without overloading your internet bandwidth.

Contacts handled with Staged Upload appear on the Interactions page after they are finished recording, but they have a "Not yet uploaded" File Upload State until the staged upload process is complete.

The following image shows the data flow for a basic staged upload configuration.



Prerequisites

- Agents are enabled for audio and/or screen recording.
- Agent PCs have Smart Desktop installed.
- You have all of these permissions:
  - Administer Tenant
  - Administer Org. Structure (needed to use teams to associate agents with the Staged Upload Data Server)
  - Administer Workflow

Page location

Varies. See the procedures below for details.

Procedures

There are four steps to setting up Staged Upload:

- Step 1: (Optional) identify agents who will use staged upload
- Step 2: Configure the staged upload component
- Step 3: Associate agents with the Staged Upload Data Server
- Step 4: Configure a daily event workflow rule for staged upload

Step 1: (Optional) identify agents who will use staged upload

Step 1 is a planning step, not a configuration step. First identify the agents who will use staged upload so that you can create the necessary configurations with those agents in mind. All agents in your contact center can use staged upload, or only some of them.

Step 2: Configure the staged upload component

Configure the Staged Upload Data Server

- Enable the SMB 1.0 File Sharing Support feature on the server that you will use for staged upload.

Create the staged upload storage location

1. Create a folder in the location where you want to store recordings before they are uploaded to the cloud. This location can be on the Data Server, or it can be in another location (for example, NAS).
2. Configure the folder's sharing properties so that agent PCs can access it. If the folder is not on the Data Server, you must also configure the sharing properties so that the Data Server can access it.
3. Copy the UNC path to the folder. You will use this later.

Enable the staged upload component

1. Navigate to Application Management > Global > System Configuration > Data Server Configuration.
2. Select the Data Server to use for staged upload from the **Select Data Server Configuration** drop-down list.
3. Under **Regional Data Server Staged Upload Settings**, select **Enable Staged Upload**. Additional fields appear.

4. Configure the fields as follows.

Field	Configuration
Location	The UNC path to the staged upload storage location that you copied earlier. Agent PCs must be able to access this location. **EXAMPLE** \\ServerName\FolderName
Username	The user name of the person who administers the Staged Upload Data Server. **EXAMPLE** Domain\user.name
Password	The password of the person who administers the Staged Upload Data Server.

5. Click **Save**.

Step 3: Associate agents with the Staged Upload Data Server

This step enables agent PCs to send recordings to the staged upload storage location, where the recordings are stored until the QM workflow daily event (configured in Step 4) runs and uploads them to the cloud.

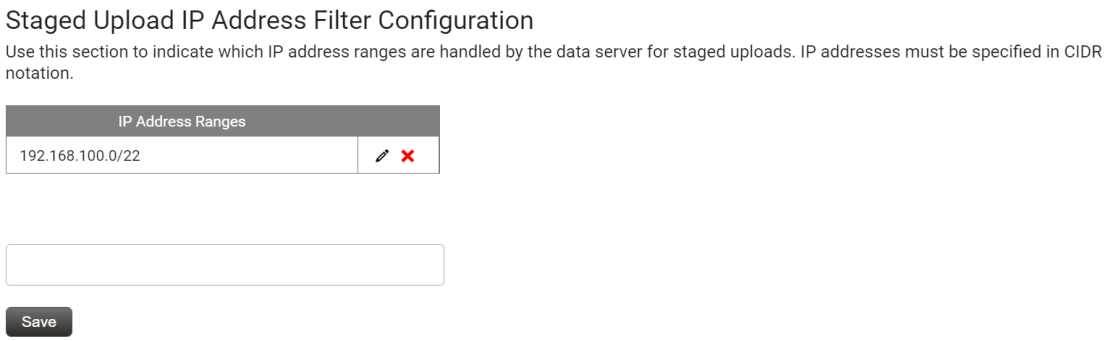
NOTE Recordings for any agent who is not associated with the Staged Upload Data Server will upload according to the first QM workflow event with matching conditions. This can result in immediate upload to the cloud or delayed upload to the cloud where recordings remain on the agent's PC longer than desired.

You can associate agents with the Staged Upload Data Server in one of three ways: IP addresses, teams, or both IP addresses and teams.

Use IP addresses to associate agents with the Staged Upload Data Server

1. Navigate to Application Management > Global > System Configuration > Data Server Configuration.
2. Select the Staged Upload Data Server from the **Select Data Server Configuration** drop-down list.
3. In the **Staged Upload IP Address Filter Configuration** section, enter at least one range of IP addresses in CIDR notation. Any agent whose PC has an IP address matching this range is associated with the Staged Upload Data Server.

IMPORTANT This IP address range must include the IP addresses of all PCs of all agents who will use staged upload. The address must identify the public or external network that the agents' desktops communicate from. If your organization uses a NAT firewall, do not use the address for its local or internal subnetwork.



4. Click **Save**.

Use teams to associate agents with the Staged Upload Data Server

You can assign the Staged Upload Data Server to one or more teams and then assign all the agents who will use staged upload to one of these teams.

1. Navigate to Application Management > Global > User Configuration > Teams.
2. Select the team to associate with the Staged Upload Data Server from the **Select a Team** drop-down list.
3. Under **Users**, move the agents to assign to this team from **Available** to **Assigned**.

   NOTE You can also assign individual users to teams on the Users page.

4. Under **Staged Upload Location**, select the Staged Upload Data Server.
5. Click **Save**.

Use both IP addresses and teams to associate agents with the Staged Upload Data Server

1. Associate the agents' IP addresses with the Staged Upload Data Server as described in one of the earlier procedures.
2. Associate the agents with a Staged Upload Data Server team as described in one of the earlier procedures.

Various configurations with agent teams and IP addresses produce different results. The table below identifies whether an agent does or does not use staged upload based on these configurations.

Agent team associated with Data Server?	PC in IP filter	PC not in IP filter	No IP filter used
Yes	Uses staged upload	Does not use staged upload	Uses staged upload
No	Uses staged upload	Does not use staged upload	Does not use staged upload

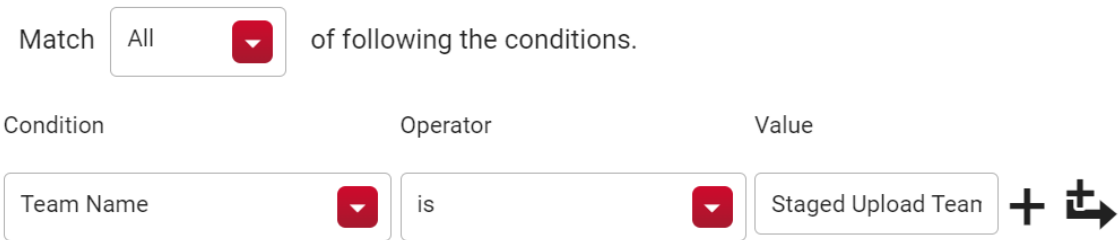
Step 4: Configure a daily event workflow rule for staged upload

Rules are composed of actions and conditions. An action is what Webex WFO does with a recording. Conditions are criteria that a recording must meet for the action to happen. This rule sends recordings from agent PCs to the staged upload storage location (configured in Step 2) instead of storing them on agent PCs or uploading them immediately to the cloud. For more information about configuring rules for QM workflow events, see Automate QM workflows.

Create a rule for staged upload

1. Navigate to Application Management > QM > QM Contact Flows > Workflow Administration.
2. Select **Daily Event**.
3. Under **Time**, select the time to upload recordings from the staged upload storage location to the cloud.
4. Enter a unique name for the rule in the **Name** field.
5. Click **Save Rule**.
6. Select the rule from the **Rules** list.
7. In the **Conditions** section, specify criteria that apply to all recordings captured by the PCs of all agents who will use staged upload.

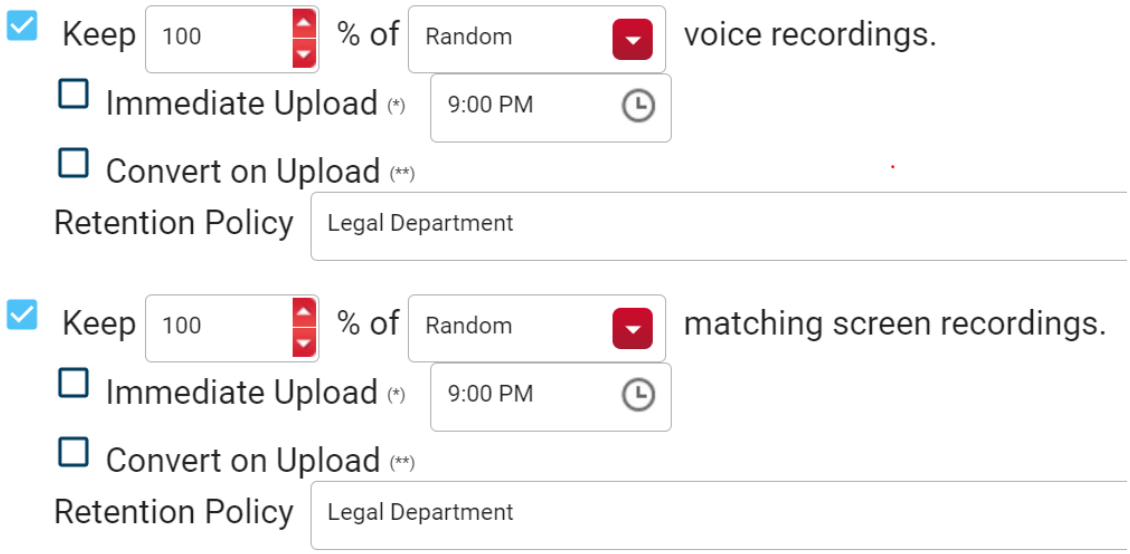
   EXAMPLE
   All the agents who will use staged upload are assigned to the Staged Upload Team. The condition looks like this:



8. In the **Actions** section, create an action that prevents voice and screen recordings from being immediately uploaded.

   IMPORTANT At a minimum, you must clear the **Immediate Upload** check boxes for voice and screen recordings. A workflow rule that is configured with immediate upload always uploads recordings to the cloud immediately, even if a Staged Upload Data Server is configured and agents are associated with it.

   EXAMPLE
   All voice and screen recordings that meet the criteria you specified in the Conditions section will be handled by staged upload. The actions look like this:



9. (Optional) Refine the conditions and actions further if needed. Steps 7 and 8 provide the minimum configuration necessary.
10. If you use rules for other purposes besides staged upload, order the rules to prevent any conflicts. Webex WFO processes each recording according to the first rule in the list whose conditions match

it. See How workflow administration works for more information about potential conflicts between workflow rules.

11. Click **Save**.

Related topics

- Manage roles and permissions for QM, Analytics, and Insights—Learn about the permissions needed to enable agents for recording.
- Configure the Data Server for QM and Analytics—More information about the settings available for Data Servers.
- Manage teams for QM and Analytics—More information about configuring teams.
- Automate QM workflows—Detailed information about automating how Webex WFO handles recordings.
- How workflow administration works—Additional information about how workflows work.

Delete or update multiple contacts at once

Use the Bulk Contact Operations page to delete multiple contacts, change multiple contacts' retention policies, or update custom metadata for multiple contacts at one time instead of working with contacts one at a time on the Interactions page.

Prerequisites

- You have at least one of these permissions:
  - Bulk Delete
  - Bulk Update Retention
  - Bulk Update Metadata
- You have a CSV file that contains a list of contact IDs that you want to work with. At a minimum, this file must include a Contact ID column header. It can include other column headers, but these are not required. One way to create this file is to export a list of contacts that you want to work with from the Interactions page. See Export contact metadata for instructions. Your export must include the Contact ID column.

- (To update retention policies for contacts) Your organization has created at least one retention policy on the Retention page. See Manage data retention policies for QM and Analytics for more information.
- (To update or clear custom metadata for contacts) Your organization has created custom metadata on the Metadata Manager page. See Manage custom metadata fields for more information.

Page location

Application Management > QM > QM Contact Flows > Bulk Contact Operations

Procedures

Delete multiple contacts

IMPORTANT Deleting contacts is permanent. You cannot undo this action.

1. Select **Bulk delete contacts**.
2. Click **Choose File** and upload the spreadsheet of contacts that you want to delete. A list of the contacts appears on the right side of the page.
3. In the **Reason** field, enter why you're deleting the contacts. This reason will be visible to anyone who runs a report on bulk tasks.
4. Click **Submit**. The **Delete contacts?** window opens.
5. Click **Confirm**. The window closes, and a confirmation message appears.

Update the retention policy for multiple contacts

1. Select **Bulk update contact retention policy**.
2. Click **Choose File** and upload the spreadsheet of contacts that you want to update. A list of the contacts appears on the right side of the page.
3. Select the retention policy to apply to the contacts from the **Retention Policy** drop-down list.
4. In the **Reason** field, enter why you're assigning the retention policy to the contacts. This reason will be visible to anyone who runs a report on bulk tasks.
5. Click **Submit**. The **Update contact retention policies?** window opens.
6. Click **Confirm**. The window closes, and a confirmation message appears.

Update custom metadata for multiple contacts

IMPORTANT Updating custom metadata is permanent. You cannot undo this action.

1. Select **Bulk update contact metadata**.
2. Click **Choose File** and upload the spreadsheet of contacts that you want to update. A list of the contacts appears on the right side of the page.
3. In the **Update metadata** section, select the metadata field you want to update from the **Metadata Field** drop-down list. The options in this list come from the Metadata Manager page.
4. Enter the value that you want to assign in the **Metadata Value** field.

   EXAMPLE Your organization uses a custom metadata field called “Customer Loyalty Tier” that helps assign customers who have the highest loyalty level to concierge support. You need to assign the Silver loyalty level to a set of contacts. In the **Update metadata** section, you select Customer Loyalty Tier from the **Metadata Field** drop-down list and enter Silver in the **Metadata Value** field.

5. (Optional) To update additional metadata for these contacts, repeat steps 3 and 4.
6. In the **Reason** field, enter why you are updating the metadata for these contacts. This reason will be visible to anyone who runs a report on bulk tasks.
7. Click **Submit**. The **Update contact metadata?** window opens.
8. Click **Confirm**. The window closes, and a confirmation message appears.

Clear metadata for multiple contacts

Remove any values for a specific metadata field from contacts.

IMPORTANT Clearing a metadata field is permanent. You cannot undo this action.

1. Select **Bulk update contact metadata**.
2. Click **Choose File** and upload the spreadsheet of contacts that you want to update. A list of the contacts appears on the right side of the page.
3. In the **Clear metadata** section, select the metadata field whose value you want to clear from the **Metadata Field** drop-down list. The options in this list come from the Metadata Manager page.

   EXAMPLE Your organization uses a custom metadata field called “Customer Loyalty Tier” that helps assign customers who have the highest loyalty level to concierge support. You need

remove the loyalty level from a set of contacts. In the **Clear metadata** section, you select ustomer Loyalty Tier from the **Metadata Field** drop-down list. When this job finishes nning, the Customer Loyalty Tier field for these contacts is blank.

4. In the **Reason** field, enter why you are clearing the metadata field for these contacts. This reason will be visible to anyone who runs a report on bulk tasks.
5. Click **Submit**. The **Update contact metadata?** window opens.
6. Click **Confirm**. The window closes, and a confirmation message appears.

View a record of bulk tasks

Run a report that lists bulk contact updates, who ran them, and why.

1. Select **Report on bulk jobs**.
2. In the **Date Range** fields, select the start and end dates for the time period you want to report on.
3. Click **Run**. A list of bulk jobs appears on the right side of the page.
4. (Optional) To download a list of the contact IDs included in a job, click the job's number in the **Job ID** column.

Related topics

- Customize the columns on the Interactions page—Ensure that the Contact ID column is part of your exported file.
- Export contact metadata—Create the list of contacts that you want to process in bulk.
- Manage data retention policies for QM and Analytics—Create rules that govern how contact data is stored.
- Manage custom metadata fields—Create information to attach to contacts.

Collect QM performance data for gamification

You can use agent performance data from QM evaluations in gamification.

Prerequisites

You have the Administer Gamification and/or the Administer Schedules permission.

Page location

Application Management > Global > Performance Management > Collect Performance Data

Procedures

Collect historical performance data immediately

Follow these steps if you are getting started with gamification and have preexisting data metrics.

1. Select the **Collect Data Now** option.
2. Select the performance metric to collect from the **Select Performance Metric** drop-down list.

   NOTE Quality gathers data from agent QM evaluations.
3. Enter the collection period start and end dates.
4. Select the group, team, or agents you want to capture data for. Use Ctrl+Click to select multiple agents or Ctrl+Shift to select a range of agents.
5. Click **Retrieve Performance Data**. The **Request Queued** dialog box opens.
6. Click **Close**.

Set recurring data collection

Follow these steps to set the time every day when performance data is captured automatically.

1. Select the **Schedule Data Collection** option.
2. Select the performance metric to collect from the **Select Performance Metric** drop-down list.
3. Select the time of day to collect the performance data.
4. Click **Save**. A confirmation message displays.

Related topics

- Configure gamification points for QM—Create and manage gamification points
- Configure gamification levels for QM—Create and manage gamification badge levels
- Manage gamification performance categories for QM—Specify the data that recurring data collection captures
- Configure when to award badges in WFM—Configure gamification for WFM

Configure gamification levels for QM

Agents can be awarded new badges when they reach the specified point value for a level of achievement. The Gamification Levels page allows you to create level groups, associate a badge with each level, and define a period range for each level. The period range (in days) for each level allows you to control how far

back to gather data for scoring.

Page location

Application Management > Global > Performance Management > Levels

You can define at least three levels and at most ten levels. Note that levels are numbered zero through nine. The point value for Level 0 is always defined as "- -," which indicates any point values lower than Level 1, including negative point values.

Configure gamification levels

1. Choose **Create new badge level**.
2. Enter a unique name for the level ranges.
3. Enter a period range (in days) from which you want to collect scoring data.
4. Select the level that you want to edit.
5. Enter the minimum point value for this level in the **Points** field.
6. Select the badge to award for this level.
7. Click **Save**.

Field descriptions

Field	Descriptions
Select Level	("Edit or delete an existing badge level" only) The existing badge level you want to edit.
Level	The name of this set of badge levels.
Level Range Definition	
Enter the period range for this level	The number of days from which you want to collect scoring data.
Add Level	Add a badge level to the table.
Level	(Read-only) The badge level number.

Field	Descriptions
Points	The number of points required to achieve this level.
Badge	The badge graphic associated with this level.

Related topics

- Configure gamification points for QM—Create and manage gamification points
- Manage gamification performance categories for QM—Specify the data that recurring data collection captures
- Collect QM performance data for gamification
- Configure when to award badges in WFM—Configure gamification for WFM

Manage gamification performance categories for QM

The Performance Categories page allows you to define a gamification performance group and assign agents to that performance group.

Page location

Application Management > Global > Performance Management > Performance Categories

Create a performance group and assign agents

1. Choose **Create a new performance group**.
2. Enter a unique name for the performance group.
3. Select the performance metric by which to measure agents in this group.
4. Select the level group you want to use to define levels.
5. Select the point range configuration you want to use to define point values.
6. Select the agents you want to add to this performance group. You can select groups and teams and use the **Filter** fields to search by name. Use Ctrl+Click to select multiple agents.
7. Click **Save**.

Field descriptions

Field	Description
Select Performance Group	(“Edit or delete an existing performance group” only) The performance group you want to edit.
Performance Group Name	The name for this performance group.
Group Settings	
Select Performance Metric	The metric you want to use to score agents. ▪ Quality—Agent performance data from QM evaluations
Select Level	The set gamification badge levels for this performance group.
Select Point Range	The ranges of scores and assigned point values for this performance group.
Performance Group Participants	
Group/Team/Agent	The groups, teams, and agents assigned to this performance group.

Related topics

- Configure gamification points for QM—Create and manage gamification points
- Configure gamification levels for QM—Create and manage gamification badge levels
- Collect QM performance data for gamification
- Configure when to award badges in WFM—Configure gamification for WFM

Configure gamification points for QM

Gamification is based on agent achievements as measured by points. Use the Points page to manage point values. Agents can be awarded different numbers of points for their adherence and/or evaluation scores that fall into specified ranges.

Page location

Application Management > Global > Performance Management > Points

You must define two or more ranges with associated point values. You can define points for up to 10 ranges.

Configure point values

1. Choose **Create new point range values for a metric**.
2. Enter a unique name for the point range values.
3. Select the range in the table that you want to edit.
4. Enter an ending value in the **End** field. Start and end values can be positive or negative and are inclusive.

   NOTE The value in the start field is read-only. For the first entry in the table, the start value "--" indicates anything below the first end value. For subsequent ranges, the start value is determined by the previous end value. For the last entry in the table, the end value "--" indicates anything above the last start value.

5. Enter a point value to assign for this range of scores. Point values can be positive or negative. A range's point value must be between the preceding and following ranges' point values.
6. Press **Enter**.
7. Click **Add Range** to add any additional rows to the table.
8. Click **Save**.

EXAMPLE

The table below is an example configuration of point ranges.

Range Start	Range End	Points
--	10	–5
11	20	–3
21	40	0
41	60	1
61	90	3
91	--	5

Field descriptions

Field	Description
Select Point Range	(“Edit or delete existing point range values” option only) The existing set of point ranges you want to edit.
Point Range Name	The name for this range of scores and assigned point values.
Point Ranges	
Start	(Read-only) The numerical value at the beginning of the selected range of scores. It is determined by the previous range’s end value. This number can be positive or negative and is inclusive.
End	The numerical value at the end of the selected range of scores. This number can be positive or negative and is inclusive. It must be greater than that range’s start value.
Points	The point value earned for scores in the selected range. This number can be zero, negative, or positive. **NOTE** There is an important difference between “0 points” and “no points.” A value of “0 points” means that the agent scored a zero, based on the points system that was defined. A value of “no points” means that there was no metric data for an agent on a particular day and scoring could not be done.
Add Range	Add an additional point range row to the table.

Related topics

- Configure gamification levels for QM—Create and manage gamification badge levels
- Manage gamification performance categories for QM—Specify the data that recurring data collection captures
- Collect QM performance data for gamification
- Configure when to award badges in WFM—Configure gamification for WFM

How work time is calculated

Before you start creating contracts to define the agent work time it is important that you understand how contracted work time is calculated for agents. This topic also explains a few key parameters like schedule period, fixed and hourly employment types, full-time and part-time employments, fixed and flexible work time and days off.

Calculation of work time

The agent's contracted work time for a schedule period is calculated based on the combination of their contract, contract schedule and part-time percentage.

- **Contract**—Defines for example the type of contract, the average work time per day and if there is any flexibility for the target time. The contract also includes several validations that regulate how the work hours are distributed within the period.
- **Contract schedule**—Defines how many working days and days off the agent has per week, and which days of the week that are the default days off.
- **Part-time percentage**—Defines the percentage of hours that the agent works out of the total hours calculated based on the contract and contract schedule.

Schedule period

The schedule period is the period within which you need to balance the agents target work time. This means that you can optimize the schedule and for example move days off within the schedule period but not between schedule periods.

The length of the schedule period is a defined number of days, weeks or months. Read the examples below and consider what schedule period that would work best for you.

There can be flexibility in the target time. Define on the agent's contract how much flexibility that is allowed.

EXAMPLE

Equal work hours each week

The agents must always work the same number of hours each week. You can be flexible with shift lengths within the week, but the total number of hours is always the same, week by week. The number of days off per week must also be the same as this affects the number of work hours per week.

- In this case, set the schedule period to 1 week.

EXAMPLE

Varying work hours per week, balanced over a 4-week period

The agents work varying hours per week but must reach the set target of work hours within a 4-week period. The agents can work longer hours one week and shorter hours another to meet a varying business need. The number of days off can vary, so that an agent has one day off one week and compensates with three days off another week.

- In this case, set the schedule period to 4 weeks.

EXAMPLE

Varying work hours per week, balanced over a monthly period

The agents work varying hours per week but must reach the set target of work hours every calendar month. Because different months have different number of working days, the target time varies depending on the number of working days of the month.

- In this case, set your schedule period to 1 month.

NOTE Only use a monthly schedule period if you must balance the agents' work hours within the calendar month. You can still publish the schedule for a calendar month at a time even if you use a weekly schedule period.

Fixed and hourly employment types

There are three employment types; **Fixed staff normal work time**, **Fixed staff day work time** and **Hourly staff**. When scheduling agents, these types are handled differently. Read the descriptions for these employment types below and consider which employment type to use for different groups of agents.

The **Fixed staff normal work time** employment type is for employees whose contract states that they work a fixed number of hours for the schedule period and with a fixed number of days off. Agents with this type of contract are scheduled to fulfill that contract, no more, no less, regardless of the staffing situation. This employment type is suitable for both week-based and monthly schedule periods.

The **Fixed staff day work time** employment type works almost the same way as Fixed staff normal work time. The only difference is that the target time for the schedule period is calculated based on the average work time per day and the number of available working days. If you schedule an additional day off, the target contract time for the period is recalculated.

The **Hourly staff** employment type is for employees that are scheduled only when they are needed. If needed, add a limit for the minimum number of scheduled hours for each period to ensure they work enough to keep their skills up.

NOTE The term Hourly staff does not refer to the payment structure. Employees with a fixed contract can also be paid by the hour. These employment types only refer to how the agents are scheduled.

Full-time and part-time employments

A full-time employee is an agent with a contract that is considered an FTE. There might be more than one type of full-time, for example if there are employees in two countries that have different work rules. One group works 7:30h per day and the other group works 8h per day.

A part-time employee is an agent who works on a reduced contract. Either because they were hired on less time, or because they were hired on full-time but is temporarily on a part-time leave. This is often true for new parents who have a part-time leave for childcare.

Part-time employees either reduce the average daily work time with a certain percentage or concentrate the weekly work time on fewer days than a normal full-time, for example by adding an extra day off every week.

Consider which groups of agents you have and what contracts, contract schedules and part-time percentages you need to create. See the configuration examples below for details.

Flexible work time

The contract rules will never be broken by the automatic scheduling process. If your agents work flexible hours, for example if there is a labor agreement that allows for annualized hours, this needs to be configured.

One option is to build this flexibility into the contract. Set a tolerance for the contract time and if needed also for the number of days off. Optimize schedules to make use of the tolerance and adjust the staffing levels according to the forecasted resource need. If you are overstaffed, the flexibility is used to schedule shorter shifts or more days off. If you are understaffed, the flexibility is used to schedule longer shifts or and replace days off with shifts.

Another option is to override the period work time for the schedule period manually for the schedule periods where the target time is different than what is calculated based on the contract. This is done either by adding a seasonality factor to increase or decrease the target time for the schedule period or by overriding the number of hours per day or the number of days off for this schedule period. Carry over the deviation from the normal target time to the next schedule period to keep track of the hours worked over several schedule periods.

The number of days off affect the total work time for a schedule period. See the **Days off** section below for details.

Days off

The contract schedule is used as a default schedule. It indicates the number of working days per week and implicitly also the number of days off per week. The non-working days in the contract schedule are the default days off. This is used for example when adding a full week of leave to a week that is not yet scheduled. The full week is blocked for scheduling but only the days that are default working days are counted as absences.

If your contact center is open all days of the week, the contract schedule still states the average number of days off per week for an agent. When scheduling, the days off are distributed according to the contract schedule, unless there is a restriction to place them on other days of the week. During optimization of the schedule, shifts can be moved to the days that by default are days off, and the days off to other days of the week.

Define a flexibility of the number of days off on the agent's contract to achieve a flexible number of days off between different schedule periods.

Configuration examples

There are multiple ways to use the work time settings to reach the wanted result. The examples below cover some of the most common combinations and how to configure them.

Fixed staff with a fixed period contract time

The agents have a fixed target time and a fixed number of days off that are the same for each schedule period.

- Set the employment type on the contract to **Fixed staff normal work time**.
- Only set a low target tolerance if this is needed to reach the period target time with the existing shift lengths.

Fixed staff with a flexible period contract time

The agents have a flexible target time where the number of working days and work hours differ between scheduled periods. They are scheduled more time when there is a high resource need and less when the resource need is lower.

- Set the employment type on the contract to **Fixed staff normal work time**.
- Set a target tolerance to define how many hours the target time can deviate.
- Set a days off tolerance to define how much the days off can deviate from the contract schedule.

Part-time staff working shorter shifts

The agents have the same number of working days and days off as their full-time colleagues, but they work shorter shifts. This can be achieved in two ways.

Alternative 1

- Create specific contracts for all part-time agents that define their exact average work time per day.
- Set the part-time percentage to 100%.
- Use the same contract schedule as for full-time agents.

Alternative 2

- Assign the full-time contract to the part-time agents.
- Create specific part-time percentages to adjust the average daily work time for these agents.
- Use the same contract schedule as for full-time agents.

Part-time staff working fewer days per week

The agents work the same length shifts as their full-time colleagues but have one more day off per week.

- Use the same contract as for full-time agents.
- Create a specific contract schedule, with 4 working days and 3 days off.
- Set the part-time percentage to 100%.

Hourly staff

The agents do not have a contract target time for the schedule period. They are scheduled when there is a resource need.

- Set the employment type on the contract to **Hourly staff**.
- You must set a contract schedule and a part-time percentage, but they will not affect scheduling for these agents.

Related topics

- Create WFM agent contracts
- Configure workdays per week
- Configure part-time percentages

Create WFM agent contracts

Create contracts to define the average work time per day for the agents. The contract contains settings for weekly and nightly rest time and maximum work time per week. Connect one or more multiplicator definition sets to the contract to define how agents on this contract will be compensated when they work extra time.

> **NOTE**
> The agent's contract time for a schedule period is always calculated based on the combination of their contract, contract schedule and part-time percentage.
>
> - The contract defines the average work time per workday.
> - The contract schedule defines the number of workdays per week.
> - The part-time percentage defines the percentage that the agent works out of the average work time per day defined in their contract.
>
> The calculated contract time for the schedule period is shown in the Schedules module.

Before you start creating contracts, consider which contracts to create and how to handle agents working part-time. Either set up specific contracts for part-time agents that define their average work time per day or assign the full-time contract to them and use the contract schedule and part-time percentage to adjust the work time.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Contract > Contracts

Procedures

Create a contract for fixed employees

1. Click **New contract**.
2. Enter a **Description** that clearly identifies what the contract is used for.

3. Select an **Employment type**.

    - **Fixed staff normal work time**—The scheduled time and number of days off must match with the target for the schedule period. This type is often used when the schedule period is a set number of weeks.
    - **Fixed staff day work time**—The target time for the schedule period is calculated based on the average work time per day and the number of scheduled days off. This type is often used for monthly schedule periods.

4. Enter an **Average work time per day**. This is the average daily contract time for a full-time employee, or for a part-time employee if you choose to create a contract specifically for them.

    NOTE If the average daily work time is very specific, this can be hard to achieve with a part-time percentage of a full-time contract. In these cases, create a specific part-time contract with the exact average daily work time for these agents.

5. If needed, enter a **Target tolerance**.

    The target tolerance is used to handle two different situations.

    - When the exact target contract time cannot be achieved for the schedule period with their shift setup.
    - When you want to schedule more hours than the target time for schedule periods where there is understaffing and less hours if there is overstaffing.

6. If needed, enter a **Days off tolerance**.

    The days off tolerance is used to schedule more days off than the target for schedule periods where there is overstaffing and less days off if there is overstaffing. When adding tolerance on days off, this might require you to also add a target tolerance.

7. Enter the **Maximum time per week**. This is the maximum work time per calendar week, including any scheduled overtime. The maximum time per week is often based on the local labor laws or union agreements.
8. Enter the **Minimum time per week**. This is minimum work time per calendar week.
9. Enter the **Nightly rest time**. The nightly rest time is the minimum number of hours from the end of one shift to the start of the next shift. The validation is based on work time and includes any scheduled overtime. The nightly rest time is often based on the local labor laws or union agreements.

10. Enter the **Weekly rest time**. The weekly rest time will ensure at least one longer block of uninterrupted rest time for each calendar week. Absences are not included when calculating the weekly rest.

    > **NOTE** The weekly rest calculation can include hours from the day before or after. For example, if the week is from Monday to Sunday and the only day off of the week is on Sunday, the hours until the shift starts on the following Monday are included when calculating the weekly rest.

11. The **Min time per schedule period** setting is only used for hourly employees.
12. Select how to calculate the number of hours for a **Full day absence**. If there is no need to override the value, use the contract value.

    From contract uses the average work time per day defined on the contract.

    From schedule period uses the hours per day value specified for the schedule period. Use the schedule period value to make it possible to override the value if needed.

13. Select the **Multiplicator definition sets** to connect to this contract. The multiplicator definition sets define how the agents are compensated for working overtime or inconvenient work hours.
14. Click **Apply** to save.

Create a contract for hourly employees

Create a contract to use for hourly employees. Only some of the contract settings are applicable.

1. Click **New contract**.
2. Enter a **Description** that clearly identifies what the contract is used for.
3. Select the **Hourly staff Employment type**. When using the hourly staff type, there is no target time for the schedule period. Agents are scheduled when there is a resource need. A minimum work time per schedule period can be set.
4. Enter an **Average work time per day**. This is the average daily work time. It must be set but has no effect on the scheduling of hourly employees.
5. Enter the **Maximum time per week**. This is the maximum work time per calendar week, including any scheduled overtime. The maximum time per week is often based on the local labor laws or union agreements.

6. Enter the **Nightly rest time**. The nightly rest time is the minimum number of hours from the end of one shift to the start of the next shift. The validation is based on work time and includes any scheduled overtime. The nightly rest time is often based on the local labor laws or union agreements.
7. Enter the **Weekly rest time**. The weekly rest time will ensure at least one longer block of uninterrupted rest time for each calendar week. Absences are not included when calculating the weekly rest.
8. The **Min time per schedule period** setting is only used for hourly employees.
9. Select how to calculate the number of hours for a **Full day absence**.

   From contract uses the average work time per day defined on the contract.

   From schedule period uses the hours per day value specified for the schedule period. Use the schedule period value to make it possible to override the value if needed. If there is no need to override the value, use the contract value.
10. Select the **Multiplicator definition sets** to connect to this contract. The multiplicator definition sets define how the agents are compensated for working overtime or inconvenient work hours.
11. Click **Apply** to save.

Delete a contract

Delete contracts that are no longer in use, and for which you don't need the history.

1. Select the contract to delete in the **Contract** menu.
2. Click **Delete** contract.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- How work time is calculated
- Configure workdays per week
- Configure part-time percentages
- Manage WFM agent work rules

Configure workdays per week

The contract schedule defines how many workdays and days off the agent has per week, and which days of the week that are the default days off.

> **NOTE**
> The agent's work time for a schedule period is always calculated based on the combination of their contract, contract schedule and part-time percentage.
>
> - The contract defines the average work time per workday.
> - The contract schedule defines the number of workdays per week.
> - The part-time percentage defines the percentage that the agent works out of the average work time per day defined in their contract.
>
> The calculated contract time for the schedule period is shown in the Schedules module.

The contract schedule is not related to the number of days the contact center is open, only to which days the agents work. If the contact center always is closed on a specific day of the week, that day should be set as a non-workday in the contract schedule.

The average number of workdays per week is not always a whole number, for example if agents with a part-time contract work two days one week and three days the next. In these cases, add an additional week to the contract schedule to handle that.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Contract > Contract schedules

Procedures

Create a contract schedule

Create a contract schedule to define the number of workdays per week.

1. Click **Add new contract schedule** (the top add button).
2. Enter a **Name** to describe the contract schedule.

3. If the average number of workdays for a week is not a whole number, click **Add new week** (the lower add button).
4. Select the default workdays by checking the days of week check boxes.

   > **NOTE** It is important that the number of workdays corresponds to the average number of workdays per week for an agent. If the average is 2,5 workdays per week, select 2 days one week and 3 days the other week. This requires a schedule period longer than one week.

5. Click **Apply** to save.

Delete a contract schedule

Delete contract schedules that are no longer in use and for which you no longer need the history.

1. Select the contract schedule to delete in the **Schedule** menu.
2. Click **Delete**.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- How work time is calculated
- Create WFM agent contracts
- Configure part-time percentages
- Manage WFM agent work rules

Configure part-time percentages

Create part-time percentage values to use in combination with the contracts to define the average work time per day for the agents.

> **NOTE**
> The agent's work time for a schedule period is always calculated based on the combination of their contract, contract schedule and part-time percentage.
>
> - The contract defines the average work time per workday.
> - The contract schedule defines the number of workdays per week.

- The part-time percentage defines the percentage that the agent works out of the average work time per day defined in their contract.

Create part-time percentages to complement the contracts you create.

- If you use specific contracts for all part-time agents that define their exact average work time per day, you only need a part-time percentage of 100%.
- If you assign the full-time contract to the part-time agents, create part-time percentages to adjust the average daily work time for these agents.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Contract > Part-time percentages

Procedures

Create a part-time percentage

1. Click **New part-time percentage**.
2. Enter a **Name** to describe the part-time percentage.
3. Enter a **Percentage** value for the part-time percentage.
4. Click **Apply** to save.

Delete a part-time percentage

Delete part-time percentages that are no longer in use and for which you no longer need to keep the history.

1. Select the part-time percentage to delete in the **Part-time percentage** menu.
2. Click **Delete**.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- How work time is calculated
- Create WFM agent contracts
- Manage WFM agent work rules

Create activities

Create activities to use as building blocks in the agents' shifts. This is the skill-related tasks that agents handle, for example phone, email and chat, but also non-skill-related activities like administration, meetings, training and breaks.

NOTE Absences are created separately to handle the situations when agents are not working, for example because they are ill or on leave.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Scheduling > Activity

Procedures

Create activities

Create all activities to use in agents' shifts.

1. Click **Add activity**. A new row is added in the activity table.
2. Enter a **Name** for the new activity.
3. Select a **Color**. The activity color is shown where the shift is displayed with details.
4. Select the appropriate check boxes for this activity.
    - Is contract time—Select this check box if the activity counts towards an agent's contracted time to work for a schedule period. The contract time is used as a target when scheduling. Often, all activities are contract time except for lunch.

- Is work time—Select this check box if the activity is a work-related task. The work time is used for contract validations, for example nightly rest, weekly rest and maximum weekly work time.

  NOTE When scheduling overtime, only activities which are set as work time are included when calculating the number of overtime hours.

- Is paid time—Select this check box if the activity is a paid activity. The paid time is mainly used for reporting.
- Requires skill—Select this check box to make it possible to connect this activity to one or more skills. An activity that requires skill is only scheduled on agents that have this skill, only within the skill's open hours and when there is a forecasted resource need for the skill.
- Requires seat—Select this check box if the agent requires a seat (workstation) to perform this activity. This is useful if you are using a limitation on number of seats when scheduling to ensure you don't schedule more agents than you have seats.
- In ready time—Select this check box if the agent during this activity is logged in on the ACD platform and is working to handle contacts like calls, emails and chats.
- Overwritable—Select this check box if other activities, meetings and personal activities can be placed on top of this activity. This setting applies to automatic scheduling and gives a warning if you manually schedule an activity on top of a non-overwritable activity.

  EXAMPLE Clear this check box for the lunch activity to ensure that meetings are not scheduled during an agent's lunch.

5. Set **Report as** to **Lunch** or **Short break** for any break activities.

   This can be used to report on when agents have their breaks and lunches using the Shifts per day PDF report in Schedules. The Report as setting is also used to define the lunch activity when validating overtime requests, and to define lunches and short breaks when using self-scheduling.

6. Enter the **Payroll system code** for the activity.

   This is used in payroll exports to define the compensation. If there is no need to follow up on the different activities in the payroll export, you can use the same payroll system code for all paid activities.

7. Click **Apply** to save.

The Updated by and Updated on fields are updated automatically when you save to show who did the last change and when it was made.

Delete activity

Delete activities that no longer are in use.

IMPORTANT Do not delete activities that are still in use. Rename the activity to indicate that it shouldn't be used, but keep it to not affect the history.

1. Select the activity you want to delete by clicking the row in the table.
2. Click **Delete**.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- Create basic shifts
- Add activities to shifts
- Schedule activities manually

Create master activities

Create master activities to design flexible shifts. The master activity is a placeholder for a few selected activities. When scheduling, the master activity for each block of the shift is replaced with the activity that is needed the most according to the forecast. With master activities you can achieve flexible shifts without having to create shifts with all possible combinations of activities.

NOTE Be careful to not create too complex shifts with master activities, as that will increase the time it takes to schedule and optimize. Even if the number of shifts in the shift bag is a lot fewer, the number of possibilities for the scheduling algorithm to consider grows fast.

EXAMPLE A shift has four blocks of the master activity; start of shift to short break, short break to lunch, lunch to short break and short break to end of shift. There are three activities connected to the master activity. This shift alone gives 81 different possibilities (3x3x3x3=81).

Prerequisites

- You have the Options permission.
- There are activities where the **Requires skill** check box is selected.

Page location

Client > Options > Scheduling > Master activity

Procedures

Create a master activity

Create a master activity that can be replaced with any of the included activities during scheduling and optimization.

1. Click **Add**.

   A new master activity is added to the **Master activity** menu and automatically selected.

2. Enter a **Name** for the new master activity.
3. Select a **Color**.

   The master activity color is only shown in the Shifts module.

4. Select the activities to include and use the arrow buttons to move them to the **Selected activities** field.
5. Click **Apply** to save.

Delete a master activity

- Select the master activity to delete in the **Master activity** menu.
- Click **Delete**.
- Click **Yes** to the confirmation question.
- Click **Apply** to save.

Related topics

- Create activities
- Overview of creating shifts in the WFM client

Create absence types

Create absence types to add to agents' schedule when they are away. Create different absence types to use in different situations, for example when the agent is ill, on vacation, on parental leave or arrives late.

Absences are added to the schedule manually by planners or supervisors and when agents send absence requests or use absence reporting.

Track each agent's usage of selected absence types with personal accounts.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Scheduling > Absence

Procedures

Create absence types

Create the absence types to use when agents are away.

1. Click **Add absence**.
2. Enter a **Name** for the new absence.
3. Enter a **Short name** for the absence, with maximum two characters. The short name is displayed for full-day absences where the space is limited.
4. Select a **Color**. The absence color is shown for all full-day absences and for part-day absences where the shift is displayed with details.

5. Select the appropriate check boxes for this absence type.

   - **Is contract time**

     Select this check box if the absence counts towards an agent's contracted time for a schedule period. The contract time is used as a target when scheduling. Only absences that are marked as **Is contract time** will deduct from the budget allowance for agent absence requests.

     NOTE Vacation and illness are often contract time absences, as the agent doesn't need to work extra to compensate for being away. Absences where the agent is away without a valid cause, like late arrival, are not contract time.

   - **Is work time**

     Select this check box if the absence is a work-related task. The work time is used for contract validations, for example nightly rest, weekly rest and maximum weekly work time. Normally, absences are not work time.

   - **Is paid time**

     Select this check box if the absence is paid. The paid time is mainly used for reporting.

     EXAMPLE The Vacation absence type is paid, and the Late arrival absence type is not paid.

6. Select the **Use for requests** check box to make it possible for agents to send absence requests with this absence type.
7. Select a **Tracker type** if you want to keep track usage of this absence type in a personal account for each agent. You can then enter how many days or hours of this absence type the agent has for a defined period and how many they have used.

   NOTE If you select the **Days** tracker type, a full day will be deducted from the personal account, even for a 2-hour absence. To track hours and minutes, select the **Time** tracker type. Once you have started using a tracker for an absence type, you cannot change the tracker type.

8. Select the **Confidential** check box to make this absence type visible only to users with the View confidential permission. Other users can still see that the agent is absent, but the type of absence will not be displayed.

   NOTE Confidential absences are still visible in the Ready-time adherence reports.

9. Enter the **Payroll system code** for the absence. This is used in payroll exports to define the compensation.
10. Click **Apply** to save.

Delete an absence type

Delete absences that no longer are needed.

IMPORTANT Do not delete absences that are still in use. Rename the absence if you want to indicate that it shouldn't be used but keep it to not affect the history.

1. Select the absence you want to delete by clicking the row in the table.
2. Click **Delete**.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- Schedule time off manually
- Manage personal accounts for absences

Create days off

Create days off to use in scheduling. A day off is a scheduled rest day for an agent. The day off settings define how long the day off must be and how flexible the placing of the day off is. The number of days off for an agent during a schedule period is defined by the agent's contract schedule .

Often, it is enough to create one day off that is 24h long. For some situations, additional days off are necessary.

EXAMPLE The call center is open 24/7 and use flexible scheduling. Some weeks, the agents have only one day off. A 36h day off is in some cases needed to fulfill the 36h weekly rest set on the contract.

NOTE The automatic scheduling and optimization processes will only use one day off, even if there are several. The day off that comes first in alphabetical order will be used.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Scheduling > Days off

Procedures

Create a day off

Create a day off and define how it can behave.

> **EXAMPLE** The target length of a day off is 36h and the anchor is at noon. The day off by default starts at 6 PM the day before the day off and ends at 6 AM the day after. The flexibility is 3h. If a shift ending 9 PM is scheduled the day before the day off, the earliest possible start time for a shift on the day after the day off is 9 AM.

1. Click **New day off**. A new day off is created in the **Days off** menu and automatically selected.
2. Enter a **Name** for the new day off.
3. Enter a **Short name** for the day off, with maximum two characters. The short name is displayed for days off where the space is limited.
4. Enter a **Payroll system code**. This is used in payroll exports to define the compensation.
5. Enter an **Anchor** time.

   Set the anchor time to where you want the middle of a day off to be. The day off extends equally long before and after the anchor time.
6. Enter the **Target length**.

   The target length defines the minimum hours of non-work time for this day off. This is counted from the end of the shift the day before the day off until the start of the shift the day after the day off.
7. Enter the **Flexibility**.

The flexibility defines how many hours a day off can be pushed in either direction to adjust for a late shift before the day off or an early shift after it. Only a shift can push a day off. If there are two days off in a row and one of them is pushed 3h, they will have a 3h overlap.

8. Click **Apply** to save.

Delete a day off

1. Select the day off to delete in the **Days off** menu.
2. Click **Delete day off**.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- Configure workdays per week
- Schedule days off manually
- How schedule optimization works

Create shift categories

Create shift categories to group your shifts. When creating shifts in the Shifts module, select which shift category you want the shifts to belong to. The shift categories help you get a high-level understanding of the schedule and can be used for several purposes.

EXAMPLE

- Create a rotation to schedule shifts of a certain category, for example late shifts.
- Balance the distribution of shifts of different categories among agents with the fairness optimization.
- Set a limitation on the maximum number of shifts of a certain shift category an agent can have during a week or a schedule period.
- As an agent, add preferences on which category of shifts you want for each day.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Scheduling > Shift category

Procedures

Create a shift category

1. Click **Add shift category**. A new row is added in the shift category table.
2. Enter a **Name**.
3. Enter a **Short name** for the shift category, with maximum two characters. The short name is displayed for this shift category where the space is limited.
4. Select a **Color**.
5. Click **Apply** to save.

Delete a shift category

1. Select the shift category you want to delete by clicking the row in the table.
2. Click **Delete**.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- Create basic shifts
- Configure preferred working days and shifts

Create alternative scenarios

Create alternative scenarios and use them to try out how potential situations will affect the staffing levels. The scenarios can be used for forecasting, scheduling and reporting.

EXAMPLE

- Create two forecasts in separate scenarios with different service levels to see how that will affect the resource need.

- When publishing the schedule, save it in another scenario. Use it later to compare the original schedule to what it looks like when for example shift trades are performed, agents have called in sick and additional meetings have been scheduled.

Schedules can be imported from a selected scenario to the default scenario. Schedules can also be copied from one scenario to another non-default scenario.

NOTE The schedule in the default scenario is the only scenario that is visible to agents in MyTime. Requests from agents are therefore only visible in the default scenario.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Scheduling > Scenario

Procedures

Create a scenario

Create an alternative scenario to try out the effect of different factors.

1. Click **New scenario**.
2. A new scenario is added to the **Scenario** menu and automatically selected.
3. Enter a **Description**. This is the name of the scenario.

   NOTE The default scenario can be renamed, but will remain the default scenario. No scenario that you create can be set as the default scenario.

4. Select the **Enable reporting** check box to pull reports based on the data in this scenario. Maximum 5 scenarios can be used for reporting, including the default scenario.
5. Select the **Restricted** check box to limit access to schedules in this scenario to users with the Global functions > View restricted scenarios permission.

   NOTE This setting only applies to schedules. The restricted scenarios are available for all users in Forecasts and Reports.

6. Click **Apply** to save.

Delete a scenario

Delete scenarios that you no longer need.

NOTE The default scenario cannot be deleted.

1. Select the scenario to delete in the **Scenario** menu.
2. Click **Delete**.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- Export forecast to another scenario
- Copy schedules to another scenario
- Import schedules from another scenario

Create schedule tags

Create tags that can be used in the Schedules module to add helpful information to the scheduled days. The tags can be added through automatic scheduling, optimization, every time you make a manual change to the schedule or just when you choose specifically to add a tag.

When working in the Schedules module, you can lock days with a specific tag or lock all days with tags to block changes to those days.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Scheduling > Schedule tags

Procedures

Create a schedule tag

1. Click **New tag**.
2. Enter a **Name**.
3. Click **Apply** to save.

Delete a schedule tag

1. Select the schedule tag to delete in the **Schedule tag** menu.
2. Click **Delete tag**.
3. Click **Yes** to the confirmation question.
4. Click **Apply** to save.

Related topics

- Tag schedule days

Overview of creating shifts in the WFM client

Creating shifts is easy, but creating good shifts requires a lot of thought. This page explains more about how to create shifts in WFM and what to consider in order to create good shifts.

Rules sets and shift bags

The shifts are generated based on the rules in the rule sets. The rules define possible start and end times, the duration of the shifts and the activities included in the shifts. The activities are any activities that the automatic scheduling should add, both skill activities and non-skill activities, like breaks, lunches and admin tasks. The length and the position of these activities in the working day is an important consideration. The rules also define when the shift can be used and when it cannot be used.

Shift bags are generally built to suit a certain group of agents, for example full-time agents with a certain type of work. Each agent is assigned a shift bag, which is a collection of shifts including one or more rule sets.

A rule set can be used in more than one shift bag and the same shift bag can be allocated to multiple agents.

Purpose of the shifts

The shifts in the agent's shift bag are the available shifts to use for automatic scheduling and optimization. The scheduling and optimization processes will select the best possible shift from the shift bag for each day and agent. This selection has two main focuses; to improve the staffing levels as much as possible and to fulfill all rules. The rules to fulfill are scheduling rules, contract rules and any restrictions, like agent preferences, rotations or availability.

The number of shifts in the shift bag affects the performance of the scheduling and optimization processes. Therefore, carefully consider the complexity of the rule sets and shift bags you create. You want enough variety within the shift bag to provide flexibility, but also to keep the number of shifts in the shift bag down to not slow down the scheduling and optimization processes.

Before creating shifts

There are a lot of things to consider before creating rule sets and generating work shifts to be used in automatic scheduling.

- The open hours of the workloads and the forecasted demand on the skills during those hours, providing information on when agents need to be scheduled and on which activities.
- The contracts, part-time percentages and information on which days agents are working, providing information on the length of the agents' shifts and information on rest rules such as the weekly and nightly rest time agents are entitled to.
- Laws or company policies stating for example how often the agents must have short breaks or how long the lunch break must be.
- The level of flexibility that can be built into the schedule. For example, if agents can have staggered start times that can be optimized according to demand levels.

While creating shifts

When creating shifts, keep it simple and keep the number of shifts down. If needed, you can quickly add more shifts.

Grouping shifts

A good starting point when creating shifts is to divide the working day into smaller units using shift categories. For example, early, day, late and night.

Create small rule sets with a clear purpose. Check the number of shifts in the rule set. If the number of shifts in the rule set is large, consider splitting the rule set into to two rule sets. The number of shifts in the shift bag is shown to the left of the rule set's name on the General tab.

Keep the number of rule set iterations as low as possible for optimal performance in the scheduling process. One way of doing that is to group common shift lengths with common lunch break lengths.

> **EXAMPLE** A shift length of 7-8 hours requires a 30-minute lunch and shifts longer than that requires a 1-hour lunch. Separate the shift length groupings into two different rule sets to keep the number of iterations low.

Naming conventions

An important consideration is the naming conventions. WFM will list the rule sets in alphabetical order. Keep a clean naming convention to make it easier to distribute the rule sets to different shift bags.

> **EXAMPLE** Include Shift Category, Shift Type, Activity Type, Shift Length (AM, Early, Phone, 8-10h).

The naming convention for shift bags is also a key consideration in order to make the system easier to use in the future.

> **EXAMPLE** Name shift bags based on location and working length; London Part Time and London Full Time.

Positioning of activities

Activities can be positioned within the shifts in different ways. They can be positioned with an absolute start time or relative to the start of the shift. When using those parameters, try to keep to the same type when positioning multiple activities to avoid confusion.

The auto position function can be used to automatically position short breaks on either side of lunch breaks.

Remove shifts with unwanted combinations of activities

Use limitations to remove shifts with unwanted combinations of activities.

> **EXAMPLE** There is only 15 minutes of phone time between a short break and the lunch in some shifts. Add a limitation to avoid these shifts. Set the limitation to only keep shifts where the phone activity is greater than or equal to the desired length of time, such as 45 minutes.

Control when shifts can be used

The default rule is that all rule sets can be used on all weekdays. However, if your agents have particular activities on set days of the week, for example an hour of admin on a Monday and Tuesday, you can select which days of the week these rule sets should apply to.

The recommendation is to only use day of week or date limits where it's needed. This is important to avoid restrictions to the scheduling process.

If an agent has shifts in their shift bag that are not applicable, those shifts will never be used in scheduling. This is for example if there are night shifts in the shift bag even though this agent has no skills that are open during nights, or if the agent does not have either the rotation or availability to work such hours.

Therefore, it is possible to use the same shift bag for a group of agents even if there are a few of those agents for whom some of the shifts in the shift bag do not apply.

After scheduling the shifts

The purpose of the scheduling and optimization processes is to achieve the best possible result while fulfilling all work rules and scheduling rules. That gives a lot of factors for the scheduling and optimization to consider when picking shifts from the agents' shift bags. The shifts available in the shift bag are therefore crucial to achieve a good result.

Analyze the result of the optimization carefully to see if there are improvements to be made.

> **EXAMPLE** There is a period during the afternoon where the staffing is often lower than the rest of the day. Try to understand why that happens. Is there not enough flexibility in the placement of the afternoon short breaks in the shifts? Are the shifts with other placements of the short break not possible to use as that would break some work rule? Or does the optimization pick other shifts to solve more critical staffing issues during other intervals?

The graph and the result view in the Schedules tool will help you analyze the optimization result on different levels and for various parameters. Keep in mind that some of the parameters are only visible on the day or intraday level.

On the intraday level, the colors on the relative difference row in the results view will give a quick and visual indication of what areas to focus on. View this information on a skill by skill basis or combine multiple skills in a skill summary.

Tweak the rule sets in the shift bag or add additional rule sets based on the result of your analysis. Review the predicted service level (PSL) on a daily and interval level. Reoptimize with the new shifts and use the PSL to help you confirm that the changes have had a positive impact on the predicted performance.

Related topics

- Create basic shifts
- Add activities to shifts
- Remove unwanted shifts from rule sets
- Limit which dates shifts can be used

- Limit which days of the week shifts can be used
- Manage rule sets
- Manage shift bags

Create basic shifts

The rules on the **General** tab in Shifts are required to build a rule set and create shifts. These rules allow you to define the start and end times of the shifts, the duration of the shifts as well as the base activity of the shifts and the shift category they belong to.

Create the shifts based on the agents' time zone, because that is the time zone the automatic scheduling will use.

First time creating shifts in WFM? Read Overview of creating shifts in the WFM client for what to consider before, during and after creating shifts.

Prerequisites

- You have the Shifts permission.
- The activities to use in the shifts are created in Options > Scheduling > Activity.
- The shift categories to use are created in Options > Scheduling > Shift category.

Page location

Client > Shifts > General tab

Procedures

Define basic shift settings

Create simple one-activity shifts by defining these shift settings. These shifts are then used as a basis for building more complex shifts with additional activities.

1. Click the **Rule sets** tab to ensure it's selected.
2. Click **New** to create a new rule set and name it, or click on an existing rule set to work with.
3. Select a **Base activity** for the shift. The base activity will be the base layer of the shift and can be the only activity, but in most cases additional activities are added.

4. Select a **Shift category**. All shifts created in a rule set belong to the same shift category. For separate shift categories, you need to set up more than one rule set.
5. Select if the shifts should be by default **Available** or not.

   If you select **Yes**, the shifts can always be used except for on the defined dates and weekdays. If you select **No**, these shifts can only be used on the defined dates and weekdays.

   NOTE Select the dates and weekdays when these shifts should be available or not available on the **Availability date** tab and the **Availability day of week** tab.

6. Define the **Start period** for the shifts by setting three parameters.

   - **Early**—the earliest possible start time.
   - **Late**—the latest possible start time.
   - **Segment**—the increments of the start time between the early and late start.

   EXAMPLE If **Early** is set to 09:00, **Late** to 10:00 and **Segment** to 0:30, the possible start times are 9:00, 9:30 and 10:00.

   NOTE Avoid setting up long start or end periods with short segments, as that generates many shifts. It's often better to create more specific rule sets and not try to cover too much in one rule set.

7. Define the **End period** for the shifts by setting three parameters. If the end time is after midnight, type +1 after the end time, for example 02:00+1.

   - **Early**—the earliest possible end time.
   - **Late**—the latest possible end time.
   - **Segment**—the increments of the end time between the early and late end.

8. Define the **Length** (duration) of the shifts.

   - **Min**—the shortest possible shift length.
   - **Max**—the longest possible shift length.
   - **Segment**—the increments of the shift length between the min and max shift length.

> **NOTE** The shift length only considers activities which are defined as contract time. Activities that are not defined as contract time, for example lunch, are not included when calculating the shift length.

9. Select the **Only for restrictions** check box if the shifts only should be used in connection with restrictions like agent preferences, availability or rotations. If enabled, the shifts will still only be used if there are no other shifts that fulfill the rules of the restriction. The rule sets which are only for restrictions are highlighted with a little black dot before their names in the list of rule sets.
10. Click **Refresh** to show the shifts generated based on the current rules.

> **NOTE** There might be few or no shifts to show yet. This is usually because you have planned to add non-contract time activities, for example lunch, and based start and end time and shift length on that. If this is the case, add all non-contract time activities and refresh again. The shifts shown now will be of all possible shift lengths and start and end times based on the current rules.

11. Click **Save** to save your rule set. Continue to add activities to your shifts. See Add activities to shifts.

Related topics

- Overview of creating shifts in the WFM client
- Add activities to shifts
- Remove unwanted shifts from rule sets
- Limit which dates shifts can be used
- Limit which days of the week shifts can be used
- Manage rule sets
- Manage shift bags

Create a split shift

A split shift consists of two or more separate working periods in a single day. To create a split shift, you must create a split activity that you can use to create a split shift.

Prerequisites

- You have the Shifts permission.
- The activities that you use in the shifts are created in Options > Scheduling > Activity.
- The shift categories that you use are created in Options > Scheduling > Shift category.

Page location

Client > Shifts > General tab

Procedures

Create an activity for a split shift in the Options module

1. Click the **Add activity** button in the upper-right corner.
2. Rename the activity.
3. In the **Color** column, select white as the color so that the activity appears as unscheduled time on the agent's schedule.
4. Ensure that all the check boxes are unchecked.
5. Click **Apply**.

Create a split shift in the Shifts module

1. Click the **Rule sets** tab.
2. Click **New** and then rename the rule set. Alternatively, click an existing rule set.
3. Select a **Base activity** for the shift. The base activity is the base layer of the shift. You can only select one activity as the base activity. You can add additional activities in the **Activities** tab.
4. Select a **Category**. All shifts created in a rule set belong to the same shift category. For separate shift categories, you must set up more than one rule set.
5. If you want the shift to be set to **Available** by default, select **Yes**. If you do not want it to be set to **Available** by default, select **No**.

> **NOTE** You can select **No** for shifts that are only available on certain days. For example, days where the hours of operation are shortened or lengthened due to a holiday. You can then determine which day(s) the shift is not available on the **Availability date** and **Availability day of week** tabs.

6. To define the **Start period** for the shifts, set the following three parameters:
   - **Early** - The earliest start time of the first portion of the working shift.
   - **Late** - The latest start time of the first portion of the working shift.
   - **Segment** - The increments of the start time between the early and late start.
7. To define the **End period** for the shifts, set the following three parameters. If the end time is after midnight, type **+1** after the end time, for example, **02:00+1**.
   - **Early** - The earliest end time of the second portion of the working shift.
   - **Late** - The latest end time of the second portion of the working shift.
   - **Segment** - The increments of the end time between the early and late end.
8. Define the **Length** of the shift. You must only include the working time of the shift. The length of the shift must only include contract time and exclude the split where the agent is not working.
   - **Min** – The shortest possible shift length and only includes contract time.
   - **Max** - The longest possible shift length and only includes contract time.
   - **Segment** - The increments of the shift length between the minimum and maximum shift length.
9. Select the **Only for restrictions** check box if the shifts must only be used in connection with restrictions such as agent preferences, availability, or rotations. If you select the check box, the shifts are still only used if there are no other shifts that fulfill the rules of the restriction. The rule sets which are only for restrictions are highlighted with a little black dot before their names in the list of rule sets.
10. Click **Refresh** to show the shifts generated based on the current rules.
11. Click **Save**.

NOTE Nothing appears in the shift visual because the length that you entered does not yet match the duration between the start and end periods.

12. Click the **Activities** tab.
13. Click **New**.
14. Ensure that the **Auto position** check box is unchecked.
15. Select **Absolute start** for the **Type**.
16. Select the **Activity** that you created for the non-scheduled period for the agent.
17. Define the **length** of the activity.
    - **Min** - The shortest possible length of the nonscheduled period of the split shift.
    - **Max** - The longest possible length of the nonscheduled period of the split shift.
    - **Segment** - The increments of the activity length between the minimum and maximum length.
18. Define the **position** of the activity at the time of day in the agent's time zone.
    - **Early start** - The earliest time that the nonscheduled period of the split shift might begin.
    - **Late start** - The latest time that the nonscheduled period of the split shift might begin.
    - **Segment** - The increments of the position within the shift between the early and late start time.
19. Click **Refresh** to show the shifts generated based on the current rules.
20. Click **Save**.

EXAMPLE An agent works a split shift from 6:00 AM to 10:00 AM and 3:00 PM to 7:00 PM with a non-scheduled period between 10:00 AM and 3:00 PM.

1. Click **New** and then rename the rule set.
2. Select a **Base activity** for the shift.
3. Select a shift category.
4. Select **Yes** from the **Available** drop-down menu.

5. To define the **Start period** for the shifts, set **Early** to 6:00 AM, **Late** to 6:00 AM, and **Segment** to 0:15.
6. To define the **End period** for the shifts, set **Early** to 7:00 PM, **Late** to 7:00 PM, and **Segment** to 0:15.
7. To define the **Length** of the shift, set **Min** to 8:00, **Max** to 8:00, and **Segment** to 0:15.
8. Select the **Only for restrictions** check box if the shifts must only be used in connection with restrictions such as agent preferences, availability, or rotations. If you select the check box, the shifts are still only used if there are no other shifts that fulfill the rules of the restriction. The rule sets which are only for restrictions are highlighted with a little black dot before their names in the list of rule sets.
9. Click **Refresh** to show the shifts generated based on the current rules.
10. Click **Save**.

    NOTE Nothing appears in the shift visual because the length that you entered does not yet match the duration between the start and end periods.
11. Click the **Activities** tab.
12. Click **New**.
13. Ensure that the **Auto position** check box is unchecked.
14. Select **Absolute start** for the **Type**.
15. Select the **Activity** that you created for the non-scheduled period for the agent.
16. To define the **length** of the activity, set **Min** to 5:00, **Max** to 5:00, and **Segment** to 0:15. **Min** and **Max** are set to five hours because there is a five hour gap between 10:00 AM, when the first part of the shift ends, and 3:00 PM, when the second part of the shift starts.
17. To define the **position** of the activity at the time of day in the agent's time zone, set **Early start** to 10:00 AM, **Late start** to 10:00 AM, and **Segment** to 0:15.
18. (Optional) If a break is required, add another line to add a new activity for breaks.
19. Click **Refresh** to show the shifts generated based on the current rules.

20. Click **Save**.
21. Add the shift to a shift bag, so that you can assign it to agents. For further information, see Manage shift bags

Add activities to shifts

Add activities on top of the base activity to create more complex shifts with different skill activities and non-skill activities like lunches, breaks and administrative tasks.

The activities can be positioned within the shift in different ways. One way is to use the auto-positioning functionality. It will position one or more activities trying to divide the contract time as evenly as possible. The other ways are to position activities at a specific time, or relative to the start or end of the shift.

If the shift you create has a lunch, start by adding the lunch activity. This is useful as it often affects where other activities are placed. Adding the lunch activity is also important to show all possible shifts based on the rule, as it is often a non-contract time activity.

Do not add activities with a lot of possibilities for when it can be placed within the shift and how long it is. That will a big and complex rule set. Instead try to keep the rule sets small and with a clear purpose. See Overview of creating shifts in the WFM client for more information about what to consider when creating shifts.

Prerequisites

- You have the Shifts permission.
- You have created basic shifts.
- The activities to use in the shifts are created in Options > Scheduling > Activity.

Page location

Client > Shifts > Activities tab

Procedures

Add activities and position them automatically

Automatic positioning of activities in the shifts allows you to distribute activities evenly within the shifts. This is useful for placement of breaks.

1. Right-click in the table on the **Activities** tab and select **New**.
2. Select the **Auto position** check box.
3. Enter a **Count** for how many occurrences of this activity to add in the shift.

   EXAMPLE This is useful to add two short breaks, one in the morning and one in the afternoon.

4. Select the **Activity** you want to add.
5. Define the **Length** of the activity:

   - **Min**—the shortest possible length of the activity.
   - **Max**—the longest possible length of the activity.
   - **Segment**—the increments of the activity length between the min and max length.

   EXAMPLE If **Min** is set to 1:00, **Max** to 2:00 and **Segment** to 0:30, the possible activity lengths are 1:00, 1:30 and 2:00.

6. Define the **Segment** for the positioning of the activity, i.e. the increments of the position in the shift.

   EXAMPLE If **Segment** is set to 0:30, the possible start times of the activity are always at xx:00 or xx:30.

7. Click **Refresh** to show the shifts generated based on the current rules.
8. Click **Save** to save the changes.

   NOTE The automatically positioned activities are evenly distributed within the contract time of the shift. If there are non-contract time activities with a lower priority, this will affect the automatic positioning of activities. They will always be positioned to keep the consecutive contract time as short as possible.

Add activities and position them relative to the start or end of the shift

Control at what time an activity is scheduled by placing it in relation to the start time or end time of the shift. This can be useful for example to schedule login time at the start of each shift, or to schedule the lunch break to start within 3 to 4,5h into the shift, regardless of when the shift starts.

1. Right-click in the table on the **Activities** tab and select **New**.
2. Select **Relative start** or **Relative end** in the **Type** menu.

3. Define the **Length** of the activity:
    - **Min**—the shortest possible length of the activity.
    - **Max**—the longest possible length of the activity.
    - **Segment**—the increments of the activity length between the min and max length.
4. Define the **Position** of the activity:
    - **Early start**—the shortest time from the start (or end) of the shift to the start of the activity.
    - **Late start**—the longest time from the start (or end) of the shift to the start of the activity.
    - **Segment**—the increments of the position within the shift, between the early and late start time.

    NOTE The position of the activity always refers to the start time of the activity, regardless of if you are placing the activity in relation to the start or the end of the shift.
5. Click **Refresh** to show the shifts generated based on the current rules.
6. Click **Save** to save the changes.

Add activities and position them at a specific time

Control at what time an activity is scheduled by placing it at a specific time or within a time interval.

1. Right-click in the table on the **Activities** tab and select **New**.
2. Select **Absolute start** in the **Type** menu.
3. Define the **Length** of the activity.
    - **Min**—the shortest possible length of the activity.
    - **Max**—the longest possible length of the activity.
    - **Segment**—the increments of the activity length between the min and max length.
4. Define the **Position** of the activity at the time of day in the agent's time zone.
    - **Early start**—the shortest time from the start (or end) of the shift to the start of the activity.
    - **Late start**—the longest time from the start (or end) of the shift to the start of the activity.

- **Segment**—the increments of the position within the shift, between the early and late start time.

5. Click **Refresh** to show the shifts generated based on the current rules.
6. Click **Save** to save the changes.

Change the priority of the activities

The priority of the activities decides which activity that end up on top if there are overlaps and affects the automatic positioning of activities. The activity at the bottom has the highest priority and will show on top in the shift.

1. Select the activity to move by clicking the small field to the left of the rule set name.
2. Right-click and select **Move up** or **Move down**.
3. Click **Refresh** to show the shifts generated based on the new priority order.
4. Click **Save** to save the changes.

Delete activities from the shifts

Delete activities that are not needed in this rule set.

1. Select the activity to delete by clicking the small field to the left of the rule set name.
2. Click **Delete**.
3. Click **Yes** to confirm.
4. Click **Refresh** to show the shifts generated without that activity.
5. Click **Save** to save the changes.

Related topics

- Overview of creating shifts in the WFM client
- Create basic shifts
- Remove unwanted shifts from rule sets
- Limit which dates shifts can be used
- Limit which days of the week shifts can be used

- Manage rule sets
- Manage shift bags

Remove unwanted shifts from rule sets

Set up limitations on the duration of activities to remove shifts that should not be used in the shift bag. Remove for example shifts where the email activity is shorter than 45 minutes or where the phone activity is longer than 2,5 hours. Removed shifts will never be used in scheduling.

If the limitations remove a large part of the shifts in the rule set, it is often better to split your rule set and create smaller, more specific rule sets.

Prerequisites

- You have the Shifts permission.
- You have created basic shifts and added activities to them.

Page location

Client > Shifts > Limitations tab

Procedures

Add a limitation

Add limitations to remove shifts that have sections of activities which are too long or too short. This is useful for example to remove shifts that have sections of the phone activity which are less than 30 minutes.

1. Right-click in the table on the **Limitations** tab and select **New**.
2. Select the **Activity** to add a limit for.
3. Select a **Limit** to control the minimum or maximum time of activities.
    - **Less than**—the activity must be shorter than the time limit.
    - **Greater than**—the activity must be longer than the time limit.
    - **Equal**—the activity time must be equal to the time limit.

- **Less than or equal**—the activity must be equal to or shorter than the time limit.
- **Greater than or equal**—the activity must be equal to or longer than the time limit.

4. Enter the **Time** of the limit. This is the maximum or minimum time, depending on the limit you selected.
5. Click **Refresh** to show the shifts that remain when the limits are applied.
6. Click **Save** to save the changes.

Delete a limitation

Delete limitations that are no longer needed.

1. Select the limitation to delete by clicking the small field left of the rule set name.
2. Click **Delete**.
3. Click **Yes** to confirm.
4. Click **Refresh** to show the shifts that are generated based on the current rules.
5. Click **Save** to save the changes.

Related topics

- Overview of creating shifts in the WFM client
- Create basic shifts
- Add activities to shifts
- Limit which dates shifts can be used
- Limit which days of the week shifts can be used
- Manage rule sets
- Manage shift bags

Limit which dates shifts can be used

Use this view to define dates when the shifts in the rule set either can or cannot be used.

The default availability is set using the availability setting on the General tab. If the shifts are by default available, the given dates are the exceptions where they cannot be used. If the shifts are by default not available, the given dates are the only dates when they can be used.

NOTE There is no possibility to set this up for recurring dates. If you use availability dates, you need to regularly update the list of dates with upcoming dates.

Prerequisites

- You have the Shifts permission.

Page location

Client > Shifts > Availability date tab

Procedures

Add exception dates

Add dates to deviate from the default availability.

NOTE If the default availability setting on the **General** tab is **Yes**, the dates added on the **Availability date** tab will show as not available, and the other way around.

1. Right-click in the table on the **Availability date** tab and select **New**.
2. Select the **Date** when you want to deviate from the default availability.
3. Repeat the steps to add more dates.
4. Click **Save** to save the changes.

Delete an exception date

Delete dates that have passed or are no longer relevant.

1. Select the date row to delete by clicking the small field left of the rule set name.
2. Click **Delete**.
3. Click **Yes** to confirm.
4. Click **Save** to save the changes.

Related topics

- Overview of creating shifts in the WFM client
- Create basic shifts

- Add activities to shifts
- Remove unwanted shifts from rule sets
- Limit which days of the week shifts can be used
- Manage rule sets
- Manage shift bags

Limit which days of the week shifts can be used

Use this view to define days of the week when the shifts in the rule set either can or cannot be used.

The default availability is set using the availability setting on the General tab. If the shifts are by default available, the given days of the week are the exceptions where they cannot be used. If the shifts are by default not available, the given days of the week are the only days of the week when they can be used.

IMPORTANT For block and team scheduling to work, the agents' shift bags need to have rule sets with shifts that are available for all days of the week.

Prerequisites

- You have the Shifts permission.

Page location

Client > Shifts > Availability day of week tab

Procedures

Add exception days of the week

Add days of the week to deviate from the default availability.

NOTE If the default availability setting on the **General** tab is **Yes**, the days of the week selected on the **Availability day of week** tab will show as not available, and the other way around.

1. Select the check boxes for the **Days of the week** when you want to deviate from the default availability.
2. Click **Save** to save the changes.

Related topics

- Overview of creating shifts in the WFM client
- Create basic shifts
- Add activities to shifts
- Remove unwanted shifts from rule sets
- Limit which dates shifts can be used
- Manage rule sets
- Manage shift bags

Manage rule sets

Create rule sets to generate shifts based on the settings in the rule set. If you need to create a rule set which is similar to an existing rule set, use the copy function.

Select a rule set in the list to see all shifts in the rule set. The contract time for each shift is displayed to the left of the shift.

Gather the rule sets you have created in shift bags. Each rule set can be connected to more than one shift bag.

Prerequisites

- You have the Shifts permission.

Page location

Client > Shifts > Rule sets tab

Procedures

Create a rule set

Create a new rule set to generate shifts.

1. Click **New**.
2. Enter a **Name**.
3. Select the **Enter** key.

4. Click **Save** to save the changes.
5. Define the rule set settings to create basic shifts. See Create basic shifts.

Copy a rule set

To create a rule set which is similar to an existing one, use the copy function.

1. Click on the rule set to copy.
2. Click **Copy**.
3. Click **Paste**. A rule set with the same settings as the one you copied is added at the end of the list of rule sets.
4. Rename the rule set.
5. Adjust the settings that differ from the original rule set.
6. Click **Save** to save the changes.

Rename a rule set

Rename copied rule sets and rule sets that need a more descriptive name.

1. Select the rule set to rename.
2. Click **Rename**.
3. Enter the new name.
4. Select the **Enter** key.
5. Click **Save** to save the changes.

Delete a rule set

Delete rule sets which are no longer needed.

1. Select the rule set to delete.
2. Click **Delete**.
3. Click **Yes** to confirm.
4. Click **Save** to save the changes.

Add a rule set to a shift bag

Add the rule set you created to one or more shift bags or remove it from shift bags it should no longer be connected to.

1. Select the rule set.
2. Click **Manage rule set**s.
3. Select the check boxes for the shift bags to add the rule set to or clear the check boxes for the shift bags to remove the rule set from.
4. Click **OK**.
5. Click **Save** to save the changes.

Related topics

- Overview of creating shifts in the WFM client
- Create basic shifts
- Add activities to shifts
- Remove unwanted shifts from rule sets
- Limit which dates shifts can be used
- Limit which days of the week shifts can be used
- Manage shift bags

Manage shift bags

Create a shift bag and connect one or more rule sets to it. The shift bag then consists of the shifts from all the connected rule sets. When scheduling agents who are assigned this shift bag, they can be scheduled with any of those shifts.

Select a shift bag tab to visualize all the shifts it contains, and to list all the rule sets it is connected to. The rule sets can be reused in more than one shift bag.

Prerequisites

- You have the Shifts permission.
- You have created at least one rule set.

Page location

Client > Shifts > Bags tab

Procedures

Create a shift bag

Create a new shift bag and connect rule sets to it.

1. Click the **Bags** tab to ensure it is selected.
2. Click **New**.
3. Enter a name for the shift bag and select the **Enter** key.
4. Click **Manage rule sets**.
5. Select the check boxes for all rule sets to connect to the shift bag.
6. Click **OK**.
7. Click **Save** to save the changes.

Add or remove rule sets

Connect more rule sets to the shift bag or remove already connected rule sets.

1. Select the shift bag to work with.
2. Click **Manage rule sets**.
3. Select the check boxes for all rule sets to connect to the shift bag and clear the check boxes for the rule sets to remove.
4. Click **OK**.
5. Click **Save** to save the changes.

Copy a shift bag

Use the copy function to create a shift bag which is similar to an existing shift bag.

1. Select the shift bag to copy.
2. Click **Copy**.
3. Click **Paste**. A shift bag with the same connected rule sets as the shift bag you copied is added at the end of the list of shift bags.
4. Rename the shift bag.
5. Click **Manage rule sets**.

6. Select the check boxes for all rule sets to connect to the shift bag and clear the check boxes for the rule sets to remove.
7. Click **OK**.
8. Click **Save** to save the changes.

Rename a shift bag

Rename copied shift bags and shift bags that need a more descriptive name.

1. Select the shift bag to rename.
2. Click **Rename**.
3. Enter the new name.
4. Select the **Enter** key.
5. Click **Save** to save the changes.

Delete a shift bag

Delete shift bags which are no longer needed.

1. Select the shift bag to delete.
2. Click **Delete**.
3. Click **Yes** to confirm.
4. Click **Save** to save the changes.

Related topics

- Overview of creating shifts in the WFM client
- Create basic shifts
- Add activities to shifts
- Remove unwanted shifts from rule sets
- Limit which dates shifts can be used
- Limit which days of the week shifts can be used
- Manage rule sets

Create rotations

Create a rotation to schedule days off, shifts of certain shift categories or shifts with defined start or end times in a recurring pattern. The rotation pattern can extend over several weeks. Rotations are useful, for example, to schedule night shifts with day off directly after, as night shifts otherwise are difficult to schedule. They can also be useful to schedule agents to work weekends on a rotating schedule.

Create a rotation based on an agent's assigned time zone in the People module. When viewing schedules in the Schedules module, they will display the scheduler's time zone by default, but you can change the view point.

BEST PRACTICE Only specify the days in the rotation that are important and leave the other days. This leaves some flexibility for the automatic scheduling to schedule according to the resource need.

The rotations are assigned to agents in People, together with a date and a start week. The start week defines what week in the rotation is the first week for a specific agent. This makes it possible to use the same rotation, for example, to schedule agents to work every third weekend, but for different weekends.

EXAMPLE You create a four-week rotation. On the first five days of the rotation, you assign working days with the night shift category. The same rotation is assigned to all 20 agents in the team with the same start date, but they are given different start weeks. Each agent work nights one week out of four, and each week there are always five agents that work night shifts.

Prerequisites

- You have the Manage template and Rotations permissions.
- Shift categories are created.
- Days off are created.

Page location

WFM > People > Manage template > Rotations

Procedures

Create a rotation

1. Click **Create new rotation**.
2. Enter a rotation name and click **Save**. You can still edit the name after you click **Save**.

3. Define the number of **Weeks** for the rotation pattern.
4. For the days in the rotation where you want to control what to schedule, define one or more of these properties:

   NOTE Only specify the ones that are necessary.

   - Enter an **Early start time**, the earliest possible start time.
   - Enter a **Late start time**, the latest possible start time.
   - Enter an **Early end time**, the earliest possible end time.
   - Enter a **Late end time**, the latest possible end time. If the late end time is past midnight, select a time with +1 to indicate this.
   - Enter a **Min work time**, the shortest possible shift length in contract time.
   - Enter a **Max work time**, the longest possible shift length in contract time.
   - Select a **Shift category** if it is a work day and you want to control which type of shift can be scheduled.
   - Select a **Day off** if this day should be a day off and not a work day.
5. Click **Save**.
6. Continue by assigning the rotation to agents. See Assign rotations to agents for more information.

Delete a rotation

1. Click the trash can icon beside the rotation that you want to delete.
2. Click **OK**.

Related topics

- Assign rotations to agents
- Create agent availability patterns

Create agent availability patterns

Create agent availability patterns to handle recurring events where agents are not fully available to work. The availability patterns can extend over several weeks.

Availability patterns are useful for example to handle if an agent must leave early to pick up their kids from daycare on certain days of the week. They can also be useful to mark an agent as not available at all on Mondays, as they are taking some classes.

Only specify the days in the availability pattern where the agent is not fully available. This gives more flexibility for the automatic scheduling to schedule according to the resource need. All days in the availability pattern are days where the agent is available for work. This does not mean that they are scheduled to work all available days.

The availability is assigned to agents in People, together with a start date. The same availability pattern can be used for multiple agents.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Restrictions > Availability

Procedures

Create an availability pattern

1. Click **New availability**.
2. Enter a **Description** that defines what the availability pattern is used for.
3. Define the number of **Weeks** for the availability pattern.
4. For the days in the availability pattern where you want to limit the availability, define one or more of these properties. Leave the other days flexible.
    - Enter an **Early start time**, the earliest possible start time.
    - Enter a **Late end time**, the latest possible end time. If the late end time is past midnight, click the clock button to add "'+1'" to indicate this.
    - Enter a **Min work time**, the shortest possible shift length in contract time.
    - Enter a **Max work time**, the longest possible shift length in contract time.

5. Clear the **Available** check box for any day in the pattern where the agent is not available to work at all.
6. Click **Apply** to save.
7. Continue by assigning the availability pattern to agents. See Assign availability patterns to agents for more information.

Delete an availability pattern

1. Select the availability to delete in the **Select availability** menu.
2. Click **Delete** availability.
3. Click **Yes** to confirm.
4. Click **Apply** to save.

Related topics

- Assign availability patterns to agents
- Create rotations

Assign rotations to agents

Assign rotations to agents to schedule some of their shifts or days off according to a recurring pattern. The rotation pattern can be for one or several weeks. Usually, the rotation pattern only defines what to schedule for a few days of the period. The remaining days are scheduled flexibly.

The rotation periods have a start date but no end date. They are valid until the rotation period is deleted or until a new rotation period starts.

When you assign a rotation that extends over more than one week to the agents, you choose the start week for each agent. This means that different agents can be scheduled according to different weeks of the rotation pattern for the same calendar week.

Rotations are useful in many situations. These are some examples.

- To schedule a few night shifts and a following day off in a recurring pattern.
- To schedule a specific shift category in a recurring pattern, for example a shift with a non-skill activity.

- To schedule agents to work for example every third weekend, and to each weekend ensure that a third of the agents are working.
- To schedule days off in a recurring pattern.

To consider the rotations during scheduling and optimization of the schedule, the **Rotations** check box must be selected in the scheduling and optimization options.

Prerequisites

- You have the People permission and the underlying permissions Add person and Can change and save.
- The agent is added, basic information entered, and a person period and schedule period are defined. See Add or edit WFM agents manually, Manage WFM agent work rules, and Manage schedule periods.
- A rotation is created.

Page location

Client > People > Rotations tab

Procedures

Assign a rotation to the agents

Create a rotation period to assign a rotation to the agents.

1. Select the agents to assign a rotation to.
2. Click **New**.
3. Enter a start date for the rotation period in the **From** field. The start date is usually on the day of the week that is the first day of the work week, to make it easier to follow up on the rotations.
4. Select which **Rotation** to use. To ensure that the selected rotation has the pattern you intended or verify the pattern for each week, right-click the name of the rotation and select **LookUp**.
5. Select a **Start week** for the rotation.

This defines what week of the rotation to start on the start date of the rotation period. If you for example select to start with week 2 of a 3-week pattern, the week that starts with the start date is schedule with the pattern of week 2 of the 3-week pattern. The following week is scheduled according to week 3, then week 1 and so on.

6. Click **Save**.

Delete a rotation period

Delete the rotation period if you no longer want to schedule this agent according to the rotation.

1. Select the agents to delete the rotation period for.
2. Click **Delete**.
3. Click **Save**.

Related topics

- Create rotations
- Add or edit WFM agents manually
- Manage WFM agent work rules
- Manage schedule periods
- Assign availability patterns to agents

Assign availability patterns to agents

Assign availability patterns to agents to define days or time periods when the agent is or is not available to be scheduled. The same availability patterns can be used for several agents.

When you define that an agent is available to be scheduled, that does not mean that the agent must be scheduled to work for that day or time.

The availability periods have a start date but no end date. They are valid until the availability period is deleted or until a new availability period starts.

Availability patterns are useful in many situations. These are some examples.

- To not schedule shifts for an agent on Mondays as they are taking classes on Mondays.
- To schedule early shifts for some agents every other week, as they need to pick up the kids from daycare.

To consider the availability during scheduling and optimization of the schedule, the **Availability** check box must be selected in the scheduling and optimization options.

Prerequisites

- You have the People permission and the underlying permissions Add person and Can change and save.
- The agent is added, basic information entered, and a person period and schedule period are defined. See Add or edit WFM agents manually, Manage WFM agent work rules, and Manage schedule periods.
- An availability pattern is created.

Page location

Client > People > Person availability tab

Procedures

Assign availability patterns to agents

Create an availability period to assign an availability pattern to the agents.

1. Select the agents to assign an availability pattern to.
2. Click **New**.
3. Enter a start date for the availability period in the **From** field. The start date is usually on the day of the week that is the first day of the work week, to make it easier to follow up on the availability.
4. Select which **Availability** to use. To ensure that the selected availability has the pattern you intended or verify the pattern, right-click the name of the availability and select **LookUp**.
5. Click **Save**.

Delete an availability period

Delete the availability period if you no longer want to schedule this agent according to the availability.

1. Select the agents to delete the availability period for.
2. Click **Delete**.
3. Click **Save**.

Related topics

- Create agent availability patterns
- Add or edit WFM agents manually
- Manage WFM agent work rules
- Manage schedule periods
- Assign rotations to agents

Manage limitations on shift categories

Define limits on the number of shifts of a specific shift category that can be scheduled for an agent. The limit can be defined per week or per schedule period.

The shift category limitations are defined on the Schedule periods tab in the People module, but they do not apply to a specific schedule period. If shift category limitations are defined, they apply to all schedule periods for the agent.

Prerequisites

- You have the People permission and the underlying permissions Add person and Can change and save.
- The agent is added, basic information entered, and a person period defined. See Add or edit WFM agents manually and Manage WFM agent work rules.
- Shift categories are created.

Page location

Client > People > Schedule periods tab

Procedures

Define shift category limitations

NOTE The scheduler can choose to consider the defined shift category limitations or not when scheduling.

1. Select the agents to define limitations for.
2. Select the **Limit** check box for the shift category to limit.
3. Select the **Per period** or the **Per week** check box to define for which period to apply the limitation. Per period means per schedule period and per week means per calendar week.
4. Enter the maximum number of shifts of that shift category that can be scheduled for the selected period in the **Max** column. If you enter 0, no shifts of this category are scheduled.

Related topics

- Add or edit WFM agents manually
- Manage WFM agent work rules

Configure preferred working days and shifts

Rank all days of the week and all shift categories to define the working days and the shift categories that are considered preferred by the agents.

When seniority is used as the fairness calculation method, this ranking affects which shift category that is picked during the fairness optimization. The fairness optimization step will strive towards scheduling the more senior agents with the preferred shift categories and on the preferred working days. The seniority of an agent is calculated from their first person period in the People module.

Prerequisites

- You have the Options permission.
- Shift categories are created in Options > Scheduling > Shift category.

Page location

Client > Options > Scheduling > Seniority

Procedures

Change the shift category ranking

Change the order of the shift categories to rank them from best to worst.

1. Select a shift category.
2. Use the buttons **Top**, **Up**, **Down** or **Bottom** to move the shift category.
3. Click **Apply** to save.

Change the working day ranking

Change the order of the working days to rank them from best to worst.

1. Select a working day.
2. Use the buttons **Top**, **Up**, **Down** or **Bottom** to move the working day.
3. Click **Apply** to save.

Related topics

- How schedule optimization works

Manage workflow control sets

Workflow control sets are rules that mainly define when agents can perform certain tasks and what rules and validations to apply for those tasks.

Create new workflow control sets, select which workflow control set to edit, and delete workflow control sets that are no longer in use in the top section of the workflow control set view.

Create a separate workflow control set for each group of agents that you want to set up unique rules for. For example, set up separate workflow control sets for fixed employees and hourly employees or for agents in two different countries where different labor laws apply.

Prerequisites

- You have the Options permission.

Page Location

Client > Options > Scheduling > Workflow control set

Procedures

Create a new workflow control set

1. Click on **New** in the top section of the page to add a new workflow control set.
2. Add a **Description** for the set.
3. Continue to add settings in the various tabs.
    - Basic, see Set up basic workflow control set rules
    - Absence requests, see Create rules to handle absence requests.
    - Shift trade requests, see Create rules to handle shift trade requests.
    - Overtime requests, see Create rules to handle overtime requests.
    - Self-scheduling, see Create rules to handle self-scheduling.
4. Click **Apply** to save. Connect the workflow control set to the agents in People to use these rules for them.

Delete a workflow control set

Delete workflow control sets that are no longer in use.

1. Select the workflow control set to delete from the list.
2. Click **Delete** in the top section of the page.
3. Click **Yes** to confirm.
4. Click **Apply** to save.

Related topics

- Set up basic workflow control set rules
- Create rules to handle absence requests
- Create rules to handle shift trade requests
- Create rules to handle overtime requests
- Create rules to handle self-scheduling

Set up basic workflow control set rules

Use the settings on the **Basic** tab in the workflow control set to control when and how agents can use some of the functionality in MyTime.

- After how many days the agents' schedule is automatically write-protected.
- How far agents can see their schedule.
- When agents can enter what days and times they are available for work.
- When and how agents can enter preferences on how to work.
- What absence types agents can use to report illness with absence reporting.
- What fairness system to use when optimizing agents' schedules based on fairness.

IMPORTANT Always select the workflow control set you want to work with before making any changes.

Prerequisites

- You have the Options permission.
- Activities, shift categories, days off and absences must be created to set up rules for preferences.
- Absences must be created to set up rules for absence reporting.

Page location

Client > Options > Scheduling > Workflow control set > Basic tab

Procedures

Enable automatic write protection

Enable automatic write protection of agents' schedules when the schedules are older than the given number of days. The write protection of agent's schedules, as defined in the workflow control set, uses the agent's timezone to determine whether a particular schedule should be write-protected.

NOTE Users with the Global functions > Modify write protected schedule permission can still modify the schedule.

1. Enter after how many days to **Write protect schedules**.

   Write protection can be added manually in Schedules. If you don't want to add write-protection automatically, leave this field empty.

2. Click **Apply** to save.

> **NOTE** The write protection settings can impact an agent's ability to use self-scheduling and absence requests. For self-scheduling to allow agents to move their break or lunch for today, the write protection setting must be set to 1 or greater and cannot be left at 0.
> The write protection setting is based on the day a shift starts for an agent in their local time zone which can impact how absence requests are handled. For example, if write protection is set to 1 day and an agent works an overnight shift, starting Thursday 8:00 PM to Friday 7:00 AM+1, they cannot request an absence for Friday morning once the midnight threshold passes. In this case the agent could request a same-day absence request on Thursday between 8:00 PM and midnight, but they will not be able to submit a same-day request once Friday has started. This is because the write protection is protecting any shift starting 1 day ago.

Publish schedules

Set a schedule publishing date to define up until when schedules are visible to agents. This is an end date. Schedules later than this date are only visible to users with the Global Functions > View unpublished schedules permission. If there is no publish date set, no schedule is published.

> **NOTE** During the open period for preferences, all pre-scheduled days off, shifts, activities and absences which are in the default scenario and within the preference period are visible to the agents in MyTime. The purpose of showing this information to the agents is that they can use this information to adapt their preferences accordingly.

Publishing schedules can also be done in Schedules.

1. Define an end date to **Publish schedules to**.
2. Click **Apply** to save.

Open a period for agents to enter hourly availability

Define an availability period for which the agents enter when they are available to work. Then define the open period, which is when the agents can enter those availabilities. Hourly availability is mainly used for hourly employees but can also be used for flexible agents on fixed contracts.

> **EXAMPLE** The agents can enter their availabilities for the availability period in March during the open period in January.

1. Define an **Availability period**, with a start date and an end date. This is the period for which agents enter when they are available to work.
2. Define an **Open period** for availabilities, with a start date and an end date. This is the period when agents can enter their availability.
3. Click **Apply** to save.

Open a period for agents to enter preferences on how to work

The preference period is the period to add preferences for, and the open period is the period when those preferences can be entered.

EXAMPLE The agents can enter their preferences for the preference period in June during the open period in April.

1. Define a **Preference period**, with a start date and an end date. This is the period for which agents enter how they prefer to work.
2. Define an **Open period** for preferences, with a start date and an end date. This is the period when agents can enter their preferences.
3. Click **Apply** to save.

NOTE All pre-scheduled days off, shifts, activities and absences which are in the default scenario and within the preference period are visible to the agents in MyTime. This can be for example important meetings or training sessions, or shifts on extra important days, like New Year's Eve. The agents can then adapt their preferences based on this information. When the period for which the agents added preferences is later published, the agents can compare their preferences to the schedule.

Select which days off, shift categories, and absences to use for preferences

There are often multiple days off, shift categories, and absences with different settings and to be used in different situations. Decide which ones agents can use in their preferences.

1. Select days off in the **Not available** field and use the arrows to move them to the **Available** field to make these **Days off available for preferences**.
2. Select shift categories in the **Not available** field and use the arrows to move them to the **Available** field to make these **Shift categories available for preferences**.
3. Select absences in the **Not available** field and use the arrows to move them to the **Available** field to make these **Absences available for preferences**.

> **EXAMPLE** Enabling agents to enter preferences on absences can be used for vacation or holiday periods, where the normal process of requesting time away does not work. Use preferences to get all agents' input on when they would prefer to have their vacation. Resource planners can then schedule these absences to get a good overview of the distribution, validate it according to the forecasted need and adjust if necessary.

4. Click **Apply** to save.

Select which activity agents can set specific preferences for

Use this setting to define for which activity agents can enter preferences on start time, end time and length. This is often used to let agents influence when and for how long they have lunch.

> **NOTE** The agents need to have the MyTime > Extended preferences permission to enter preferences for a specific activity.

1. Select the activity agents can enter preferences for in the **Activity available for extended preferences** section.
2. Click **Apply** to save.

Select absences agents can use to report that they are absent

Select which absences agents can use to report that they cannot work using the absence reporting functionality. This is commonly used for agents to report that they are ill. Absence reporting is only available for today and tomorrow, and only for full-day absences.

> **NOTE** Do not use absence reporting for absence types for which the balance is tracked through personal accounts. When reporting absences, the personal account balance is not checked before adding the absence.

1. Select absences in the **Not available** field and use the arrows to move them to the **Available** field to make these **Allowed absences for absence reporting**.
2. Click **Apply** to save.

Select how to calculate fairness

The fairness system is used to define how fairness is calculated when optimizing agent schedules based on fairness.

1. Select **Fairness system** to be used when optimizing schedules.
    - The **Equal of each shift category** option will work towards achieving a balance where all agents have the same number of shifts of the different shift category. This can be used for example to balance the number of late shifts.
    - The **Seniority** option will work towards giving preferred shift categories and workdays to agents with higher seniority. Preferred shift categories and workdays are defined in Options > Scheduling > Seniority.
2. Click **Apply** to save.

NOTE Do not use fairness optimization in combination with agent preferences. When using preferences, use the preference fulfillment measure for follow-up.

Related topics

- Publish schedules
- Configure preferred working days and shifts
- Create rules to handle absence requests
- Create rules to handle shift trade requests
- Create rules to handle overtime requests
- Create rules to handle self-scheduling

Create rules to handle absence requests

Save time by handling the validation of all or most absence requests automatically. The settings available on the Absence Request tab of the workflow control set allow you to define when an absence request should be automatically approved, when it should be automatically denied or waitlisted and when it should be handled manually.

Create more than one workflow control set to set up different rules for different groups of agents.

IMPORTANT Always select the workflow control set you want to work with before making any changes.

Prerequisites

- You have the Options > Absence request permission.

Page location

Client > Options > Scheduling > Workflow control set > Absence requests tab

Procedures

Enable functionality and set limits for absence requests

Define if you want to enable waitlisting and absence probability and set limits for how late absence requests can be cancelled and how late they can be approved.

1. Click the arrow to open the **Miscellaneous** section.
2. Select the **Enable waiting list** check box to enable waitlisting. Choose if the waiting list processing order should be **First come first served** or based on **Seniority**.

   NOTE For the waiting list to work, **Auto grant** must be enabled. If **Auto grant** is not enabled and the staffing check fails, the absence requests are denied.

3. Select the **Absence probability** check box to enable absence probability based on staffing to be shown to the agents.
4. Enter the number of days in the **Number of days before absence date that absences may be canceled** field to define how far in advance an absence request must be canceled.

   NOTE This setting only applies to when agents cancel their own requests, not if it's done by a supervisor.

5. Enter the number of minutes in the **Minimum approval time threshold** field to define how close to the absence time an absence request can be approved. The recommended lowest value that you should set is 15 minutes. The highest value you can set is 1440 minutes (24 h).

   EXAMPLE If the threshold is set to 30 minutes and the agent wants to start their absence at 11:00, they need to send their request before 10:30. If it is sent later than that, it will be automatically denied.

   NOTE Waitlisted requests which are still not approved when this threshold value is exceeded will be automatically denied.

6. Enter a time in the **Open start and end time in UTC** field.
7. Click **Apply** to save the changes.

Deny absence requests that overlap with certain activities

Use this to ensure that agents are not absent from important activities which are not skill-related, like training. The absence requests will be automatically denied if the agent is scheduled with any of the blocked activities during the requested absence time.

1. Click the arrow to open the **Activities** section.
2. Select the activities to block for absences in the list of **Activities**.
3. Move them to the list of **Blocked activities** by using the arrows.
4. Click **Apply** to save the changes.

Open a period for absence requests and choose the validations to use

A period needs to be open for agents to get absence requests approved. Define for each open request period how to handle those requests, for example automatically or manually, and by checking intraday staffing or budget allowance.

Create rules for each absence type used for requests. The visualization at the top of the tab shows the open period for each type.

NOTE Requests are automatically denied if the period is not open for requests or if any of the set conditions are not met. This is regardless of if the auto grant function is disabled or enabled.

1. Ensure the **Open for absence requests** section is open.
2. Click on **New** in the **Open for absence requests** section to create a new rule.
3. Select a period **Type**; **From-to** period or **Rolling** period.

   From-to periods are useful to for example open for requests until a certain date or to set special rules for a specific period.

   Rolling periods are useful to for example have specific rules for the next 7 days.
4. Select the **Absence** type this rule is for.
5. Select if you want to automatically check the agent's **Personal account**.
6. Select if you want to automatically validate on **Staffing**.

See How absence request validation works for more information.

7. Select to **Auto grant** the absence requests that pass all validations.
    - Set **No** to send the requests through to be manually approved or denied.
    - Set **Yes** to automatically approve requests that pass all validations.
    - Set **Deny** to automatically deny all requests for this absence type for this period.
8. Decide for which **Period** agents can request to have time off:
    - For from-to periods, select a start date and an end date.
    - For rolling periods, define days relative to the current date.

    EXAMPLE If you set 0 to 14, agents can request to be absent today and 14 days forward.
9. Define the **Open** period, that is the period when the agents can send requests, by setting a start date and an end date.
10. (Optional) Enter a **Minimum duration** and **Increments**. The minimum duration is the minimum length of time for absence requests. The increments are in intervals of 5, but with this feature you can set it to other interval numbers.

    NOTE Increments must be smaller or equal to the minimum duration. The minimum duration must be evenly divisible by the increments.
11. Repeat the steps above to create as many rules as needed.
12. Click **Apply** to save the changes.

    NOTE For Grant, the chatbot, to prompt agents with absence availability, there must be one absence type where the staffing check is set to intraday and is open for today and tomorrow.

Change the order in which rules are applied

Change the order of the rules to decide in which order the absence request validation rules are applied. They are always applied from the bottom up, that is the lower rules override the ones at the top of the table. See How absence request validation works for more information on priority of rules.

1. Select a row in the rule table.
2. Right-click the selected row and select to:

- **Move up** to lower priority.
- **Move down** to increase priority.

3. Click **Apply** to save the changes.

Delete an absence request validation rule

A rule can be deleted if the period of a rule has passed or the rule for some other reason no longer is needed.

1. Select a row in the rule table.
2. Right-click and select **Delete**.
3. Click **Yes** to confirm.
4. Click **Apply** to save the changes.

Related topics

- How absence request validation works
- How waitlisting absence requests works
- Review absence and text requests
- How using budget allowance works
- Create allowances for absence requests
- Review allowance when approving absence requests
- Set up basic workflow control set rules

How absence request validation works

Absence requests can be validated and approved or denied automatically, manually, or using a combination of both automatic and manual validation. There are several automatic validations available. Requests that do not pass the validations are denied. You can decide if the requests that pass all automatic validations should be automatically approved, or if you want to review and approve them manually. When an absence request is approved, the absence is automatically added to the agent's schedule.

All absence request validation settings are managed in Options > Scheduling > Workflow control set > Absence requests tab. You can set up different rules for different groups of agents by using more than one workflow control set.

Priority

The validation of a request is done in the priority order of the rules which are set up. The rules are always applied from the bottom up; that is, the lower rules override the ones at the top of the table. You can change the priority by changing the order of the rules.

When an absence request arrives, the validation process checks the rule at the bottom first. If that rule matches the request, the request is validated according to that rule. For a rule to match a request, the absence type must be the same, the absence request must be within the request period and today's date must be within the open period. If the first rule doesn't match the request, the validation process will go on to check if the rule above it is a match, and so on. If there is no rule that matches the request, the request is denied.

> **NOTE** The priority can affect the absence probability. When setting up rules for a time period, ensure that the rules for absence types where a staffing check is used are placed lower in the table than rules for absence types where no staffing check is used. Otherwise, the absence probability is not shown for the agents.

Period

When working with absence requests you need to define the request period, for which the agents can request to be absent, and the open period, when those requests can be sent. If an agent sends an absence request for a period which is currently not open, the request is denied.

From-to period

A from-to period is a specific date period, with a start date and an end date, for which agents can request to be absent.

> **EXAMPLE** This can be used to open June to August for vacation requests or to handle the Christmas period with special rules for approval.

Rolling period

A rolling period is a period that moves in relation to the current date and defines when agents can request to be absent.

> **EXAMPLE** If the rolling period is set from 0 to 14 days, absence requests for today and the following 14 days are handled.

Open period

The open period is the period during which agents can send their absence requests. An open period must always be set, regardless of if the request period is a from-to period or a rolling period.

> **EXAMPLE** The agents can send their vacation requests for the request period of June during the open period in April.

Type of absence

The setting for type of absence makes it possible for you to set up different rules for different types of absences. You can also use the same absence type in more than one rule if they are valid for different request periods or open periods.

> **EXAMPLE** For annual leave you use a longer request period, but only the next two weeks are open for requests to leave early.

Personal account check

Set up personal accounts for the agents in People to view their balance for different types of absences. The personal accounts can be used as a validation when automatically approving absence requests.

When enabled, the automatic validation of the absence requests checks if there are enough days or hours in the agent's personal account balance for the requested absence type. If there is not, the request is denied.

Staffing Check

By enabling the staffing check, the absence request validation ensures that absence requests are denied or waitlisted if they affect the staffing more than the given limit.

There are two main options for automatic validation on staffing; to validate based on actual intraday staffing or on budget allowance, both described below. If you don't want to use any automatic staffing check, select **No**.

Intraday and Intraday with shrinkage

When using intraday staffing for automatic approval of absence requests, the absence request validation checks if there are any intervals that are *critically* understaffed and if the percentage of intervals that are understaffed is higher than what is allowed by the skill understaffing tolerance. If one of those are true, the absence request is denied.

With the **Intraday** option, the validation is done using actual staffing values. With the **Intraday with shrinkage** option, the validation is done using staffing values including shrinkage. This means the **Intraday** option is generally more suited for the near future, where you have a very good understanding of the staffing situation, and the **Intraday with shrinkage** option is more suited for absence requests a little bit further into the future, where you want to keep the margin that the shrinkage gives.

The intraday staffing validation, with and without shrinkage, only checks the staffing situation on the agent's personal skills. If any of the agent's skills fail the staffing check, the request is denied or waitlisted regardless of if the agent is scheduled on an overstaffed skill or even a non-skill activity.

If the agent's skills are closed on the day of the absence request, the request will always pass the staffing check. The same is true for when the agent is scheduled with a day off or not scheduled at all.

New requests which are for a period shorter than 24h and within the next 14 days are processed immediately.

For new requests which are longer or for a period more than 14 days away, a few simple validations are performed directly. For example, there are checks to ensure that the agent has enough hours or days in the personal account (if this is used) and that the agent does not already have an absence at that time. If the request passes those validations, the request is put on a request queue, which is being processed regularly. How quickly an absence request on the request queue is handled depends on the load of the system. If the load is normal it should be handled within 15 minutes. When a request is processed, it is either approved, denied or waitlisted.

NOTE The staffing check compares against the staffing in the web, which does not take agent proficiencies into consideration.

Budget group and Budget group head count

When using allowance for automatic approval of absence requests, the absence request validation checks the Allowance after threshold value in the budget and denies or waitlists the absence request if the threshold is already exceeded or if approval of this request would cause it to be exceeded.

With the **Budget group** option, the used allowance is calculated based on how many FTEs, Full-Time Equivalents, the absences correspond to in total. This means that if the FTE is 8 h per day and an agent is absent for 4 h, that is 0,5 FTE. The **Budget group** option only counts absences on workdays. This option is generally used for periods where there is a published schedule.

With the **Budget group head count** option, an agent who is away always counts as 1 FTE, regardless of if they are absent 1 h or 8 h and regardless of if it's on a workday or a day off. The total used allowance on a day is therefore the same as the number of people with an absence (which is connected to the budget group) on that day. This is generally used for periods where the schedule is not published.

NOTE

If there is no saved schedule, the system will use the agent's contract schedule to determine which requested days that should be checked against the budget group. For example, if an unscheduled agent has a contract schedule for workdays from Monday to Friday and days off on Saturday and Sunday, any requests placed on Saturdays and Sundays will be handled as follows:

- Budget group option—Always approved
- Budget group headcount option—Checked against the budget allowance for the agent's budget group

If all skills included in the budget group are closed on the requested day, the absence request always passes the staffing validation.

New requests which are for a period shorter than 24 h and within the next 14 days will be processed immediately.

For new requests which are longer or for a period more than 14 days away, a few basic validations are performed directly for any new request, similarly to when using intraday staffing check. If the request passes those validations, it ends up on a request queue which is processed regularly. How quickly the request is handled depends on the load of the system. If the load is normal it should be handled within 15 minutes. When an absence request is processed, it is either approved, denied or waitlisted.

Automatic approval

Set **Auto grant** to **Yes** to allow absence requests that have passed all automatic validations to be automatically approved.

Set **Auto grant** to **No** to send all absence requests that have passed all the automatic validations to manual approval.

> **NOTE** Even if you are not using automatic approval, a request that doesn't pass the automatic validations is still automatically denied.

If you for a certain period within a longer request period want to deny all requests, for example because it is a peak period for your business, you can create a special rule with a higher priority and set **Auto grant** to **Deny**.

Related topics

- How waitlisting absence requests works
- Create rules to handle absence requests
- Review absence and text requests
- Review allowance when approving absence requests
- How using budget allowance works

How waitlisting absence requests works

This section provides you with more information on how the absence request waiting list works, and how and when it is processed.

To learn more about the initial validation of absence requests, after which a request might end up on the waiting list, see How absence request validation works.

> **NOTE** An agent can have multiple waitlisted requests for the same day because Calabrio ONE does not check for an existing request. It only checks for a pre-existing absence.

Waiting list

An absence request can be waitlisted if it currently cannot be approved, either because of understaffing or because there is not enough budget allowance.

For the agent, this request is shown as **Waitlisted** with a waiting list position. The position indicates the order in which the requests on the waiting list are validated. This does not mean that the request with waiting list position 1 will always be approved before the request with position 2. Each request are validated according to all the defined validations and the defined type of staffing check for that request.

> **NOTE** If the agent who sent the absence request does not have enough hours or days in their personal account, the absence request is immediately denied instead of waitlisted.

Configuration

You can enable the waiting list functionality in the absence request settings in the workflow control set. It is useful when validating absence requests with any automatic staffing check, that is when the rules are set to check budget allowance or to check intraday staffing based on the skill thresholds settings.

You can choose to process the waiting list based on first come first served principles or based on seniority.

> **NOTE** **Auto grant** must be enabled for the waiting list to work. If auto grant is not enabled and the staffing check fails, the absence requests are denied.

Processing of the waiting list

The waiting list is processed regularly. This process approves requests based on the settings in the workflow control set and the intraday staffing or the allowance situation. The waiting list for absence requests within the next 14 days is processed regularly. The waiting list for absence requests for periods more than 14 days from now is only processed automatically when certain events trigger that process. This is detailed in the sections below.

In the Requests tool there is also a possibility to manually start the processing of the waiting list for a selected period.

Requests within 0-14 days from now

Absence requests for a period shorter than 24 h and within the near future (0—14 days from now) are validated immediately when they are sent. If a request cannot be approved, because of understaffing or insufficient budget allowance, it is waitlisted, if the waiting list is enabled. If there are already other waitlisted requests for the same period in the same budget group, the request is placed on the waiting list directly.

The waiting list for requests within the next 14 days is processed once every hour.

There is a threshold setting for how close an absence request can be approved, in relation to the time when the absence is supposed to start. Absence requests which are still waitlisted when this threshold is exceeded are automatically denied. See Create rules to handle absence requests for more information about the **Minimal approval time threshold**.

Requests more than 14 days from now

Absence requests that are for a period more than 14 days from now or that are longer than 24 h are shown as pending until the request queue is processed. If a request cannot be approved, because of understaffing or insufficient budget allowance, it is waitlisted, if the waiting list is enabled.

The waiting list for requests that are for a period more than 14 days from now is processed every time a new absence request for the same period arrives or when an approved absence request for that period is canceled.

If changes are made for example to the forecast or budget allowance, this does not trigger the waitlist process. Initiate the waitlist process manually in the Requests tool if needed. See Review absence and text requests for more information.

Related topics

- How absence request validation works
- Create rules to handle absence requests
- Review absence and text requests
- How using budget allowance works
- Review allowance when approving absence requests

Absence probability overview

There are two types of absence probability that indicate to agents how likely they are to get an absence request approved.

- The staffing bars shown next to the shifts are based on intraday staffing levels and the agent's active skill settings in People module. They are shown in the MyTime schedule week view and in the absence request view which agents reach when clicking the pen icon.
- The "traffic lights" shown as small containers at the top of each day are based on budget allowance. They are shown in the MyTime schedule week view.

NOTE The priority of the absence request validation rules in the workflow control set can affect the absence probability. When setting up rules for a time period, ensure that the rules for absence types where a staffing check is used are placed lower in the table than rules for absence types where no staffing check is used. Otherwise, the absence probability is not shown for the agents.

Based on intraday staffing levels

The absence probability that is based on staffing levels gives the agent information on the staffing situation. It indicates for each interval of the shift how likely it is to get an absence request approved.

NOTE The staffing-based absence probability is shown on interval level. The interval length is the shortest interval length of the agent's skills, for example 15 minutes.

The staffing-based absence probability is displayed as a vertical bar to the right of the agent's shifts in the MyTime schedule week view and in the day view in the MyTime app. It can be shown for today and 48 days forward.

The colors of the bar indicate the probability.

- Green indicates that the agent's skills are overstaffed. There is a high chance of getting an absence request approved.
- Yellow indicates that the agent's skills are not overstaffed. The chance of getting an absence request approved is very low.

Configuration

The following needs to be in place for the staffing-based absence probability to be displayed.

- The absence probability is enabled on the **Absence requests** tab in the agent's workflow control set.
- At least one absence type is open for requests and has the check staffing setting set to **Intraday** or **Intraday with shrinkage**.
- For the absence probability to show in the week view, the agent also needs to have the View staffing info permission.

EXAMPLE

In some cases, the agent's scheduled activity (whether it is a skill activity or not) might impact the staffing information. In both situations below the two agents, agent A and agent B have identical skill settings. Agent A is scheduled with a skill activity, agent B is scheduled with a non-skill activity.

Situation 1: The skill is understaffed.

- Agent A sees a low (yellow) probability because the skill is already understaffed and will be even more understaffed if agent A is absent.
- Agent B sees a low (yellow) probability because the skill is already understaffed, and agent B could be a resource for that skill.

Situation 2: The skill is slightly overstaffed.

- Agent A sees a low (yellow) probability because the skill would be understaffed if agent A would be absent.
- Agent B sees a high (green) probability because the skill would still be slightly overstaffed if agent B would be absent.

Based on budget allowance

The absence probability that is based on budget allowance gives the agent information on the allowance levels. It indicates on day level how likely it is to get an absence request approved.

The allowance-based absence probability is displayed as small containers below the date header in the MyTime schedule week view and in the day view in the MyTime app. The colors and how much the container is filled indicate how much allowance there is left.

- A green, almost filled container indicates that the remaining allowance is more than or equal to 30% and more than or equal to 2 agents.
- A yellow, half-filled container indicates that the remaining allowance is more than or equal to 1 agent.
- A red, almost empty container indicates that the remaining allowance is less than 1 agent, or that the day is not open for requests.

NOTE The remaining allowance is calculated differently depending on if the staffing check type is set to Budget group or Budget group head count.

Configuration

The following needs to be in place for the allowance-based absence probability to be displayed.

- At least one absence type is open for requests and has the check staffing setting set to **Budget group** or **Budget group head count**.
- There is a budget with budget allowance created and where the absence type is added as a shrinkage and included in the request allowance.
- The agent is connected to the budget group.

Related topics

- Request time off
- Overtime probability overview

Create rules to handle overtime requests

Handle the validation of all or most overtime requests automatically to make overtime administration easier. Use the settings on the Overtime manager tab of the workflow control set to define when an overtime request should be automatically approved, when it should be automatically denied and when it should be handled manually.

Create more than one workflow control set to create different rules for different groups of agents.

NOTE
Regardless of the settings, the overtime request validation always checks the following things.

- That there is an open period for overtime requests.
- That the schedule is published for the request period.
- That the site open hours are not broken.
- That the start time of the request is at least 15 minutes later than current time.

If any of these rules are broken, the request is denied.

IMPORTANT Always select the workflow control set you want to work with before making any changes.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Scheduling > Workflow control set > Overtime manager tab

Procedures

Choose how to check staffing for overtime requests

1. Select the **Overtime staffing check method** to use in the menu.

   When using Intraday or Intraday with shrinkage, an overtime request passes the staffing check if at least one of the agent's skills is critically understaffed for each request interval. Select No if you don't want to use any staffing check at all.

   NOTE The staffing check compares against the staffing in the web, which does not take agent proficiencies into consideration.

2. Click **Apply** to save.

Enable for agents to see when overtime work is needed

1. Select the **Enable overtime probability** check box to let agents see staffing information that shows them when overtime work is needed.
2. Click **Apply** to save.

NOTE For agents to see the overtime probability in their schedule, they also need the View staffing info permission. If overtime probability is enabled and no staffing check is used, high probability is shown for all intervals.

Set a limit for how much overtime an agent can work

1. Select the **Maximum overtime** check box.
2. Choose to set the limit per month, week or day.
3. Enter the maximum number of overtime hours for the selected period.
4. Use the **When validation fails** menu to define how to handle a request that causes the total hours of overtime to exceed the maximum; deny or send to the administrators for manual handling.
5. Click **Apply** to save.

NOTE The maximum overtime setting is only valid for overtime requests. It will not have any effect for example when scheduling overtime in the Schedules module. The maximum time limit is for approved overtime, not requested overtime. For example, if the maximum overtime is set to eight hours per week, an agent can request above the eight hours if requests are not set to auto-approve and are in a pending status. The eight hour rule applies after you add eight hours to the schedule.

Add an overtime request validation for maximum continuous work time

1. Select the **Maximum continuous work time** check box and enter the maximum number of continuous work hours.
2. Enter the **Minimum rest time**.
3. The minimum rest time defines the shortest duration of a break for it to be considered as a break when validating on maximum continuous work time. The minimum rest time validation requires that the **Report as** setting is set to either Lunch or Short break for the break activities.

   EXAMPLE An agent's shift ends at 17:00. Her lunch break is from 12:00 to 13:00 and her last break is from 14:45 to 15:00. The maximum continuous work time is 4:00 hours. The agent requests to work overtime from 17:00 to 19:00. This can be approved automatically if the minimum rest time is 15 minutes or less. If the minimum rest time is set to 30 minutes, the 15-minute break is disregarded and the maximum continuous work time is exceeded.
4. Use the **When validation fails** menu to define how to handle a request that causes the number of continuous work hours to exceed the maximum; deny or send to the administrators for manual handling.
5. Click **Apply** to save.

Set a minimum lunch time

Use this setting to ensure that agents still have enough time for lunch even if they request to work overtime for parts of their lunch.

NOTE The minimum lunch time validation requires that the **Report as** setting is set to Lunch for the lunch activity.

1. Select the **Minimum continuous lunch time** check box.
2. Enter the minimum continuous lunch time.
3. Click **Apply** to save.

Define how close to the overtime that an agent can cancel it

If given the permissions, agents can cancel their overtime requests. This setting controls how far in advance they need to cancel it.

NOTE This setting only applies to when agents cancel their own overtime requests, not if it's done by a supervisor.

- Enter the number of hours in the **Minimum hours before overtime that a request may be canceled** field.

Open a period for overtime requests and enable work rule validations

A period needs to be open for agents to get overtime requests approved. Define for each open request period how to handle those requests, for example automatically or manually, and for which skills.

NOTE If you set up more than one row for a skill or channel type, with periods overlapping each other, the lower row has higher priority. See below for how to change the row order.

1. Click on **New** in the Open for overtime requests area to create a new rule.
2. Select a period **Type**; **From-to** period or **Rolling** period.
    - **From-to** periods are useful to for example open for requests until a certain date or to set special rules for a specific period.
    - **Rolling** periods are useful to for example have specific rules for the next 7 days.
3. Select to **Automatically grant** the overtime requests that pass all validations.
    - Set **No** to send the requests through to be manually approved or denied.
    - Set **Yes** to automatically approve requests that pass all validations.
    - Set **Deny** to automatically deny all overtime requests for this period.

      NOTE For Grant, the chatbot, to prompt agents with overtime options, auto-grant must be set to yes and there must be a period open for today.
4. Select the **Enabled** check box if you want to enable contract work rule validations.

   If enabled, the validation will check if the overtime requests break the maximum weekly work time, the nightly rest time or the weekly rest time according to the agent's contract.

5. If the contract work rule validation is enabled, use the **When validation fails** menu to define how to handle a request that breaks any of the work rules; deny or send to the administrators for manual handling.
6. Select for which **Skill** types or specific skills these rules apply.

   Currently overtime requests can be used for skills of the types Inbound Telephony, Email, Chat, and Backoffice skills. If several skills are chosen and the agent has more than one of these skills in their skill set, the skill activity for the most understaffed of these skills will be scheduled as overtime.
7. For from-to periods, enter a **Start** and **End** date to define the request period.
8. For rolling periods, enter a **Start** and **End** day relative to the current date to define the request period.

   For overtime requests, the request period can maximum be open 48 days forward from today. If the request period you set is more than 48 days from today, the field turns yellow to indicate that it is not valid.
9. Click **Apply** to save.

Change the order in which rules are applied

Change the order of the rules to decide in which order the overtime request validation rules are applied. They are always applied from the bottom up, that is the lower rules override the ones at the top of the table.

1. Select a row in the rule table.
2. Right-click the selected row and select to:
   - **Move up** to lower priority.
   - **Move down** to increase priority.
3. Click **Apply** to save.

Delete an overtime request validation rule

A rule can be deleted if the period of a rule has passed or the rule for some other reason no longer is needed.

1. Select a row in the rule table.
2. Right-click and select **Delete**.
3. Click **Yes** to confirm.
4. Click **Apply** to save.

Related topics

- Review overtime requests
- Set up basic workflow control set rules

Overtime probability overview

The overtime probability gives the agent information on the staffing situation. It indicates for each interval of the shift how likely it is to get an overtime request approved.

NOTE The overtime probability is shown on interval level. The interval length is the shortest interval length of the agent's skills, for example 15 minutes.

The overtime probability is displayed as a vertical bar to the right of the agent's shifts in the MyTime schedule week view and in the overtime request view which agents reach when clicking the pen icon. It can be shown for today and 48 days forward.

The colors of the bar indicate the probability.

- Green indicates that the agent's skills are critically understaffed (or in rare cases that the overtime staffing check method is set to No). There is a high chance of getting an overtime request approved.
- Yellow indicates that the agent's skills are not critically understaffed. The chance of getting an overtime request approved is low.

Configuration

The following needs to be in place for the overtime probability to be displayed.

- The overtime probability is enabled on the **Overtime requests** tab in the agent's workflow control set.
- There is an open period for overtime requests and the staffing check method is **Intraday** or **Intraday with shrinkage**. If the staffing check method is set to **No**, the overtime probability will always show as high probability.
- For the overtime probability to show in the week view, the agent also needs to have the View staffing info permission.

Related topics

- Request to work extra hours
- Absence probability overview

Create rules to handle self-scheduling

Agents can use self-scheduling to move their own lunches and breaks and to add their own work hours. Define what validations to use for self-scheduling on the Self-scheduling tab in the workflow control set in Options.

Read more about the validations for adding hours in How adding hours works and for moving lunches and breaks in How moving lunches and short breaks works.

IMPORTANT Always select the workflow control set you want to work with before making any changes.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Scheduling > Workflow control set > Self-scheduling tab

Procedures

Set a limit for how long agents can work without a lunch break

Use the limit for max work time without lunch to define the maximum number of hours an agent can work without a lunch break. This setting applies to both the move lunch feature and the add hours feature.

NOTE The maximum work time without lunch validation requires that the **Report as** setting is set to **Lunch** for the lunch activity.

1. Select the **Maximum work time without lunch** check box.
2. Define the maximum time that the agent can work without a lunch break. You must add the maximum work time without a lunch break in five minute increments.

> **EXAMPLE** The max working time without lunch setting is set to 5:00 h. This means that the latest start time of the lunch is 5 h from the start of the shift, and the earliest end time of the lunch is 5 h from the end of the shift.

> **NOTE** When adding hours, the maximum work time without lunch validation applies to both the block of time that the agent is currently adding and any previously scheduled work time which is adjacent to the new block. If a lunch needs to be added, it is placed within the new block of time. Only one lunch can be added each time.

3. Click **Apply** to save.

Manage rules for moving lunches and short breaks

The rules for moving lunches and short breaks control which moves that are allowed and which moves that are blocked for the users.

1. Select the **Minimum continuous work time** check box to ensure that agents cannot move their lunches or short breaks too close to the start or end of the shift or to other breaks.
2. Define the minimum time of continuous work time.

> **EXAMPLE** The minimum continuous work time setting is set to 1:00 h. If the agent starts their shift at 8:00 AM, the earliest possible time they can place their short break is at 9:00 AM.

3. Select the **Check overstaffing** check box to block moves of lunches and breaks where the skills already exceed the overstaffing limit and where the move causes it to exceed the overstaffing limit.
4. Select the **Check understaffing** check box to block moves of lunches and breaks where the skills already exceed the understaffing limit and where the move causes it to exceed the understaffing limit.
5. Click **Apply** to save.

Manage rules for adding hours

The rules for adding hours control when agents can add hours, what the staffing limitations are, and if and where lunch and short breaks are included in the shifts.

1. Define the **Rolling period** for when agents can add hours. The valid range for the rolling period is 0 to 48 days.

> **EXAMPLE** The rolling period is set to 1-21 days. This means that the agents can add hours for tomorrow and the following 20 days.

2. Enter the **Lunch duration**. This is the duration of any lunch added to the shift. A lunch is only added if the **Maximum work time without lunch** check box is selected and the added hours exceeds the given limit.
3. Select the **Maximum work time without short break** check box to add short breaks when the given limit is reached, and define the maximum work time without a short break. More than one short break can be added.

   NOTE

   - The maximum work time without short break validation requires that the **Report as** setting is set to **Short break** for the short break activity.
   - When adding hours, the maximum work time without short break validation applies to both the block of time that the agent is currently adding and any previously scheduled work time which is adjacent to the new block. If a short break needs to be added, it is placed within the new block of time.
4. Enter the **Short break duration**. This is the duration of any short break added to the shift.
5. Select the **Maximum contract time per day** check box to limit the number of contract hours the agents can add, and enter the maximum contract hours per day.
6. Define the staffing threshold for adding hours. Enter a staffing percentage in the **Staffing threshold** field. If any of an agent's skills is below the threshold, the agent can add hours. If the threshold is exceeded for all skills, agents cannot add hours. The staffing threshold can be set to a negative number.
7. Enter for what percentage of the intervals the staffing that must be kept below the staffing threshold in the **Intervals to keep below the threshold** field.

   This is useful if there are a few overstaffed intervals in a day, and you do not want those to block agents from adding hours to help with the understaffing at all the other intervals of the day.

   EXAMPLE The settings are to keep at least 80% of the intervals below 5% overstaffing. The intervals are 15 minutes long. An agent tries to add 5 hours of work time, which is 20 intervals. If at least 16 of those intervals have staffing levels that are below 5% overstaffing, the hours are added to the agent's schedule.

> **NOTE** If an agent adds enough hours for a lunch or short break to be added, the break is placed at the best possible time based on the staffing levels. The lunch or break intervals are counted as below the threshold in the staffing validation because they have no impact on the staffing.

8. Click **Apply** to save.

Related topics

- How adding hours works
- How moving lunches and short breaks works
- Schedule your own work hours
- Move your lunch or short break

How moving lunches and short breaks works

With self-scheduling, the agents can move their own lunches and breaks. This empowers the agents and reduces the need for manual changes by team leaders or resource planners.

The feature to move lunches and short breaks is available in the MyTime week view and in the day view on the mobile app. Click the pen icon for the lunch or short break to move and then pull the lunch or short break and drop it in the position you want. It is possible to move by 5 min intervals. Self-scheduling does not take into account the shrinkage.

> **NOTE** Self-scheduling doesn't work if multisite skills are used. This affects agents who have a multisite skill assigned, but also agents with skills for which the staffing levels are affected by the staffing of a multisite skill.

Configuration

The following things must be set before agents can move lunches and short breaks:

- The agents must have the MyTime > Self-scheduling permission and the underlying Move lunch and Move short break permissions.
- The lunch or short break activity types that the agents can move need to have the **Report as** setting set to **Lunch** or **Short break** in WFM settings > Scheduling settings > Activities.

Validations

When the agent clicks to move a lunch or short break, the possible new positions are shown in color. Any new positions that would break the validations listed below show as not available. When the agent selects a new position and clicks to confirm, the validations are done again to ensure that the situation has not changed since the agent loaded the page.

Open period

> **NOTE** The Write-protect schedules setting in the Basic tab of the Workflow control set must be set to 1 or greater in order to allow agents to move their break or lunch for the same day. If it is set to 0, then the system only allows agents to move their break or lunch for future days.

Moving lunches and short breaks is available for today and the next six days. The agents cannot move lunches and short breaks outside of that period.

Staffing levels

If you choose to use the staffing validation, the agent can only move the lunch or short break if the move does not cause the staffing levels to exceed the threshold values defined in the skill properties. The threshold values for understaffing and overstaffing are used. The staffing levels for both the original position and the new position for the lunch or short break will affect the possibility to move it.

The agent is blocked from moving the lunch or short break in these situations:

- If the move would cause the staffing levels for the original position to exceed the overstaffing threshold.
- If the move would cause the staffing levels for the new position to fall below the understaffing threshold.
- If the overstaffing threshold has already been exceeded for the original position.

You can select to allow agents to move their lunch or short break regardless of the staffing situation. If you do, the agents can move their lunch or short break both on days where the staffing on the skills already exceed the overstaffing or understaffing limits and on days where the move causes the staffing to exceed those limits.

Overlapping activities and absences

The agent is blocked from moving the lunch or short break if the move would cause the lunch or short break to overlap any of these items:

- A personal activity.
- An overtime activity.

- A meeting.
- An absence.
- A non-overwritable activity.

Consecutive work hours without lunch

Control for how long the agents can work without a lunch break. Use the **Maximum work time without lunch** setting on the **Self-scheduling** tab in the workflow control set settings.

The agent is blocked from moving the lunch in these situations:

- If the move would cause the consecutive work hours either before or after the lunch break to exceed the Max working time without lunch setting.

Minimum continuous work time

Control how breaks can be moved to block agents from stacking breaks together or moving them to the beginning or the end of the shift. Use the **Minimum continuous work time** setting on the **Self-scheduling** tab in the workflow control set settings.

The agent is blocked from moving the lunch in these situations:

- If the breaks are moved to the very beginning or the very end of the shift.
- If the move causes the consecutive work time to go below the defined Minimum continuous work time.
- If one break is placed next to another break, with no work time in between.

Scheduled overtime

Breaks or lunches which are scheduled as overtime can only be moved within the scheduled overtime. They cannot be moved to the main shift, as that could change the contract time for the agent.

Related topics

- Move your lunch or short break
- Create rules to handle self-scheduling

How adding hours works

With self-scheduling, the agents can add their own work hours. This empowers the agents and reduces the time resource planners and team leaders spend on scheduling and making schedule changes.

The feature to add hours is available in the MyTime week view and in the day view on the mobile app. The agent clicks the pen icon on the day where they want to add hours and then adjust the duration and move the work hours to the position they want by drag and drop. It is possible to move the start and end time by 5 min intervals.

The shift that is added contains activities based on which of the agent's skills that has the lowest staffing levels compared to the forecast. One shift can contain several activities. Use the settings for maximum work time without lunch and maximum work time without short break to automatically add lunches and short breaks when the work time exceeds the defined thresholds.

> **NOTE** Self-scheduling doesn't work if multisite skills are used. This affects agents who have a multisite skill assigned, but also agents with skills for which the staffing levels are affected by the staffing of a multisite skill.

Configuration

The following things must be set before agents can add work hours:

- Review the self-scheduling configuration.
- Forecasts are generated for the agents' skills.
- The agents must have the MyTime > Self-scheduling permission and the underlying Add hours permission.

Validations

When the agent clicks to add hours, the possible times of the day where you can add hours are shown as available. Any times where rules would be broken if the agent added hours are shown as not available, with a diagonally striped pattern. When the agent has chosen what hours to add and clicks to proceed, the validations are done again to ensure that the situation has not changed since the agent loaded the page.

All configuration related to adding hours is done on the **Self-scheduling** tab in the workflow control set settings. See Create rules to handle self-scheduling for more details.

Open period

Adding work hours is available for today and the next 48 days. You can configure which period to open for agents to add hours. The agents cannot add hours outside of the defined period.

Staffing levels

Set a maximum staffing threshold to ensure that agents only can add work hours when they are needed. If adding the hours would cause the staffing levels to exceed the defined threshold, the hours are not added. To ensure that agents can add hours in the situation where just a few intervals are overstaffed but most intervals

are understaffed, you can allow the work hours to be added even if a certain percentage of the intervals are above the threshold.

If the staffing is above the threshold for more than the allowed percentage of intervals, a message is shown to the agent that they might not be able to add hours for the selected part of the day. The agents can still try to add the hours, but if it doesn't pass the staffing validation it will be denied.

Consecutive work hours without lunch or short break

Control for how long the agents can work without a lunch or short break.

To automatically add a lunch, use the **Maximum work time without lunch** setting. If an agent adds more than the maximum working time without lunch, a lunch break is automatically added to the shift. The **Lunch duration** setting defines the length of the added lunch break.

To automatically add short breaks, use the **Maximum work time without short break** setting. If an agent adds more than the maximum working time without short break, a short break is automatically added to the shift. If the agent adds several hours, more than one short break can be added.

The lunches and breaks are placed at the best possible time based on the staffing levels, within the rules for maximum work time without short break or lunch.

Maximum contract time per day

Control how many contract hours agents can work per day. Use the **Maximum contract time per day** setting to define the limit. A message is shown to the agent when they have reached the maximum number of hours for a day.

Contract rules

Some contract rules are validated, in addition to the rules defined in the workflow control set. The contract rule validations ensure that the nightly rest time is not broken and that the maximum weekly work time is not exceeded.

Overlapping activities and absences

The agents cannot add hours where any activities or absences are already scheduled.

Related topics

- Schedule your own work hours
- Create rules to handle self-scheduling

Set up validations for shift trade requests

Administrators can save time by handling the validation of all or most agent shift trade requests automatically. The shift trade request settings allow you to enable additional validations in the automatic processing of shift trade requests.

If enabled, these shift trade validations apply to all agents with permissions to do shift trade requests, regardless of which workflow control set they belong to.

> **NOTE** For agents to trade shifts, you need to open a period for shift trade requests. The open period is defined per workflow control set under Options > Scheduling > Workflow control set > Shift trade requests tab. The workflow control set also contains some basic validations which apply based on the workflow control set the agents belong to. The rules apply for workflow control sets that are set to auto-grant shift trade requests. If the workflow control set is not set to auto-grant, all requests go to a pending status regardless of the settings configured on the page. See Create rules to handle shift trade requests for more information.

Prerequisites

- You have the Options > Shift Trade Request permission.

Page location

Client > Options > System settings > Shift trade request settings

Procedures

Enable validation on number of seats available

If a site has a limited number of seats and shift trades between sites is allowed, you can validate each shift trade to ensure the max seats value is not exceeded.

1. Select the **Enable maximum seat validation** check box to enable validation on number of seats.
2. Select which interval to use when validating on number of seats.

   > **NOTE** Selecting a short interval will give a more precise result but also affect performance more.

3. Click **Apply** to save the changes.

Define which business rule validations to use

Decide which shift trade request validations to use to ensure contract rules and other business rules are not broken and how to handle requests that break these rules.

1. Select the **Enabled** check box to enable a business rule validation.
2. Select what the system should do if the validation fails.

   Deny—Deny the request immediately.

   Send to administrator—Forward the request to be handled manually. It will then be in status **Pending** until handled.
3. Repeat for all business rule validations you want to enable.
4. Click **Apply** to save your changes.

Available business rule validations

- **Shift category limitation for period**—Ensures that any shift category limitations for the schedule period are not broken for the agents involved in the shift trade.
- **Shift category limitation for week**—Ensures that any shift category limitations for the week are not broken for the agents involved in the shift trade.
- **Nightly rest**—Ensures that the nightly rest set on the contract is not broken for the agents.
- **Minimum weekly rest**—Ensures that the weekly rest set on the contract is not broken for the agents.
- **Minimum weekly work time**—Ensures that the minimum time per week set on the contract is not broken for the agents.
- **Contract time tolerance**—Ensures that the shift trade does not break the target contract time for the schedule period, considering both the tolerance time on the contract and the shift trade tolerance setting for matching contract time.
- **Day off conflict with activity**—Ensures that the shift trade will not cause a day off to be overlapped by a shift. Using this, the day off will not be shorter than the defined day off target length.
- **Non-overwritable activity in shift**—Ensures the shift trade does not cause any personal activities or meetings to be placed on top of activities which are not overwritable.

- **Meeting, personal activity or overtime activity in shift**—Ensures the shift trade won't be automatically approved if there are any personal activities, meetings or overtime activities scheduled on the day of the trade.
- **Maximum consecutive days without day off**—Ensures the shift trade will not cause the agents to have too many consecutive workdays without a scheduled day off. The maximum number of days must set per workflow control set.

Related topics

- Create rules to handle shift trade requests
- Manually handle shift trade requests

Create rules to handle shift trade requests

Administrators can save time by handling the validation of all or most agent shift trade requests automatically. Define when a shift trade request should be automatically approved, when it should be automatically denied and when it should be handled manually using the settings available on the Shift trade request tab of the workflow control set.

Set up different rules for different groups of agents by creating more than one workflow control set. Always select the workflow control set you want to work with before making any changes.

Some rules in this view relates to the shift trade bulletin board. The bulletin board is a way for agents to post shifts or days off that they don't want and set up conditions for what they want instead. When another agent responds to a post on the bulletin board, this results in a shift trade request. The same validations will be used for bulletin board shift trade requests as for other shift trade requests.

NOTE There are additional validations for shift trade requests available for configuration under Options > System settings > Shift trade request settings. Those validations are global, that is they apply to all agents who have the permissions to do shift trade requests, regardless of which workflow control set they belong to. See Set up validations for shift trade requests for more information.

If agents in different offices with different open hours can trade shifts, you can validate the shift trades to ensure no shifts end up outside of the sites' open hours. The open hours are set in Requests tool.

IMPORTANT Always select the workflow control set you want to work with before making any changes.

Prerequisites

- You have the Options > Shift trade request permission.

Page location

Client > Options > Scheduling > Workflow control set > Shift trade requests tab

Procedures

Open a period for shift trade requests

Agents can only trade shifts on dates within the open period.

1. Set the **Open period** relative to the current date.

   EXAMPLE If you set from 1 to 14, agents can send shift trade requests for tomorrow and 14 days forward.

2. Click **Apply** to save the changes.

Define which validations to use for shift trade requests

Decide which validations to do for each shift trade request.

1. Define the **Maximum consecutive days without day off** to ensure that agents cannot perform a shift trade which would cause them to have too many workdays without having a scheduled day off or an empty, unscheduled day.

   NOTE The validation of this rule needs to be enabled on the global **Shift trade request settings** page in Options.

2. Enter a **Tolerance for matching contract time** to control how much the schedule period contract time can differ from the schedule period target time after the trade.

   IMPORTANT The tolerance for matching contract time for shift trades is in addition to any tolerance on the agents' contracts.

3. In the **Matching skills** section, you choose which skills that must match for agents to be able to trade shifts with each other. Select the skills that must match and click the arrow button to move them. If a skill is on the list of matching skills, both agents must have that skill to be able to trade shifts, regardless of what activities that are scheduled for the agents on that day. The agents'

possibility to trade shifts is not affected by the skills that they have which are not on the list of matching skills.

> **EXAMPLE** Skills A, B, and C are on the list of matching skills and the rest of the skills are not. Agent 1 (skills A, B, D, and E) wants to trade shifts with agent 2 (skills A, B, and C). They cannot trade shifts, because skill C is on the list of matching skills, and agent 1 does not have skill C but agent 2 does. Agent 1 can only trade shifts with other agents who have skills A and B and who do not have skill C.

4. Click **Apply** to save the changes.

Enable automatic approval of shift trade requests

Enable automatic approval of shift trade requests to minimize manual work and give the agents quicker feedback. If the shift trade is accepted by the other agent and passes all validations, the schedule will be automatically updated.

1. Select the **Auto grant** check box to automatically approve all shift trade requests that pass all validations.
2. Click **Apply** to save the changes.

Configure the shift trade bulletin board

Agents can post shifts or days off that they don't want on the shift trade bulletin board and set up conditions for what they want instead. They can trade both regular shifts, days off and empty days (useful for hourly employees). Agents who check the bulletin board will only see posts where the given conditions match what they have in their schedule.

1. Select the **Anonymous bulletin board** check box to make all shift trades via the shift trade bulletin board anonymous. This means the agents will not know who they are trading with.
2. Select the **First come first served bulletin board** check box for the first person to respond to the posted shift to get the trade (if the request also passes the validations). If this setting is not enabled, the agent who posts their shift will get a shift trade request from everyone who responds to the posted shift. The agent who posted their shift can then choose which request to accept.
3. Click **Apply** to save the changes.

Related topics

- Set up validations for shift trade requests
- Manually handle shift trade requests
- Set up basic workflow control set rules

Group adherence states

The states in the ACD platform are often very detailed. This makes them difficult to use for follow-up. Group related states into state groups. It is always the state groups that are used in the adherence overviews and in reports, never the individual states.

Create the state groups that you need, for example Idle, In call, After call work, Email, Admin and Logged off. Then drag and drop states to the appropriate group.

When new states arrive, that have not previously been added to a state group, they are added to the default state group. Move them to the appropriate group by drag and drop.

NOTE When these settings are changed, it might take up to 20 minutes before the changes take effect.

Prerequisites

- You have the Options > Manage real-time adherence permission.

Page location

Client > Options > Real-time adherence > State groups and states

Procedures

Create a state group

Create a new state group to be used for follow-up.

1. Click **New state group**.
2. Triple-click the new state group, enter a name for it and select the **Enter** key.
3. Click **Apply** to save.

Move states to a state group

Move states to another state group, for example when new states have appeared.

1. Double-click to expand the state groups.
2. Drag and drop states to the state group you want.
3. Click **Apply** to save.

Define in which state group to add new states

When an agent enters a state in the ACD that is not on the list of states in WFM, it will be automatically added. Define in which state group to add these new states.

1. Right-click the state group where you want to add new states and select **Set as default state group**. The default state group name is shown in bold letters.
2. Click **Apply** to save.

Define which state group to use for logged out agents

Define which state group to use for logged out agents. This is mandatory. It is used when the ACD platform sends snapshot state updates.

1. Right-click the state group to use for logged out agents and select **Toggle log out state**. If a state group is set to be used for logging out, the text **Use for log out** is shown next to the state group name.
2. Click **Apply** to save.

> **NOTE** If the text shown next to the state group name is **Agents are available for taking calls**, this is because the state group check box is selected. This check box has no effect on the functionality.

Delete a state

1. Select the state you want to delete.
2. Click **Delete**.
3. Click **Apply** to save.

Delete a state group

1. Right-click the state group you want to delete and select **Delete**.
2. Click **Apply** to save.

Related topics

- Create adherence rules
- Configure when adherence rules apply
- Track when agents are late
- Monitor agent adherence
- Monitor agent adherence
- Review historical adherence for a team
- Review detailed historical adherence
- Adjust adherence to neutral
- Configure WFM with Real-Time Desktop Adherence

Create adherence rules

Create rules to make it easier to follow up on adherence. These rules define the conditions that you want to handle in different ways and possibly follow up on, for example Out of adherence, In adherence, Extra and Neutral. The rules are used to specify how to handle each combination of scheduled activity and agent state.

NOTE When these settings are changed, it might take up to 20 minutes before the changes take effect.

Prerequisites

You have the Options > Manage real-time adherence permission.

Page location

Client > Options > Real-time adherence > Rules

Procedures

Create a rule

1. Click **New**.
2. Enter a **Name** that clearly explains what the rule is.

3. There is no need to enter a **Staffing effect** as this setting is no longer used.
4. Select the **Adherence** for this rule. This setting affects the adherence percentage for historical adherence and the out of adherence indication in the Monitor agents view.
    - **In adherence** gives a positive effect on the agent's adherence percentage.
    - **Out of adherence** gives a negative effect on the adherence percentage and indicate in the Monitor agents view that the agent is out of adherence.
    - **Neutral** does not affect the adherence percentage at all, as this time is disregarded.
5. Pick a **Color**.

    It is used to visualize if the agent is adhering to their schedule or not. This color shows immediately when an agent enters a state and activity combination that is connected to this rule.
6. Enter a **Threshold** value in seconds.

    The threshold is used as a delay to show an alarm. If the threshold is exceeded before the state or activity change, the alarm is shown if it is enabled. If the agent state or schedule activity changes before the threshold value is reached and this rule no longer applies, no alarm is shown.
7. Select the **Alarm** check box to show alarms for this rule.

    Alarms are used to highlight the situations that need to be addressed. In the RTA view, you can filter the view to only show agents who are in alarm. Do not use alarms for situations that do not need to be addressed.
8. Pick an **Alarm color**.

    The alarm color is used to visualize if the agent is currently in an alarm. It shows when the alarm threshold has been exceeded.
9. Click **Apply** to save.

Delete a rule

1. Select the rule you want to delete.
2. Click **Delete**.
3. Click **Yes** to confirm.
4. Click **Apply** to save.

Related topics

- Group adherence states
- Configure when adherence rules apply
- Track when agents are late
- Monitor adherence on team level
- Monitor agent adherence
- Review historical adherence for a team
- Review detailed historical adherence
- Adjust adherence to neutral
- About historical adherence
- Configure WFM with Real-Time Desktop Adherence

Configure when adherence rules apply

Configure the adherence rule to apply for each state group and activity combination. The applied adherence rule affects both how agents are displayed in RTA and their adherence percentage.

EXAMPLE

- For the activity **Phone** and state group **In call**, the rule **In adherence** is applied.
- For the activity **Phone** and state group **Logged off**, the rule **Out of adherence** is applied.

NOTE When these settings are changed, it might take up to 20 minutes before the changes take effect.

Prerequisites

- You have the Options > Manage real-time adherence permission.
- Activities are created.
- Adherence rules are created.

Page location

Client > Options > Real-time adherence > Rule mappings

Procedures

Define when to apply the adherence rules

Define for each activity and state group combination which rule to apply for the agents who are scheduled on that activity and in a state within that state group.

1. Expand the menu for each activity and state group combination and select which rule to apply. The name and color of the rule are displayed in that field to give a better overview.
2. Select which rule to use for agents who currently have no state group in the **No state group present** column.
3. Select which rule to apply for agents that do not have an activity scheduled in the **No scheduled activity** row. These rules are used in situations where the agents have scheduled absences, days off or nothing scheduled at all.
4. When a rule is selected for each field in the rule mapping matrix, click **Apply** to save.

Related topics

- Group adherence states
- Create adherence rules
- Track when agents are late
- Monitor adherence on team level
- Monitor agent adherence
- Review historical adherence for a team
- Review detailed historical adherence
- Adjust adherence to neutral
- About historical adherence
- Configure WFM with Real-Time Desktop Adherence

Track when agents are late

It is possible to track when agents are late for work. Select for which activities to track if they are late to log in for their shift.

The late for work calculation is done from the start of the first activity that you have selected to track and to the moment the agent enters a logged-in state in the ACD platform. Late arrival is not tracked for scheduled absences .

Follow up on the late for work information in the historical overview or the detailed historical adherence view. The number of days and the total number of minutes that the agent was late is shown in the historical overview. In the detailed historical adherence view, the time the agent logged in is shown in the shift with the number of minutes that the agent was late.

If an agent's schedule is updated retroactively and their late arrival is no longer relevant based on the new schedule, the *Late for work* occurrence is removed.

NOTE If the late for work settings never have been changed, late for work is tracked for all activities even though the check boxes are not shown as selected. If a selection has been made and then all check boxes are cleared again, late for work is not tracked for any activities.

Prerequisites

- You have the Web > Adherence permission.
- You have the Options > Manage real-time adherence permission.
- Activities are created.

Page location

WFM > Adherence > Monitor organization

Procedures

Select for which activities to track late for work

1. Click **Configuration** in the top right corner.
2. Select the check boxes for all activities that you want to track if agents are late. Normally, select the activities where you expect the agent to be logged in to the ACD platform.
3. Click **Save**.

Related topics

- Group adherence states
- Create adherence rules
- Configure when adherence rules apply
- Monitor adherence on team level
- Monitor agent adherence
- Review historical adherence for a team
- Review detailed historical adherence
- Adjust adherence to neutral

Configure WFM with Real-Time Desktop Adherence

Use the websites and apps agents are using, combined with their other computer activity, to determine how well agents are adhering to their schedules. WFM with Real-Time Desktop Adherence is especially helpful for seeing the adherence of back-office agents who don't answer phones. When WFM with Real-Time Desktop Analytics is set up, adherence information for these agents appears on the Adherence page.

WFM with Real-Time Desktop Adherence is included if your organization has both Cisco WFM and Analytics, but you do need to set it up.

Prerequisites

- Your organization has both Cisco WFM and Analytics licenses.
- Agents' computers have Smart Desktop installed. See the *Installation Guide for Cloud Deployments*.
- Your organization does not log in to Webex WFO through af1.calabriocloud.com. WFM with Real-Time Desktop Adherence is not available to organizations whose accounts are in Cisco's Africa realm.
- You have the following permissions:
    - Administer Roles
    - Administer Desktop Analytics

- WFM > People > Modify access
- WFM > Options > Manage real-time adherence

Page location

Various. See the procedures below for page locations.

Procedures

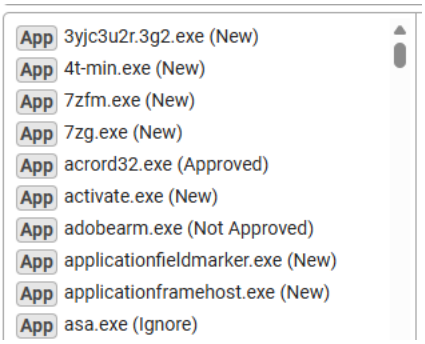
Step 1: Give agents the Real Time Desktop Adherence permission

1. Go to **Application Management** > **Global** > **User Configuration** > **Roles**.
2. In the **Permissions** table, scroll down to the **Desktop Client** section and select the **Real Time Desktop Adherence** permission under the agent roles that you want to have real-time desktop adherence.
3. Click **Save**.

Step 2: Define approved and unapproved apps and websites

With this step, you tell Webex WFO whether specific applications or websites are approved for agents to use.

1. Go to **Application Management** > **Analytics** > **Desktop Manager**. The list on the left contains all the applications and websites that Smart Desktop has detected on agents' computers.



2. Select an app or website that has **(New)** after its name.
3. From the **Status** drop-down list, select **Approved** or **Not Approved**.
4. Repeat Steps 2 and 3 until you are finished identifying apps and websites.
5. Click **Save**.

Step 3: Define the acceptable amount of idle or nonproductive time

You don't expect agents to be actively using approved apps and websites every second of the day. Establish acceptable thresholds that will prevent false alarms.

1. Go to **Application Management** > **Analytics** > **Analytics Configuration**.
2. In the **Idle Time Threshold** section, enter the number of **Minutes** and **Seconds** that can pass before an agent is considered idle.
3. In the **Productive Time Threshold** section, enter the number of **Minutes** and **Seconds** that must pass before agents who are using an approved app or website are considered productive. This setting also establishes how much time can pass before an agent who is using an unapproved app or website is considered unproductive.
4. Click **Save**.

Step 4: Connect external logons to agents

In this step, you connect information that comes from Smart Desktop to agents in WFM.

1. Open the WFM desktop application, also known as the "client" or "Windows client."
2. Open the **People** module.
3. Click **Person periods**. A list of external logons appears on the right side of the page. This list is populated automatically.
4. In the **External logon** column, select the external login field for an agent, and then select that agent's **External logon** from the list on the right.
5. Repeat Step 4 until you are finished associating agents to their external logons.
6. Click **Save**.

Step 5: Create state groups in WFM

This step creates "Productive" and "Unproductive" as states that can appear in the WFM Adherence module.

1. In the WFM client, click **File** > **Options**.
2. Expand **Real-Time Adherence**.
3. Click **State groups and states**.
4. Click **New state group**.
5. Triple-click the new state group, enter **Productive** as its name, and press the Enter key.
6. Drag the **Approved** state from the default state group and drop it into the **Productive** state group.
7. Click **New state group**.

8. Triple-click the new state group, enter **Unproductive** as its name, and press the Enter key.
9. Drag the **Unapproved** state from the default state group and drop it into the **Unproductive** state group.
10. Click **Apply**.

Step 6: Create rules for when agents should appear in alarm

On the Adherence page, you can filter to see only agents who are in an alarm state, meaning that they are out of adherence for an amount of time that your organization considers significant. In this step, you are setting how much time must pass before an agent who is in an Idle or Unproductive state goes into alarm in Adherence.

1. In the WFM client, click **Rules** in the menu on the left.
2. Click **New**.
3. Enter a **Name** that clearly explains what the rule is.
4. Leave the **Staffing effect** blank.
5. Select the **Adherence** for this rule. This setting affects the adherence percentage for historical adherence and the out of adherence indication in the **Monitor agents** view.
    - **In adherence** improves the agent's adherence percentage.
    - **Out of adherence** decreases the adherence percentage and indicates in the **Monitor agents** view that the agent is out of adherence.
    - **Neutral** does not affect the adherence percentage at all. This time is disregarded.
6. Pick a **Color**.

    The color helps visualize if the agent is adhering to their schedule or not. This color shows immediately when an agent enters a state and activity combination that is connected to this rule.
7. Enter a **Threshold** value in seconds.

    The threshold is used as a delay to show an alarm. If the threshold is exceeded before the state or activity change, the alarm appears if it is enabled. If the agent state or schedule activity changes before the threshold value is reached and this rule no longer applies, no alarm appears.
8. Select the **Alarm** check box to show alarms for this rule.

Alarms highlight the situations that need to be addressed. On the Adherence page, you can filter to only show agents who are in alarm. Do not use alarms for situations that do not need to be addressed.

9. Pick an **Alarm color**.

   The alarm color visualizes if the agent is currently in an alarm. It appears when the alarm threshold has been exceeded.

10. Click **Apply**.
11. Repeat Steps 2—10 until you are finished creating rules.

Step 7: Define states as Approved or Unapproved

We have created new state groups. Now it's time to define whether each state group/activity combination is considered in adherence or out of adherence.

1. In the WFM client, click **Rule mappings** in the menu on the left. A **Productive** column and an **Unproductive** column appear on the page.
2. Expand the menu for each activity and state group combination and select which rule to apply. The name and color of the rule appear in that field to give a better overview.
3. Select which rule to apply for agents that do not have an activity scheduled in the **No scheduled activity** row. These rules are used in situations where the agents have scheduled absences, days off, or nothing scheduled at all.
4. When you have selected a rule for each field in both the **Productive** and **Unproductive** columns, click **Apply**.

Congratulations, you have set up WFM with Real-Time Desktop Adherence!

Related topics

- Monitor agent adherence
- Manage roles and permissions for QM, Analytics, and Insights
- How WFM function permissions work
- Create and manage desktop items
- Configure Analytics
- Manage WFM agent work rules

- Group adherence states
- Create adherence rules
- Configure when adherence rules apply

Troubleshoot missing or inaccurate WFM adherence data

Problem	Things to check

Newly added real time adherence states do not appear.	■ There must be at least one agent with an external logon. For an external logon to populate, an agent must log on and take a contact in the ACD platform. The external logon will then populate overnight in the People module. External logons are populated through the historical integration.
	■ After attaching an external logon, an agent must use the state for it to appear in the state groups in the Options module. If the agent only uses 3 out of 10 states, only 3 states will appear. Check state groups and states in Options.
	■ There must be one state group marked as the default state group and one state group marked as the default logout state group.
	  ■ The default state group is the state group where all the new unmapped states fall under. Right-click on the state group to assign one of the default state groups. The default state group will appear in bold text.
	  ■ The logout state group is the state group when agents are logged out. There is a “CCC Logged out” state by default. You can map your own ACD state to the existing category. Right-click a state group to make it the logout state group. The logout state will have “Use for log out” after the state group name.

I am seeing discrepancies in	■ Ready time adherence and real time adherence are two

Problem	Things to check
adherence scores.	different calculations populated by different feeds. ■ Ready time is based on Agent Statistics Report. The ready time adherence calculation is scheduled ready-time - Deviation) ÷ Scheduled ready-time. ■ Real time adherence is based on adherence mapping in the Client. The real time adherence calculation is the total time in adherence/(total working time - total neutral periods) * 100.
Late for work is not working correctly.	■ Check that the logged out state is toggled as the "default logged out state". ■ Go to **Web** > **Adherence** > **Monitor organization** and click the gear wheel in the upper-right corner. Then, view the activities that are tracked for late for work. By default, if nothing has been modified, nothing will be checked or selected in the late for work tracking configuration. It will just track from the first scheduled activity to when the agent logs into their ACD and switches states from the logged-out state. For further information, see Track when agents are late.

I see the wrong state for the agent when monitoring agents.

1. Verify that the agent has the correct external logon(s) mapped in **Client** > **People** > **Person Periods**.
2. Check that the state mapping is correct. You might have mistakenly placed a state in the incorrect state group in **Client** > **Options** > **Real Time Adherence** > **State Groups and States**.

How are retroactive schedule changes reflected in RTA?

The adherence percentage will update if there was a schedule or rule change within the last 30 days.

NOTE The WFM standard report will not update with a historical rule change.

In the detailed agent adherence, I see one of the activities in the schedule but not a list of activities with the detailed RTA states.

An activity will only appear if there is a state or rule change during the time that activity was scheduled.

If the data connection is lost, can the states be recovered after the connection is restored?

No, real time adherence data cannot be recovered if the data connection is lost.

When monitoring agents, the alarm trigger does not match with the alarm threshold that I configured.

The alarm time is cumulative. If an agent switches from one rule that is in alarm, the alarm timer will not reset.

> **EXAMPLE** The alarm threshold is set to 500 seconds for out of adherence. An agent is scheduled for phone work but goes into lunch for 300 seconds, then goes into break for 200 seconds (both out of adherence and in alarm). The agent will reach the alarm threshold after they are in the "break" state for only 200 seconds even though the alarm threshold is set to 500 seconds. This is because the prior state of lunch was also considered as in alarm.

How exporting payroll data works

This section describes on a high level how payroll exports work and provides information on important routines to ensure the quality of the exported payroll data.

Standard or customized exports

There are three standard payroll export files. They contain basic information from the schedule, including absences, any overtime or shift allowance and the payroll codes.

If you use the standard export files, you may need to do manual adjustments to the files before importing them to your payroll system. The adjustments can be for example to rearrange the order of the columns in the file or to convert times from UTC to the agents' time zone.

If the content of the standard payroll exports does not fulfill your requirements, a customized payroll export can be set up to handle the specific requirements of the receiving payroll system and your company's rules regarding for example absences and overtime. It is possible to schedule the customized payroll exports to run automatically at a certain date and time.

To set up customized payroll exports is a professional services delivery and is scoped separately. Contact Cisco for more information on the possibilities for your company.

Most of the information on this page is related to the routines and processes around the payroll exports. It is relevant regardless of if you work with the standard payroll exports or if you use customized payroll exports, unless it specifically states that it is only valid for one or the other.

Preparations

Before you create and run payroll exports, there are a few things to configure. This is a high-level description of what needs to be done.

1. Add payroll system codes to activities, absences and days off. A payroll system code is only needed if this information is required in the exports.
2. Set for each activity and absence if it is contract time, work time and paid time.
3. Create multiplicators for the different levels of compensation.
4. Create definition sets defining during which hours or dates the different compensation levels apply.
5. Connect the definition sets to the contracts on which they are valid.

Exporting data

Create a payroll export and export payroll data for the agents and the time period selected. If you are using the standard payroll exports and manual adjustments are needed, it is often good to export all agents to one file and then make the adjustments.

There can be employee changes during the selected period. For example, new agents start, agents change contract or start working part-time. If this information is added in a new person period, the correct data is exported for each day of the period.

The schedule data that is exported is the schedule that agents and resource planners see. For example, meetings and personal activities which are not in connection to a scheduled shift and not visible in the schedule views will not be exported. Similarly, part-day absences that are not overlapping any paid schedule activities will not be exported.

If two or more absences are scheduled on top of each other, the absence type most recently added to the schedule is shown in the schedule and will be exported.

NOTE All times in the standard payroll exports are in the time zone of the user performing the export. In customized payroll exports, data is normally in the agent's time zone.

Routines

The quality of the data in the payroll exports is only as good as the quality of the data in WFM. It is therefore important that you set up routines for how to keep the schedule and employee data up to date, and how to ensure that the rules within WFM are updated if there are any changes to laws or agreements. This is

important regardless of if you are using the standard payroll exports or customized payroll exports.

Annual updates

Update the multiplicator definition sets every year with information regarding bank holidays, days with raised shift allowance compensation, days with raised overtime compensation and so on.

Schedule data

The basic rule for schedule data in payroll exports is that the export sees what the resource planner sees. The activities, absences, overtime and days off visible in the schedule will be included in the payroll export. To ensure that the schedule data is correct in the payroll exports, resource planners must be aware of how payroll works and when the exports are done. Set up routines regarding scheduling, entering deviations from schedule and locking schedules.

Employee data

The employee information in WFM, such as names, employment numbers, contracts and employment types, need to be correct and match with the information in the payroll system. When the contract, employment type, part time percentage or any other property affecting the work time and compensation for an agent is changed, add a new person period for the agent and enter the updated information.

Laws and agreements

When laws, union agreements or local agreements are updated within areas related to the level of compensation, the rules in WFM need to be updated accordingly. Review rules and settings related to shift allowance and overtime, like multiplicators and multiplicator definition sets.

Payroll codes

If any payroll codes are added, changed or deleted in the payroll system after the payroll export has been put into production, you must make the corresponding changes to the configuration in WFM.

Related topics

- How extra compensation works
- Set up multiplicators for extra compensation
- Set up rules for when extra compensation applies
- Create and run a payroll export
- Standard payroll export file formats

How extra compensation works

This section contains useful information for when agents are entitled to compensation for working overtime and to shift allowance for working evenings, weekends and holidays.

Overtime

Overtime is time worked in addition to the contract time. Overtime can be compensated either monetary or by compensatory time off. When overtime is added to an agent's schedule, both an activity and a multiplicator definition set need to be selected. This defines what the agent should do and how they should be compensated. The multiplicator definition sets available to select are the ones connected to the agent's contract.

Overtime compensation is automatically applied in payroll exports if all the following conditions are met:

- There is a multiplicator definition set for overtime and each multiplicator used in the definition set has a payroll system code.
- A multiplicator definition set for overtime is selected on the agent's contract.
- The overtime activity is set as paid time.

An agent who works overtime will be compensated for the overtime according to the multiplicator definition set. In the standard payroll exports, the agent will not receive extra compensation if working overtime during a time period that would have resulted in shift allowance for a regular shift.

In the standard payroll exports, if an agent is scheduled to work overtime but is absent, the agent will not be compensated for the overtime.

Shift allowance

Shift allowance is extra compensation for working for examples evenings, weekends and major holidays. Shift allowance is never added to the schedule. It is calculated automatically based on the shift allowance configuration in combination with the scheduled activities and absences.

The shift allowance is automatically applied in payroll exports if all the following conditions are met:

- There is at least one multiplicator definition set for shift allowance and each multiplicator used in the definition set has a payroll system code.
- At least one multiplicator definition set for shift allowance is selected on the agent's contract.
- The scheduled activity is set as contract time.

If an agent works in the evening of a bank holiday, the union agreement might state that the agent should be compensated for working in the evening on top of working on a holiday. Create one multiplicator definition set for evenings, nights and weekends and one for holidays. Connect both to the agent's contract. Then both shift allowances can be applied at once.

In the standard payroll export, agents do not get shift allowance for overtime hours. If that is a requirement, this can be set up in a customized payroll export.

If an agent was scheduled to work a shift where they would have been paid shift allowance but is absent that day, shift allowance is not paid.

Related topics

- How exporting payroll data works
- Set up multiplicators for extra compensation
- Set up rules for when extra compensation applies
- Create and run a payroll export
- Standard payroll export file formats

Set up multiplicators for extra compensation

Agents are often paid extra when they work overtime and when they work evenings, nights, weekends or holidays. Create multiplicators to define how much extra the agents are paid in different situations.

The multiplicators are then used to set up rules to define how much the agents are paid at different times, days of the week and dates. These rules are used in the payroll exports.

Prerequisites

- You have the Options permission.

Page location

Client > Options > Payroll settings > Multiplicator

Procedures

Create multiplicators

Create multiplicators to define by how much the standard pay is multiplied.

1. Click on **Add multiplicator**.
2. Enter a **Name**.
3. Enter a **Short name**.
4. Enter a **Multiplicator type**. **Shift allowance** is extra compensation when working evenings, nights, weekends or holidays. **Overtime** is extra compensation when agents work more than the contract time.
5. Select a **Color**. The color is used in the visualization when setting up multiplicator definition sets, to indicate when the different multiplicators apply.
6. Enter a **Multiplicator value**, for example 1.00, 1.25 or 1.50. This value defines by how much the standard pay is multiplied.

   NOTE In many payroll systems, the calculation of the compensation is based on the payroll system code rather than the multiplicator value.

7. Enter a **Payroll system code**. The payroll system code is the code that is used by the payroll system to identify what the schedule item is and how it affects the agent's compensation.
8. Click **Add**.
9. Repeat all steps to add the multiplicators you need.
10. Click **Apply** to save the changes.

Delete a multiplicator

Delete multiplicators that are no longer needed.

1. Click on the multiplicator to delete.
2. Click on **Delete multiplicator**.
3. Click **Yes** to confirm.
4. Click **Apply** to save the changes.

Related topics

- How exporting payroll data works
- How extra compensation works
- Set up rules for when extra compensation applies
- Create and run a payroll export
- Standard payroll export file formats

Set up rules for when extra compensation applies

Create multiplicator definition sets containing rules to control when agents get extra compensation. This is done by defining which multiplicators to use for specific dates and date periods, days of the week and times of the day. The definition sets apply when doing payroll exports.

A multiplicator definition set can only contain one type of multiplicator; either overtime multiplicators or shift allowance multiplicators. Set which type of multiplicator to use when creating the multiplicator definition set.

The visualizer gives you a graphical overview of when the multiplicators apply. The colors indicate the multiplicator that is used. If there are overlapping multiplicators within one definition set, the priority defines which of the multiplicators that apply in the payroll export.

> **NOTE** Sometimes there is a need to apply two shift allowances to apply on top of each other, for example if an agent is working an evening shift on New Year's Eve. If so, add the day of week shift allowance and the holiday shift allowance in separate definition sets. Connect both definition sets to the agents' contracts.

When the multiplicator definition sets are created, select which ones to apply for the agents on their contracts. There must be at least one overtime multiplicator definition set connected to an agent's contract in order to add overtime to their schedule.

Sometimes agents can be compensated for working overtime in different ways, with either extra pay or time they can take off later. If that is the case, set up one definition set for paid overtime and one for overtime compensated with time off. Connect both to the agents' contract. When overtime is added, select which definition set to apply.

Prerequisites

- You have the Options permission.
- Multiplicators have been created to define how much extra the agents are paid.

Page location

Client > Options > Scheduling > Multiplicator definition sets

Procedures

Create a new multiplicator definition set

Create a multiplicator definition set to control when agents get extra pay.

1. Click on **Add new definition set**.
2. Enter a **Name**.
3. Select what **Type** of definition set this is; Shift allowance or Overtime. Shift allowance definition sets control when agents get extra pay for working evenings, nights, weekends or holidays. Overtime definition sets control when agents get extra pay for working additional hours, on top of their contract hours.
4. Click **Add**.
5. Click **Apply** to save the changes.
6. The next step is to add rules to the definition set.

Add day of week rules

Add day of week rules to set up rules for extra pay on certain days of the week.

1. Click on **Add new multiplicator**. A new row is added to the table.
2. Set the **Type** to **Day of week**.
3. Select a day of the week.
4. Enter a **Start time** and an **End time** for when the rule applies. If the rule applies to night shifts, set the start time to for example 9PM and the end time to 5AM. When the end time is earlier than the start time, +1 will automatically be added to the end time. The +1 indicates that it is the following day.

> **NOTE** The times are set in the agents' time zone.

5. Select a **Multiplicator** to define the extra pay for the given time period.
6. Click **Apply** to save the changes.

Add from-to rules

Add from-to rules to set up rules for extra pay on specific dates or date periods.

1. Click on **Add new multiplicator**. A new row is added to the table.
2. Set the **Type** to **From-To**.
3. Click in the **From** and **To** fields to set dates and times.

> **NOTE** The times are set in the agents' time zone.

> **EXAMPLE** Agents get extra compensation if working on New Year's Eve. In the rule, **From** is set to December 31, 8AM and **To** is set to December 31, 6PM.

4. Select a **Multiplicator** to define the extra pay for the given time period.
5. Click **Apply** to save the changes.

Use the multiplicator visualizer

The visualizer is a timeline where you can see when each multiplicator applies. The multiplicators are shown with color and the multiplicator value.

If two multiplicators are overlapping, for example the Wednesday evening multiplicator and a holiday multiplicator, the visualizer makes it easy to see which multiplicator that applies according to the current rule. To make the other multiplicator apply instead, change the priority order of the multiplicators.

Use the date picker to select a specific date or use the arrows to go back or forward. Click the single arrows to move one day and click the double arrows to move one week.

Change the priority order of multiplicators

Decide which of two overlapping multiplicators to apply by changing the priority order.

1. Click on the multiplicator that should apply.
2. Right-click and select **Move down**.

   Repeat until the selected multiplicator is below the overlapping multiplicator in the table. Check the

day in the visualizer to confirm that the correct multiplicator applies.

3. Click **Apply** to save the changes.

Delete a multiplicator rule

Delete multiplicator rules that no longer applies.

1. Ensure to select the multiplicator definition set that contains the multiplicator to delete.
2. Click on the multiplicator to delete.
3. Click on **Delete multiplicator**.
4. Click **Yes** to confirm.
5. Click **Apply** to save the changes.

Delete a multiplicator definition set

Delete multiplicator definition sets that are no longer used.

1. Ensure the multiplicator definition set to delete is selected in the menu.
2. Click on **Delete definition set**.
3. Click **Yes** to confirm.
4. Click **Apply** to save the changes.

Related topics

- How exporting payroll data works
- How extra compensation works
- Set up multiplicators for extra compensation
- Create and run a payroll export
- Standard payroll export file formats

Create and run a payroll export

Use this view to export payroll information to a file which can be used to import data to other applications. First follow the steps in the payroll wizard to do choose the type of export, the agents to export data for and for which period. When the settings are done, the export will run automatically.

Choose to either create a new payroll export each time you run an export or create the payroll exports needed and then update person and period selection each time before you run it.

If the content of the standard payroll exports does not fulfill your requirements, a customized payroll export can be set up to handle the specific requirements of the receiving payroll system and the rules regarding for example absences and overtime. Read more in How exporting payroll data works.

Prerequisites

- You have the Payroll integration permission.
- The agents have the required information defined.
    - Employment number
    - An active person period
    - Site and team
    - Contracts
- Multiplicators are created to define the compensation levels.
- Multiplicator definition sets are created to define when extra compensation applies.
- Multiplicator definition sets for shift allowance and overtime are connected to the agents' contracts.
- The activities and absences used in the schedule have the required information defined.
    - Name
    - If it is contract time
    - If it is work time
    - If it is paid time
    - Payroll system code
- The days off used in the schedule have the required information defined.
    - Payroll system code
- If you are using Azure Virtual Desktop, see Manage export of files on AVD for details on how to handle the exports.

Page location

Client > Payroll integration

Procedures

Create and run a new payroll export

Follow the steps to create a new payroll export.

1. Click **New**.
2. Click **Next**.
3. Enter a **Name** for the export. This is used to identify the payroll export when reusing it later. It could for example describe the agent selection.
4. Click **Next**.
5. Select the **Type of export file** to create. The standard payroll export file options are an activities export, a time export and a detailed export. Read more in Standard payroll export file formats. If there are customized payroll exports set up, those are shown as options here.
6. Click **Next**.
7. Select the **Period** to export data for.
8. Click **Next**.
9. Select the **Persons** to export data for.

   Include the whole business unit or choose sites, teams or persons by selecting the corresponding check boxes. It is also possible to select persons based on group pages, for example which contract they have. When working with the standard export files, you often need to make manual adjustments to the files before importing them to the payroll system. Therefore, it is common to export all persons at once and do any manual changes needed in the exported file.

10. Click **Finish**. The payroll export starts running automatically. When the export is finished, download the export file.

Download the export file

When the export is finished, download the export file.

1. Click on the export in the left-hand list of exports. Each time the export has run is shown as a row in the table on the right.
2. Click the run to download the file for. The latest run is always at the top.

The **Detailed information** section for a run shows the type of export, the time period and the number of persons included.

> **NOTE** If the circle is not green, the export is not ready.

3. Click **Save as** in the **Detailed information** section.
4. Name the file and select where to save it.

   The file is downloaded and ready to import to the payroll system or to open to make manual adjustments.

Change scope of a payroll export

Adjust the period or person selection of a previously created payroll export.

1. Right-click on the export in the left-hand list of exports and select **Properties**.
2. Adjust the name of the export if needed.
3. Click **Period selection** and adjust the period.

   > **IMPORTANT** If new agents have started in a team in the new period to export, they will not automatically be selected in the export even if the whole team was selected before. Ensure to add them manually.

4. Click **Person selection** and adjust the persons selected.
5. Click **OK**. The export will not automatically run. Run the export manually.

Run an existing payroll export

Run an export again.

1. Right-click on the export in the left-hand list of exports and select **Run selected export**.
2. When the export is finished, download the export file.

Related topics

- How exporting payroll data works
- How extra compensation works
- Set up multiplicators for extra compensation

- Set up rules for when extra compensation applies
- Standard payroll export file formats

Standard payroll export file formats

When you run a payroll export, a comma-separated payroll data file is created. The content of the file depends on the type of export.

There are three standard payroll exports in WFM; time export, detailed export and activities export.

The time export and the detailed export are used together. The time export gives the scheduled contract time for each agent each day. The detailed export defines the deviations, such as absences, overtime and shift allowance.

The activity export contains the contract time, work time, paid time and payroll code for all activities in the given period.

The export file format can be customized to fit the specific requirements of the receiving payroll system and to handle requirements regarding for example absences, overtime, time zones or special rules. Read more in How exporting payroll data works.

Time export

The time export contains the listed parameters for each employee and day, in this order.

- Employment number
- First name
- Last name
- Business unit name
- Site name
- Team name
- Contract name
- Part-time percentage name
- Part-time percentage value (xxxxx, where the last two numbers are decimals)
- Date (yyyy-MM-dd, in the time zone of the agent)
- Start time (yyyy-MM-dd HH:mm, in the time zone of the user running the export)
- End time (yyyy-MM-dd HH:mm, in the time zone of the user running the export)

- Shift category name
- Contract time (hh:mm)
- Work time (hh:mm)
- Paid time (hh:mm)
- Absence payroll system code (if there is a full-day absence, otherwise left empty)
- Day off payroll system code (if applicable, otherwise left empty)

The contract time, paid time and work time is based on if the activities and absences are set as contract time, paid time and work time in the activities and absences tables in Options.

NOTE If there is more work time and paid time than contract time, that might indicate that the day has overtime. This is because scheduled overtime is not regarded as contract time. Overtime is included in the detailed export.

EXAMPLE

127,Ashley,Andeen,England Sales,London,Team A,Fixed Staff,Full time,10000,2020-08-05,2020-08-05 08:00,2020-08-05 17:00,Day,8:00,9:00,8:00,,

127,Ashley,Andeen,England Sales,London,Team A,Fixed Staff,Full time,10000,2020-08-06,2020-08-06 08:00,2020-08-06 17:00,Day,8:00,0:00,8:00,HO111,

127,Ashley,Andeen,England Sales,London,Team A,Fixed Staff,Full time,10000,2020-08-07,,,,0:00,0:00,0:00,,DO222

127,Ashley,Andeen,England Sales,London,Team A,Fixed Staff,Full time,10000,2020-08-08,2020-08-08 15:00,2020-08-08 22:00,Late,7:00,8:00,7:00,,

Detailed export

The detailed export contains the listed parameters for each employee and day, in this order. If there are two deviations on the same day for an agent, there will be two rows in the detailed export for that agent on that day.

- Employment number
- First name
- Last name
- Business unit name
- Site name
- Team name

- Contract name
- Part-time percentage name
- Part-time percentage value (xxxxx, where the last two numbers are decimals)
- Date (yyyy-MM-dd, in the time zone of the agent)
- Payroll system code
- Time (The duration of the deviation from the contract time, HH:mm)

If an absence is set as contract time, the absence time is included in the time export. The absence time is also included in the detailed export with the payroll system code for that absence type.

All overtime hours are stated in the detailed export with the payroll system code defined for that type of overtime.

NOTE For scheduled overtime to be included in the detailed export, a multiplicator definition set which is effective for that date, time, and overtime type must be defined. For more information on how to set up multiplicator definition sets, see Set up rules for when extra compensation applies.

When agents work for example nights or weekends, shift allowance can be paid. This is controlled by the agents' multiplicator definition sets. The shift allowance can be paid for a part of the shift or the whole shift. The time period is stated in the detailed export file with the payroll system code defined for that type of shift allowance.

EXAMPLE

127,Ashley,Andeen,England Sales,London,Team A,Fixed Staff,Full time,10000,2020-08-05,HO111,07:30

127,Ashley,Andeen,England Sales,London,Team A,Fixed Staff,Full time,10000,2020-08-06,OT150,02:45

127,Ashley,Andeen,England Sales,London,Team A,Fixed Staff,Full time,10000,2020-08-07,IL111,10:30

127,Ashley,Andeen,England Sales,London,Team A,Fixed Staff,Full time,10000,2020-08-08,OT250,04:45

127,Ashley,Andeen,England Sales,London,Team A,Fixed Staff,Full time,10000,2020-08-09,HO111,10:15

Activities export

The activities export contains the listed parameters for each employee and each activity or absence, in this order.

- Employment number
- First name
- Last name
- Business unit name
- Site name
- Team name
- Contract name
- Part-time percentage name
- Part-time percentage value (xxxxx, where the last two numbers are decimals)
- Date (yyyy-MM-dd, in the time zone of the agent)
- Start time (yyyy-MM-dd HH:mm, in UTC)
- End time (yyyy-MM-dd HH:mm, in UTC)
- Payroll system code
- Contract time (hh:mm)
- Work time (hh:mm)
- Paid time (hh:mm)
- Time (hh:mm, the actual duration of activity/absence)

The contract time, paid time and work time is based on if the activities and absences are set as contract time, paid time and work time in the activities and absences tables in Options.

Days off are not included in the export.

EXAMPLE

EXAMPLE

127,Ashley,Andeen,England Sales,London,Team Preferences,Fixed Staff,Full time,10000,2020-01-14,2020-01-14 07:00,2020-01-14 08:45,PH123,1:45,1:45,1:45,1:45

127,Ashley,Andeen,England Sales,London,Team Preferences,Fixed Staff,Full time,10000,2020-01-14,2020-01-14 08:45,2020-01-14 09:00,SB111,0:15,0:15,0:15,0:15

```
127,Ashley,Andeen,England Sales,London,Team Preferences,Fixed Staff,Full time,10000,2020-01-14,2020-01-14 09:00,2020-01-14 10:30,PH123,1:30,1:30,1:30,1:30

127,Ashley,Andeen,England Sales,London,Team Preferences,Fixed Staff,Full time,10000,2020-01-14,2020-01-14 10:30,2020-01-14 11:15,LU111,0:00,0:00,0:00,0:45

127,Ashley,Andeen,England Sales,London,Team Preferences,Fixed Staff,Full time,10000,2020-01-14,2020-01-14 11:15,2020-01-14 01:30,PH123,2:15,2:15,2:15,2:15

127,Ashley,Andeen,England Sales,London,Team Preferences,Fixed Staff,Full time,10000,2020-01-14,2020-01-14 01:30,2020-01-14 01:45,SB111,0:15,0:15,0:15,0:15

127,Ashley,Andeen,England Sales,London,Team Preferences,Fixed Staff,Full time,10000,2020-01-14,2020-01-14 01:45,2020-01-14 03:00,PH123,1:15,1:15,1:15,1:15

127,Ashley,Andeen,England Sales,London,Team Preferences,Fixed Staff,Full time,10000,2020-01-14,2020-01-14 03:00,2020-01-14 04:00,EM123,1:00,1:00,1:00,1:00
```

Related topics

- How exporting payroll data works
- How extra compensation works
- Set up multiplicators for extra compensation
- Set up rules for when extra compensation applies
- Create and run a payroll export

Configure when to award badges in WFM

Use the gamification settings to define when an agent is awarded with a badge. Then connect the settings to the teams or sites where you want these settings to apply. Create multiple settings to set different targets for different groups of agents.

Badges are awarded using **Different thresholds** or **Ratio conversion**.

When using **Different thresholds**, you define three threshold values for each measure; bronze, silver and gold level. The agents receive a bronze, silver or gold badge depending on which threshold they reach.

When using **Ratio conversion**, you define one threshold value for each measure. Agents must reach that value to receive a bronze badge. You also define how many bronze badges that are required to turn them into a silver badge, and how many silver badges that are required to turn them into a gold badge.

Prerequisites

- You have the Web > Gamification permission.
- To use measures based on imported data, this data must already have been imported.

Page location

WFM > Gamification > Gamification settings tab

Procedures

Create gamification settings with different thresholds for bronze, silver and gold

1. Click **New**.
2. Enter a name for the settings in the **Description** field.
3. Select a **Gaming period**; Ongoing, Weekly or Monthly.

   If Ongoing is selected, agents will see all badges they have ever received (or that they have received since the badges were last reset).

   If Week or Month is selected, the results are divided accordingly, and the agents can navigate between previous periods.
4. Select **Use different thresholds** in the **Rule** field.
5. Select the check boxes for the measures to use.
6. Click to expand each selected measure and enter the threshold values for gold, silver and bronze.

   NOTE The threshold values are set per day. Negative direction scoring, where lesser scores are better than higher scores, is currently not supported for measures based on imported data.
7. Click **Save**.

Create gamification settings with ratio conversion

1. Click **New**.
2. Enter a name for the settings in the **Description** field.
3. Select a **Gaming period**; Ongoing, Weekly or Monthly.

   If Ongoing is selected, agents will see all badges they have ever received (or that they have received since the badges were last reset).

   If Week or Month is selected, the results are divided accordingly, and the agents can navigate between previous periods.
4. Select **Use ratio conversion** in the **Rule** field.
5. Enter how many bronze badges an agent must have to receive a silver badge.
6. Enter how many silver badges an agent must have to receive a gold badge.
7. Select the check boxes for the measures to use.
8. Click to expand each selected measure and enter the threshold value for the bronze badge.

   NOTE The threshold value is set per day.
9. Click **Save**.

Delete a gamification setting

1. Select the gamification setting that you want to delete in the menu at the top of the tab.
2. Click **Delete**.
3. Click **Delete** to confirm.

Related topics

- Assign gamification rules to sites and teams in WFM
- Import external gamification data to WFM
- WFM gamification import requirements
- Recalculate badges for WFM
- Configure gamification points for QM

Assign gamification rules to sites and teams in WFM

Define which gamification settings to use for the teams in your organization. The agents in the teams are awarded badges based on their performance and the defined gamification settings.

NOTE Calculation of badges is only done for agents who have the View badge permission.

Prerequisites

- You have the Web > Gamification permission.
- Sites and teams are set up under Options > Organization hierarchy.
- Gamification settings are defined in the Gamification settings tab.

Page location

WFM > Gamification > Set gamification targets tab

Procedures

Assign gamification rules to sites and teams

1. Select the teams for which to assign gamification rules.

   If needed, use the filter above to more easily find a site or team.

2. Click **Setting** and select which gamification setting to assign to the selected teams.

Related topics

- Configure when to award badges in WFM
- Import external gamification data to WFM
- WFM gamification import requirements
- Recalculate badges for WFM
- Configure gamification points for QM

Import external gamification data to WFM

Import a maximum of ten measures and the corresponding agent performance values from external systems. Use these measures to award badges with the gamification functionality.

Create a new measure by importing data for this measure. Define a name and a unique ID for the measure in the import file. When it has been imported, the measure is available to select in the gamification settings.

The import is performed as a background process. This process might take time to begin or complete processing depending on the load of the server. You don't need to stay on the Import external data tab once an import process has been started. Return later to check the status of the import. If there were any errors, download a file containing more information about the errors.

NOTE Imported data older than 30 days cannot be used to calculate badges.

Prerequisites

- You have the Web > Gamification permission.

Page locations

WFM > Gamification > Import external data tab

Procedures

Import external gamification data

1. Prepare the CSV file containing performance data to comply with the import file requirements. See WFM gamification import requirements for more information.
2. Drag the file onto the area at the top of the **Import external data** tab or click the area to open a dialog to find and select the file.
3. Click **Upload and start** to start the import. The import is added to the job list at the bottom of the tab. The status of the job is initially **In progress**.
4. Refresh the page any time to see the current status. When the status shows **Finished** or **Finished (Errors)** the job is completed.
5. If there are any errors, click the **Errors** link in the status field to download a file containing the rows that could not be imported. In this file there is an explanation for each row on why that row cannot be imported.

Related topics

- WFM gamification import requirements
- Configure when to award badges in WFM
- Assign gamification rules to sites and teams in WFM
- Recalculate badges for WFM
- Configure gamification points for QM

WFM gamification import requirements

This page describes the requirements when importing gamification data from an external system.

File format

All data must be provided in a CSV file.

Fields can be separated either by comma or semicolon. If a comma is used to separate fields, only use the "." character to represent decimal values. If a semi-colon is used to separate fields, only use the "," character to represent decimal values.

The import file must include these fields in this order.

{Date},{PersonID},{PersonFirstName},{PersonLastName},{MeasureName},{MeasureId},{MeasureType},{Score}

Field	Description
Date	Date in format yyyymmdd.
PersonID	A string with a maximum of 130 characters. To connect the score to an agent, the PersonID in the import file must match the agent's employment number, external logon, or application login. Note that the matching is case sensitive. **EXAMPLE** If the external logon is "0019 (ACD)", only 0019 is matched.
PersonFirstName	The agent's first name.
PersonLastName	The agent's last name.

Field	Description
MeasureName	The name of the measure. A string with a maximum of 50 characters.
MeasureId	An integer value that can uniquely identify the measure.
MeasureType	Describes the type of performance score for this measure. Currently two different types are supported; Percent and Numeric.
Score	A decimal value that represents the agent's score on this day for this measure.

EXAMPLE

20200820,1234,Kalle,Pettersson,Quality Score,1,Percent,87

20200820,1234,Kalle,Pettersson,Sales Result,2,Numeric,2000

20200820,1234,Kalle,Pettersson,Campaign Result,3,Numeric,25.5

Gamification import example file

Related topics

- Import external gamification data to WFM

Recalculate badges for WFM

The badge calculation happens automatically each night. Badges are then distributed based on the agents' performance the day before yesterday. The delay in calculating badges is to ensure that the data which the calculation is based on is available, as there might be agents in multiple time zones.

If there for example was a longer delay, you can choose to run a recalculation of the badges for a selected period.

NOTE Imported data older than 30 days cannot be used to calculate badges.

Prerequisites

- You have the Web > Gamification permission.
- It is defined when to award badges on the Gamification settings tab.

- Gamification rules are assigned to the teams and sites on the Set gamification targets tab.
- Agents must have the View badge permission for badges to be calculated.

Page location

WFM > Gamification > Badge calculation tab

Procedures

Recalculate badges for a selected period

1. Select the date range to recalculate the badges for.
2. Click **Start**.

   The recalculation is added to the job list at the bottom of the tab. All badges within the selected period are recalculated using the current settings. The status of the job is initially **In progress**.
3. Refresh the page any time to see the current status.

   The recalculation is performed as a background process. This process might take time to begin or complete processing depending on the load of the server. You don't need to stay on the **Badge calculation** tab once a recalculation process has been started. Return later to check the status of the recalculation.

Reset all badges

Reset the badges to start over.

IMPORTANT This will delete all badges for all agents, regardless of which gamification setting their team is connected to. The badges cannot be recovered.

1. Click **Reset badges**.
2. A warning is shown. Click **Reset badges** to confirm.

Related topics

- Configure when to award badges in WFM
- Assign gamification rules to sites and teams in WFM
- Import external gamification data to WFM

- WFM gamification import requirements
- Gamification Leaderboard report
- Configure gamification points for QM

Generate example data for WFM

The system can generate example data of all the required settings. This is useful for training or self-studies, to get to know the newly installed system.

The example data can be renamed as needed and used as a basis to continue to configure the system. If you do not want to keep it, the example data can easily be removed. But, who doesn't want Peter Forsberg on their team?

Example data generated

The following data is generated.

- A contract, a contract schedule, and two part-time percentages: 100% and 50%.
- Two activities and an absence.
- A shift category.
- A day off.
- A skill with a workload and a queue connected.
    - A long-term forecast is created for the current and next month.
    - The queue does not contain any queue data.
- A shift bag.
- A site and a team.
- Two agents.
    - The agents have a person period starting on the first day of the current month. They belong to the created team. They are assigned the generated contract, contract schedule, part-time percentage, skill and shift bag.
    - The agents have a 4-week schedule period.

Prerequisites

- You have the Super administrator role.

Page location

WFM > WFM settings > Getting started

Procedures

Generate example data

Generate example data to be used for self-studies or training. The example data is generated immediately and is visible within a couple of minutes.

- Click **Generate example data**.

Delete example data

> **NOTE** This deletes all example data that was generated, also if it has been renamed. Ensure to only delete the example data if you know that it is not being used. If you only want to delete some of the example data, delete it manually.

1. Click **Details** for the generated example data.
2. Click **Delete**.
3. Click **Delete** to confirm that you want to remove the example data.

Transition data from Classic Cisco WFM to the new Cisco WFM

The transition tool helps you transition agents and queue statistics from your Classic Cisco WFM installation to your new Cisco WFM installation. It also sets some default values for you to get started more quickly. See WFM data transition overview for details on what data that is transitioned.

The transition tool works for both cloud and on-premises installations of Classic Cisco WFM.

Select a small part of the organization to transition to try it out, or select to import the whole organization at once. You can transition data for the same period and the same teams again to get the most recent information. Note that any changes you have done to the transitioned data, such as agent information, are overwritten when you transfer data for the same organization and the same period again. Any default values in the new Cisco WFM which you have changed are not overwritten.

> **NOTE** The maximum session time for the data transition is 1 hour. For large organizations it is therefore a good idea to transition data for a shorter period to start with, to see how long it takes. The first time often takes the longest, because many items are created and configured.

IMPORTANT A user's email addresses must be valid and configured on the customer SMTP prior to adding a new user to Webex WFO or updating an existing user's email address in Webex WFO. Otherwise, Webex WFO cannot send emails to the user's email address. This message is only applicable to organizations that have configured users to receive activation and welcome emails to set their passwords.

Prerequisites

- You have the Super administrator role.
- The transition tool is made available in your installation.
- The Classic Cisco WFM installation is on version 10.4 or later.
- The Classic Cisco WFM server is accessible from the new Cisco WFM server.
- You have a Classic Cisco WFM user with the following permissions.
    - Application Management > Administer WFM
    - Schedule > Administer schedules
    - Schedule > Plan schedules
    - Access to all the groups and teams to transition.
- You created at least one contract, contract schedule, and part time percentage in the Options module in the client.
- You have set the default values at WFM > WFM settings > Set employee defaults

Page location

WFM > WFM settings > Getting started > Transfer from other system

Procedures

Authenticate for transition of data

1. On the **Authenticate** tab, enter the **Base URL**. This is the URL that you use when you access Classic Cisco WFM.
2. Enter the Classic Cisco WFM **Username** and **Password** for the account to use for transitioning the data.

NOTE The password is not the SSO password, but the password set in Webex WFO.

3. Enter the **Tenant ID**. You only need to enter a tenant ID if the account has access to more than one tenant.
4. Click **Authenticate**.
5. Continue by selecting what to transition.

Select what to transition

1. On the **Organization** tab, select the teams and groups to transition. Click **Toggle all** to clear the selection of all teams if you only want to select a few.

   The number of agents connected to each team is shown.

   NOTE Users who do not belong to any team are not transitioned.

2. Click **Next**.
3. Define the **Date range of historical stats** to transition, between 1 to 5 years. This is the queue statistics for the queues connected to the skills which are assigned to the agents in the part of the organization that you have selected.
4. Click **Next**.
5. An overview of the data to be transitioned is shown. Review it to ensure it is correct. If it is not, click **Back** to go back and adjust the selection.
6. Click **Save** to start the transition. The teams are transitioned first. When this is done, the transition of the queue statistics continues in the background.
7. You can keep working in the system while the transition is running, but it's a good idea to keep this browser tab open until the transition is done. When it finishes without any issues, the Authenticate view is shown again and the finished transition is listed in the Transitions table.
8. If something goes wrong, the message **Saving failed** is shown. This might be because the transition took longer than an hour. Select a shorter date range and try again. If that does not help, contact Cisco support for assistance.

Follow up

When you return to the **Transfer from another system** view, the latest transition is listed in the Transitions table. The time when the transition finished is stated.

- Click **Details** to see what has been transitioned. This information lists all transitioned data, not just the data transitioned in the latest transition.

Review the transitioned data

The goal of the WFM data transition is to give you a good starting point, but it does not set up a complete configuration. Therefore it is important to review the transitioned data and the default values when the transition is done. There are also some areas where no configuration is done, and where you might need to do that configuration manually.

The WFM data transition overview topic contains information on what data that is transitioned, where default values are set, and other areas where additional configuration might be needed. It also gives you information on what is important to think about in your review, and where you can find more information on how to handle the different areas.

Delete transitioned data

Delete all the transitioned data and start over if you want to.

1. Click **Details** in the Transitions table.
2. Click **Delete**.

NOTE This will delete the default values and all data transitioned from that host.

Related topics

- WFM data transition overview

WFM data transition overview

This topic describes the changes made by the transition tool for transition of data from the Classic Cisco WFM to the new Cisco WFM. A lot of data is transitioned from the Classic Cisco WFM database and stored as the corresponding type of data in the new Cisco WFM. In some situations, the transition tool also assigns appropriate default values for you to get started more quickly.

The data which is transitioned is based on the agents you select and the periods for which you select to transition queue statistics.

The tables below describes what data that is transitioned, where default values are set and any other important areas where additional configuration might be needed. It also gives you additional information on what you need to consider in your review, and where you can find more information on how to handle the different areas.

Agents

Data	Comment
First name	Transitioned from Classic Cisco WFM.
Last name	Transitioned from Classic Cisco WFM.
Email	Transitioned from Classic Cisco WFM.
Employment number	Transitioned from Classic Cisco WFM.
Roles	If there already is a role in the new Cisco WFM with the same name as the role which the agent has in Classic Cisco WFM, that role is assigned to the agent. If there is no role with the same name as the agent's role in Classic Cisco WFM, an empty role with that name is created and assigned to the agent. **Review:** Review all roles and set appropriate data and function permissions. See Create roles for access to WFM for more information.
Language	Set to *Computer default* for all transitioned agents.
Format	Transitioned from Classic Cisco WFM.
Time zone	Transitioned from Classic Cisco WFM.
Workflow control set	The agents are assigned the *Default* workflow control set. All settings in the workflow control set are default settings. **Review:** Go through the workflow control set and adjust the settings to suit your organization. Consider if you need to create and assign separate workflow control sets for certain groups of agents. See Manage workflow control sets for more information.
Leaving date	If a leaving date is set for an agent in Classic Cisco WFM, this is

Data	Comment
	transitioned to the new Cisco WFM.
Person period	A person period is created. The start date for that person period is set to the company start date in Classic Cisco WFM. If multiple transitions are made for the same agents, a new person period is created each time with the start date set to the date of the transition. **Review:** Confirm that the start date of the agent's first person period is set to the agent's employment start date. This is important if seniority is used in your organization. Adjust the person period start dates if needed.
Site/team	The agents are assigned a site and team based on the setup in Classic Cisco WFM. **Review:** Make adjustments to the organization structure with sites and times if needed. See Configure the organization structure for WFM for more information.
Skills	No skills are transitioned.
External logon	No external logons are transitioned and assigned to the agents. **Review:** When an ACD integration is set up for new Cisco WFM, the external logons are available to assign to the agents. See Manage WFM agent work rules for more information.
Contract, contract schedule, and part-time percentage	Contract, contract schedule, and part-time percentage are not transitioned. Agents are assigned the defaults which are configured in WFM > WFM settings > Set employee defaults
Multiplicator definition sets	No multiplicator definition sets are created and connected to the contracts in the transition. If you want to schedule overtime for an agent, at least one multiplicator definition set must be connected to the agent's contract.

Data	Comment
	Review: Create multiplicator definition sets if you plan on scheduling overtime for the agents. See Set up rules for when extra compensation applies for more information.
Shift bag	No shift bags are transitioned.
Schedule period	No schedule periods are set up in the transition. Schedule periods are required for scheduling and for validating if contract rules are fulfilled. **Review:** Create schedule periods for all agents who have schedules. See Manage schedule periods for more information.
Rotation	No rotation information is transitioned. **Review:** To use rotations to control the scheduling of all or some days for the agents, create and assign rotations. See Create rotations for more information.
Personal account	No personal account information is transitioned. **Review:** To use personal accounts to track each agent's usage of different absence types, create personal accounts for the relevant absence types. See Manage personal accounts for absences for more information.

Queues, skills and forecasts

Data	Comment
Skills	No skills are transitioned.
Queues and queue statistics	All queues connected to the skills assigned to the selected agents are transitioned, including queue data for the selected historical statistics period. The queue data is stored in 15-minute or 30-minute intervals, depending on environment settings.

Data	Comment
	Review: Run the queue statistics report to verify the data.

Related topics

- Transition data from Classic Cisco WFM to the new Cisco WFM

Manage product activation keys for WFM

Review when the current product activation key expires and what product functionality it covers. This is listed in the **About** view that you reach from the **File** menu in the WFM Windows client.

Apply a new product activation key, for example to replace an expiring product activation key, to add more functionality or to increase the number of agents.

Review which agents that are considered active and count towards the license.

Read the legal notice that lists the software components used.

Prerequisites

- You have the Open Cisco WFM permission.
- You have the Global functions > View active agents permission.

Page location

Client > About

Procedures

Apply a product activation key

Before you start, ensure that you have the new product activation key and that you know where it is located.

1. Finish any ongoing tasks in WFM and save the changes.
2. In the client, click the **File** menu and select **About**.
3. Click **Apply product activation key**.
4. Click **Browse**.

5. Select the product activation key file and click **Open**.
6. Click **Apply**. The desktop client shuts down automatically
7. Restart any other running clients.

View a list of active agents

The product activation key covers a specific number of active agents. An agent is considered active if they are connected to a team, scheduled on at least one shift within the default scenario and have an active employment. An active employment is when no leaving date is set, or when it is set for a future date.

- Click **Display** next to the number of **Active agents in use**. A list of all active agents is displayed. For each agent, the following information is shown.
  - Business unit.
  - First and last name.
  - Email address.
  - Employment number.
  - The start date of the first person period.
  - Leaving date.
- Use the list to find any agents that should not be counted as active.

NOTE Use alternative scenarios if you want to simulate scheduling more agents than what your product activation key covers. Agents who are only scheduled in a scenario other than the default scenario do not count as active agents.

Read the legal notice

The Legal notice view lists the software components used as sub-components by Cisco WFM and displays the corresponding legal notices needed for redistribution of these components.

1. In the client, click the **File** menu and select **About**.
2. Click **Legal notice**.

Related topics

- How the WFM licensing model works
- Create alternative scenarios

- End an employment for WFM
- How licenses work for QM, Analytics, and Insights—Licensing information for the rest of the Webex WFO suite

Configure WFM system settings in client

The System settings view in the WFM client contains a few general settings.

Prerequisites

- You have the Options permission.

Page location

Client > Options > System settings > System settings

Procedures

Configure the default segment length to use when designing shifts

Segments are the time chunks that help define the alternative start times, end times and lengths of activities and shifts when creating shifts. The default segment is used as the default, but can be changed.

EXAMPLE The early start is 8:00, the late start is 9:00 and the segment length is 0:15, the generated shifts will start at 8:00, 8:15, 8:30, 8:45 and 9:00.

1. Click to expand the **Default segment length** menu and select the segment length you want to use as default; 0:10, 0:15, 0:30 or 1:00
2. Click **Apply** to save.

Select the type of ready-time adherence calculation to use

Select which type of ready-time adherence calculation to use in MyReport in MyTime and for awarding agent badges.

1. Click to expand the **Ready-time adherence calculation** for MyReport menu and select which ready-time adherence calculation to use.
2. Click **Apply** to save.

Enter a support email address

The defined support email address is used to send error messages to if there is a technical failure.

1. Click in the **Support email address** field and remove the previous address if needed.
2. Enter the email address to use as the support email address.
3. Click **Apply** to save.

Configure when to notify agents of activity changes

Agents are notified when they have an activity change in their schedule. Define how many seconds prior to the activity change that the notification should pop up.

1. Use the arrows to increase or decrease the number of seconds in the **Time ahead of activity change to alert agent** field.
2. Click **Apply** to save.

Configure for how long to show the activity change notification

Agents are notified when they have an activity change in their schedule. Define the number of seconds to show this notification.

1. Use the arrows to increase or decrease the number of seconds in the **Notification duration** field.
2. Click **Apply** to save.

Select for what hours to add full-day absences

The full-day absence setting is used when a full-day absence is added to a day where there is no previously scheduled shift, for example through an approved absence request. The default values are 00:00 to 23:59. This means that when an agent requests a full-day absence and the absence is approved the absence will start at 00:00 and end at 23:59.

Update this setting if you work with shifts that cross midnight. If a full-day absence is added on one day before any scheduling is done, and later a night shift is added on the day before, the full day absence would cover the end of that shift if the default settings are used. By changing the settings to for example 07:00 to 23:59, the full day absence will only cover the current day's shift.

1. Click the **Start time** field and enter the start time of the full-day absence.
2. Click in the **End time** field and enter the end time of the full-day absence.
3. Click **Apply** to save.

NOTE The way full-day absences are stored is currently being changed, and the new way is successively implemented within the system. This full-day absence setting does not apply to the new way of storing full-day absences. The new way of storing can handle situations with overnight shifts without any risk of overlapping.

Related topics

- Turn on schedule change notifications
- Manage WFM settings on web
- Configure global settings
- Configure QM global settings

Manage WFM settings on web

The WFM settings contain settings used in different parts of the system.

Prerequisites

You have the Web > WFM settings permission.

Page location

WFM > WFM settings

Related topics

- Manage bank holidays
- Set default values for the WFM employee import
- Generate example data for WFM
- Manage WFM integrations
- Present a custom message to MyTime app users
- Manage trade settings
- Manage absence request settings
- Configure activity request settings in WFM

- Configure the organization hierarchy for WFM
- Manage absences and attributes
- Manage notification settings
- Transition data from Classic Cisco WFM to the new Cisco WFM
- Configure global settings
- Configure QM global settings

Check if the WFM audit trail is running

The schedule audit trail tracks changes to the schedule. It tracks what changes have been made, by whom and when. It only tracks changes for the default scenario.

On this page you can check if the schedule audit trail is running. If it is running, this will be clearly stated, and highlighted in green.

NOTE

- The schedule audit trail is always enabled for new installations.
- There is a general audit trail which tracks other types of changes. The general audit trail is always enabled.

Prerequisites

- You have the Options > Audit trail settings permission.

Page location

Client > Options > System settings > Auditing

Related topics

- Schedule Audit Trail report
- General Audit Trail report

Change password and view settings for WFM

If you log in using application authentication, you can change your own password within WFM. This can be done on the web or within the client.

NOTE The password change functionality is not available for users who have logged in with identity authentication.

On the web you can also make some adjustments of the interface, like change the color theme or your language and format settings. You can also configure notification settings.

For information about how to generate personal access tokens to access the WFM APIs in machine to machine communication, go to Generate access tokens for API access to WFM.

NOTE In order to enable notifications, so that they are available for users in each business unit to customize, you must have the Notification settings permission. Contact your admin about this permission and see Manage notification settings.

Prerequisites

- You have the Web permission.
- To change your application logon password in the client, you must have the Open Cisco WFM permission.

Page location

This functionality is available in more than one location.

- WFM > Profile
- Client > File > Profile (only change of application authentication password)

Procedures

Change application authentication password on web

1. Where you find these settings depends on which type of main navigation you use.
    - If you have the main menu to the left, click your name.
    - If you have the main menu at the top, hover your name and select **User settings**.
2. Click **Change your password**.
3. Enter the **Current password**.
4. Enter the **New password**.

5. Enter the new password again to **Confirm new password**.
6. Click **Save**.

Change application authentication password in client

1. Open the **File** menu and select **My profile**.
2. Enter the **Current password**.
3. Enter the **New password**.
4. Enter the new password again to **Confirm new password**.
5. Click **OK**.

Change to dark theme

1. Where you find these settings depends on which type of main navigation you use.
    - If you have the main menu to the left, click your name.
    - If you have the main menu at the top, hover your name and select **User settings**.
2. Select the **Dark theme** toggle switch.

Activate blue light filter

1. Where you find these settings depends on which type of main navigation you use.
    - If you have the main menu to the left, click your name.
    - If you have the main menu at the top, hover your name and select **User settings**.
2. Select the **Blue light filter** toggle switch.

Change language and date format settings

1. Where you find these settings depends on which type of main navigation you use.
    - If you have the main menu to the left, click your name.
    - If you have the main menu at the top, hover your name and select **User settings**.
2. Click **Culture settings**.
3. Click the **Language** menu and select your preferred language.
4. Click to open the **Date** format menu and select your preferred date format.

NOTE The **Agent description** settings only apply to how agent names are shown to you in MyTime.

Configure notification settings

Enable notification settings for absence requests, overtime requests, and more.

NOTE If you cannot see the notification settings option, it means that your admin has not enabled notifications for your business unit. For further information, contact your admin and go to Manage notification settings.

1. Where you find these settings depends on which type of main navigation you use.
   - If you have the main menu to the left, click your name.
   - If you have the main menu at the top, hover your name and select **User settings** and click **Notification settings**.
2. Toggle the following rule sliders on or off:
   - **Absence request submitted**
     - **Desktop browser**
     - **In app bell**
   - **Absence request auto-approved**
     - **Desktop browser**
     - **In app pop**
     - **In app bell**
   - **Absence request manually approved**
     - **Desktop browser**
     - **In app pop**
     - **In app bell**

- **Absence request auto-denied**
  - **Desktop browser**
  - **In app pop**
  - **In app bell**
- **Absence request manually denied**
  - **Desktop browser**
  - **In app pop**
  - **In app bell**
- **Overtime request submitted**
  - **Desktop browser**
  - **In app pop**
  - **In app bell**
- **Overtime request auto-approved**
  - **Desktop browser**
  - **In app pop**
  - **In app bell**
- **Overtime request manually approved**
  - **Desktop browser**
  - **In app pop**
  - **In app bell**
- **Overtime request auto-denied**
  - **Desktop browser**

- In app pop
- In app bell

- Overtime request manually denied
  - Desktop browser
  - In app pop
  - In app bell
- Shift trade agent approved
  - Desktop browser
  - In app pop
  - In app bell
- Shift trade supervisor auto-approved
  - Desktop browser
  - In app pop
  - In app bell
- Shift trade supervisor approved
  - Desktop browser
  - In app pop
  - In app bell
- Shift trade supervisor denied
  - Desktop browser
  - In app pop
  - In app bell

- **Vacation change request awarded**
  - **Desktop browser**
  - **In app pop**
  - **In app bell**

3. Click **Save**.
4. Click **Close**.

Hide or show the main menu

If you have the main menu to the left you can hide it to save space on the screen. This is useful when working on small screens.

- Click **Hide** menu to only show icons and no labels for the menu options.
- Click the same button again, the double arrows in the bottom left corner, to show the menu with labels.

Log out

Where you log out depends on which type of main navigation you use.

- If you have the main menu to the left, click your name and then click **Log out**.
- If you have the main menu at the top, hover your name and select **Log out**.

Related topics

- Configure how to display agent names in WFM

About WFM data retention

WFM automatically purges data when it gets old to comply with regulations and ensure performance of the application. The default time data is kept is listed below. Customers with specific requirements can agree with Cisco to change the default data retention policy.

Reporting data

Type	Description	Deleted after
Agent Statistics	Historical interval-level agent data from ACD such as ready time and login duration.	2 Years
Agent Queue Statistics	Historical interval-level agent data per queue from ACD such as number of contacts managed and handling time.	1 Years
Forecast	Historical forecasting data. Contact volumes, handling times, etc.	3 Years
Queue Statistics	Historical interval-level queue data from ACD, used as a basis for forecasting.	10 Years
Request	Number of requests made by each agent.	2 Years
Schedule	Schedule time for activities and absences.	3 Years
Schedule	Number of scheduled shift categories and absences.	3 Years
Schedule	Historical adherence information.	2 Years
Schedule	Forecasted staffing levels and scheduled staff.	3 Years
Preferences	Preference fulfillment.	2 Years
Agents	Pseudonymization of agent names. How long to keep the actual agent name for former employees.	3 months

Application data

Type	Description	Deleted after
Forecast	All forecasting data in the application.	3 Years
Message	History of messages sent from the People module to agents.	1 Years
Payroll	History of exported payroll data.	3 Months
Schedule	The complete schedule.	3 Years

Type	Description	Deleted after
Security Audit	Audit trail of login attempts.	30 Days
Requests	History of requests, including details and approvals/denials.	12 Months
Agents	How long to keep any information about former employees. When deleted, it is no longer possible to follow up staffing levels.	3 Years
Agents	Pseudonymization of agent names. How long to keep the actual agent names of former employees.	3 months

Give users access to Insights

With access to Insights, people can view dashboards assigned to them, create their own analyses and dashboards, and share these analyses and dashboards with others. You can vary people's level of access by role.

Prerequisites

- You have the following permissions:
  - Administer Roles
  - Administer Org. Structure
  - Assign User Roles
- You know how many Insights licenses your organization has and have decided whether or not to exceed that number. Anyone who needs to create or view Insights content must have an Insights license. Each Webex WFO tenant includes some Insights Reader and Insights Author licenses at no additional charge, depending on the number of user licenses you have purchased. It is important to assign the Insights licenses correctly to avoid being billed for exceeding your number of complimentary licenses. If you're not sure how many Author or Reader licenses are included in your Cisco contract, please contact your Cisco representative.

Page location

Various. See the procedures below for page locations.

Step 1: Create new roles for Insights

Creating roles for Insights makes managing Insights users much easier.

Create the Insights Author role

1. Go to **Application Management** > **Global** > **User Configuration** > **Roles**.
2. Click **Create New Role**.
3. Enter **Insights Author** in the **Role Name** field.
4. Click **OK**.

Create the Insights Reader role

1. Click **Create New Role**.
2. Enter **Insights Reader** in the **Role Name** field.
3. Click **OK**.

Step 2: Assign Insights licenses to the Insights roles

A single role needs only one Insights license, but each license must be assigned to at least one role. The table below defines what each license does.

License	What it allows users to do
Insights Author	Create and share Insights analyses and dashboards
Insights Reader	View Insights dashboards that are created and shared with them by someone with an Insights Author license

1. In the **Licenses** table on the Roles page, select the **Insights Author** check box underneath the **Insights Author** role.
2. Select the **Insights Reader** check box underneath the **Insights Reader** role.

Step 3: Assign Insights permissions to the Insights roles

Assign permissions to the Insights Author role

1. In the **Permissions** table on the Roles page, scroll down to the **Insights** section and select the following check boxes underneath the **Insights Author** role:
    - **View Content**
    - **Create Content**
    - **Share Content**

> **NOTE** The Administer Insights permission is not currently used.

2. Select the **View Data** permissions for the Cisco products your organization has.

> **EXAMPLE** Your organization has Cisco QM and Analytics but not WFM. You select **View Analytics Data** and **View QM Data** but leave the other check boxes clear.

Assign permissions to the Insights Reader role

1. In the **Permissions** table, select the **View Content** check box underneath the **Insights Reader** role.
2. Select the **View Data** permissions for the Cisco products that you want **Insights Readers** to see. These permissions allow readers to see all data related to the selected products, including the standard dashboards.

> **EXAMPLE** Your organization has Cisco QM and Analytics but not WFM. You select **View Analytics Data** and **View QM Data** but leave the other check boxes clear.
>
> To hide Cisco standard dashboards from **Insights Readers**, clear all **View Data** permissions (for example, **View Analytics Data**, **View QM Data**, and **View WFM Data**).

3. Click **Save**.

For more information about what each of these permissions does, go to Manage roles and permissions for QM, Analytics, and Insights.

Step 4: Assign users to the Insights roles

Assign the Insights Author role to users

Most organizations assign this role to a small number of users.

1. Go to **Application Management** > **Global** > **User Configuration** > **Users**.
2. Select **Manage multiple users**.
3. Select **Assign Roles** from the **Action** drop-down list.
4. Select **Insights Author** from the **Assign Roles** drop-down list.
5. Move the people who should be authors in Insights from **Available** to **Assigned**.
6. Click **Save**. When these people next log in to Webex WFO, **Insights** appears in their top menu.

Assign the Insights Reader role to users

Most organizations have more readers than authors.

1. Select **Insights Reader** from the **Assign Roles** drop-down list.
2. Move the people who should be readers in Insights from **Available** to **Assigned**.
3. Click **Save**. When these people next log in to Webex WFO, **Insights** appears in their top menu.

Related topics

- How licenses work for QM, Analytics, and Insights
- Manage roles and permissions for QM, Analytics, and Insights
- Turn off Data Explorer

Give users access to Data Explorer

With access to Cisco Data Explorer, people can view reports and dashboards assigned to them, view shared reports and dashboards created by others, and create their own reports and dashboards. You can vary people's level of access by role.

Prerequisites

- Users and roles have been created and synced (Cisco handles the sync process).
- For QM or Analytics, you have the Administer Roles permission.
- In WFM, you have the Web > Permissions permission.

Page location

Various. See the procedures below for page locations.

Procedures

The steps needed to give people access to Data Explorer vary depending on the Cisco subscriptions your organization has.

If your organization has…	Go to this page to give people access to Data Explorer
QM	Application Management > User Configuration > Roles

If your organization has…	Go to this page to give people access to Data Explorer
WFM	WFM > Permissions
Analytics	Application Management > User Configuration > Roles

IMPORTANT If your organization combines WFM with QM or Analytics, you need to go to both pages to grant full access to Data Explorer.

WFM: Assign Data Explorer permissions to user roles

If your organization uses WFM, follow these steps.

1. Go to WFM > Permissions.
2. Select the role to modify.
3. Ensure the **Functions** tab is selected.
4. Add these permissions to the role as desired:

Permission	Description
Home Page	Gives people access to the home page, which is a Data Explorer dashboard.
Data Explorer	Allows people to view content in Data Explorer. With this permission, people can see the pre-built reports and dashboards and view reports and dashboards created by other people if those items are shared.
Data Explorer > Content creation	Allows people to create their own reports and dashboards in Data Explorer.
Data Explorer > Content publishing	Allows people to share the reports and dashboards that they create with others. To use this permission, people must also have the Content creation permission.

QM or Analytics: Assign Data Explorer permissions to user roles

If your organization uses QM or Analytics, follow these steps.

1. Go to Application Management > User Configuration > Roles.
2. Select the following permissions to assign to roles as desired:

Permission	Description
Data Explorer	Gives people read-only access to the Data Explorer asset browser page (the list of reports and dashboards).
Content Creation	Allows people to create, update, and delete Data Explorer reports and dashboards.
Content Publishing	Allows people to share reports and dashboards that they own to sharing groups they belong to.

3. Click **Save**.

Make a dashboard the default homepage for a role

When people with a specific role log in to Webex WFO, this dashboard will be the first thing they see. If you tag multiple dashboards with the same role, people with this role can navigate between the different dashboards.

For roles created in QM or Analytics

PREREQUISITE

- The role was created on the Application Management > Roles page.
- The role does not have the Data Explorer, Content Creation, or Content Publishing permissions.
- You own the dashboard. To make a dashboard that you don't own into a default homepage, copy the dashboard.

1. On the Data Explorer page, right-click the dashboard and select **Tag** from the drop-down list. The **Tags** window opens.
2. Enter **c1_role_** and then the name of the role.

   IMPORTANT The role name must match the name that your organization uses. A list of roles is available on Application Management > Global > User Configuration > Roles.

   To add a role whose name is one word, enter the name.

EXAMPLE **c1_role_Agent**

To add a role whose name is multiple words separated by spaces, enclose the tag in double quotes.

EXAMPLE **“c1_role_East Coast Team Leader”**

To add multiple roles at the same time, enter them one after the other separated by a space.

EXAMPLE **c1_role_Evaluator “c1_role_East Coast Agent”**

3. Click **Add Tag**.
4. Click **OK**. The **Tag** window closes.

For roles created in WFM

Step 1: Find the role ID

PREREQUISITE

- The role was created on the WFM > Permissions page.
- The role does not have the Data Explorer or Content Creation permissions. See How WFM function permissions work.
- You own the dashboard. To make a dashboard that you don’t own into a default homepage, copy the dashboard.

- On the Permissions page, click **Edit** (the pencil icon) next to the role. The **Edit [role name]** window opens. The role ID is at the top of the window next to the role name.



Step 2: Tag the dashboard with the role ID

1. On the Data Explorer page, right-click the dashboard and select **Tag** from the drop-down list. The **Tags** window opens.
2. Enter **wfm_role_** and then the role ID.

EXAMPLE **wfm_role_Teamleader**

To add multiple role IDs at the same time, enter them one after the other separated by a space.

EXAMPLE **wfm_role_Teamleader wfm_role_Agent**

3. Click **Add Tag**.
4. Click **OK**. The **Tag** window closes.

Related topics

- Create roles for access to WFM—Learn more about assigning permissions to roles.
- How WFM function permissions work—A list of all the permissions in WFM and what they do.
- Manage roles and permissions for QM, Analytics, and Insights—A list of all the permissions that apply to QM and Analytics and what they do.
- Manage the list of Data Explorer dashboards and reports—Learn how to restrict access to specific reports and dashboards by role.

Turn off Data Explorer

If your organization has transitioned to Insights and is ready to remove Data Explorer before Cisco automatically decommissions it, follow the steps below.

Prerequisites

- To turn off Data Explorer for Call Recording, QM, Analytics, and Classic WFM users, you have the Administer Roles permission.
- To turn off Data Explorer for WFM users, you have the Web > Permissions permission.

Page location

Various. See the procedures below for page locations.

Procedures

If your organization has both WFM and QM, complete both of the procedures below to turn off Data Explorer.

Turn off Data Explorer for Call Recording, QM, Analytics, and Classic WFM users

1. Go to **Application Management** > **Global** > **User Configuration** > **Roles**.
2. In the **Permissions** table, clear the check boxes for the following permissions for each role:

- In the **Dashboards** section:
  - View QM Dashboard
  - Administer Dashboards
  - View WFM Dashboard
- In the **Reporting** section:
  - Advanced Reporting API
  - Data Explorer
  - Content Creation
  - Content Publishing
- In the **Data Management** section: Clear all the permissions in this section.

3. Click **Save**. When users next log in, they will land on the first page in the top menu (from left to right) that they have permission to access. For most people, this is the Interactions page. They will not see **Data Explorer** in the top menu.

Turn off Data Explorer for WFM users

1. Go to **WFM** > **Permissions**.
2. In the **Roles** list, select a role.
3. Clear the following permissions:
   - Data Explorer and the permissions underneath it: Content creation and Content publishing
   - Home Page
4. Repeat steps 2 and 3 for all roles. Webex WFO automatically saves your changes. When users next log in, they will land on the first page in the top menu (from left to right) that they have permission to access. They will not see **Data Explorer** in the top menu.

NOTE You cannot remove any permissions from the Super Administrator role. This role is built into WFM and cannot be edited.

Related topics

- Give users access to Insights
- Manage roles and permissions for QM, Analytics, and Insights

- Create roles for access to WFM

Configure Data Management agents and tasks

IMPORTANT Cisco Data Management has been declared End of Sale as of November 1st, 2023 and is no longer available for purchase.

The Data Task Management page enables you to configure and maintain Data Management agents and the tasks that use those agents. You can also view task history.

- The **Agents** tab lists the installed agents and their status, along with other details such as version and owner. When you select a listed agent, its associated tasks are listed in the lower panel. From here you can add, edit, and delete agents.
- The **Tasks** tab lists all tasks. Each task listed shows its status as well as details about its schedule and when it was last run. You can view all tasks, or filter the list by agent. From here you can add, edit, and delete tasks.
- The **History** tab is a log of agent task activity.

Prerequisites

- Data Task Administration permission

Page location

Application Management > Data Management > Data Task Management

Manage agents

The agents managed on the Agents tab are not people. These agents are controllers that manage the data. you use in reports. Agents work only with connectors, getting data from source systems and loading it into a data library.

- **Cloud agents** push data from cloud to cloud (for example, from Salesforce.com or FTP/SFTP to the Webex WFO database).
- **Ground agents** pull data from on-premise to cloud (for example, from MSSQL, MySQL, ODBC/JDBC, or file transfer to the Webex WFO database). Ground agents are configured from the cloud and are then deployed to an on-premise server.

The **BI Cloud Agent** is the default agent in Webex WFO and can be used for all tasks. As the default agent, it cannot be edited or deleted.

> **IMPORTANT** In order for the BI Cloud Agent to be available for use, it must be enabled. To do this, the **indicee.agent.administration.enabled** attribute must be configured for the user or users who will be creating tasks.

Procedures

Enable the BI Cloud Agent

1. On the **Reporting User Attributes Management** page (Application Management > Data Management > Reporting User Attributes Management), select the user who will be creating and managing tasks.
2. In the **Extra Attributes** section, add the **indicee.agent.administration.enabled** attribute, and set its value to **true**.
3. Click **Save**.
4. Repeat these steps for any user who will be creating and managing tasks.

For more information on managing users and user attributes, see Manage Data Management users.

Add a new agent

1. At the bottom left of the **Agents** tab, click **Add a New Agent**  . The New agent window appears.
2. In the **Name** field, give the new agent a descriptive name.
3. (Optional) In the **Description** field, enter a description of the agent.
4. In the **Registered IP** field, enter **0.0.0.0**.

   > **NOTE** The Registered IP field is not currently used in a cloud environment. Use the generic IP address 0.0.0.0 as a placeholder.

5. Under **Administrators**, click **Add** and move the desired one or more administrator accounts you want associated with the agent from the **Available** pane to the **Selected** pane, and then click **Done**.
6. Click **Save**.

Edit an existing agent

1. At the bottom left of the **Agents** tab, click **Edit Agent**  . The Edit Agent window appears.
2. Update the fields as needed.
3. Click **Save**.

Delete an agent

1. On the **Agents** tab, select the agent you want to delete.
2. At the bottom left of the page, click **Remove the selected agent**  .

Manage tasks

A task is a process that manages agents. A task's primary function is to acquire data from a source and load it into a data library. These types of agents are called "data connectors". However, tasks can also perform other functions, such as:

- Extending data by reading new data and calculating some additional properties
- Truncating data by summarizing details and recording a simple aggregate
- Synchronizing the system state with some external system

Data sets are created and added to through the use of tasks. Tasks can be one-time events or on a recurring schedule. You configure the task to control how and when data is imported.

Procedures

Create a task

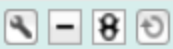
NOTE You must be an administrator assigned to an active agent in order to create a new task.

1. At the bottom left of the **Tasks** tab, click **Create New Task**  . The New Task window appears.
2. In the **Task Name** field, give the new task a descriptive name.
3. in the **Choose Data Task** left pane, select the desired agent category. One or more agents appear in the right pane.
4. Select the desired agent from the right pane. The lower pane then displays a list of the information you need to configure the agent.
5. Click **Next** and complete the configuration fields.

> **NOTE** Many agent connectors allow you to configure an optional trigger field. For more information about using trigger fields with scheduled recurring tasks, see Use trigger fields with scheduled tasks.

6. Click **Finish**.

Edit a task

1. On the **Tasks** tab, hover over the task you want to edit. Four buttons appear next to the task name  .
2. Click **Edit Task**  .
3. Edit the task as needed, and then click **Save**.

View existing tasks

The **Tasks** tab displays all existing configured tasks. You can:

- Filter the list by agent by selecting the desired agent from the drop-down field at the top of the list.
- Search for a specific task using the search field.

Review task history

The **History** tab displays a log of task history. You can:

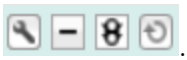
- Filter the list by agent by selecting the desired agent from the drop-down field at the top of the list.
- Sort the log on any column in ascending or descending order by clicking on the column header.
- Search for a specific task using the search field.
- Click the small **Information** button in the **Status** column to view more details about the execution of the task. The displayed message can be used to troubleshoot a task that failed to complete successfully.

Run a task now

You can manually run a scheduled task at any time.

1. On the **Tasks** tab, hover over the **Scheduled Start Time** field. The **Run Now** button  appears to the left of the column.
2. Click **Run Now** to run the task immediately.

Activate or deactivate a task

1. On the **Tasks** tab, hover over the task. Four buttons appear next to the task name  .
2. Click **Set Active/Inactive**  . If the task is currently active, this deactivates it. If the task is currently inactive, this activates it.

Delete a task

1. On the **Tasks** tab, you can do either of two things:
2.
   - Right-click the task you want to delete, and click **Delete**.
   - Hover over the task. Four buttons appear next to the task name  . Click **Remove Task**  .

> **BEST PRACTICE** Deactivate a task rather than removing it. That way it is still available if it is needed in the future.

Use trigger fields with scheduled tasks

> **IMPORTANT** Cisco Data Management has been declared End of Sale as of November 1st, 2023 and is no longer available for purchase.

Many agent connectors allow you to configure an optional trigger field. A trigger field can be any field that identifies a new or modified source record for a task that runs on a regular schedule.

One of the most common trigger fields is a timestamp that identifies when a record was last updated. Another common trigger field is a record ID number that increments each time a new record is added.

The first time an agent connector is run, all records are retrieved. The last value retrieved from the source data is stored as the trigger value. The next time the agent connector runs, it retrieves only records whose trigger value is greater than that stored value.

> **EXAMPLE** The records in a data source include a timestamp field named LastUpdated. The latest value in that field is 08:00 May 15, 2021. This date is stored as the trigger value. The next time the agent connector is scheduled to run, it retrieves only records with a LastUpdated value of 08:01 May 15, 2021 or later. The stored trigger value is then updated to reflect the latest LastUpdated value to serve as the trigger value for the next scheduled run.

Resetting the trigger field

At some point you might want to reset the trigger field. Resetting the trigger field means that you put the trigger value back to zero and start again. When the trigger field is reset, the agent connector once again retrieves all the records from the data source instead of only the new and modified ones.

Some reasons why a reset is desirable is if some changes in the source data did not update the trigger field, or if you need to refresh your database to correct corrupted data.

After the trigger field is reset and all records are retrieved, it goes back to saving the last trigger value and retrieving only new and modified records the next time it runs.

Procedure

Reset the trigger field on a scheduled recurring task

1. On the **Data Task Management** page (Application Management > Data Management > Data Task Management), select the **Tasks** tab.
2. Hover over the task whose trigger field you want to reset. Four buttons appear next to the task name  .
3. Click **Reset Trigger Field**  .

Manage Data Management users

IMPORTANT Cisco Data Management has been declared End of Sale as of November 1st, 2023 and is no longer available for purchase.

Data Management users are Webex WFO users who are licensed and granted roles for Data Management. The Reporting User Attributes Management page allows you to view read-only user information and to configure and manage extra attributes unique to Data Management for those users.

On the Reporting User Attribute Management page, users are grouped under the tenant account in the left panel and details for individual users are displayed in the right panel.

Prerequisites

- Data Management System Administration permission

Page location

Application Management > Data Management > Reporting User Attribute Management

About extra attributes

Extra attributes are essentially fields you can add to the account, as if you were adding fields to the Details panel and then entering values in those fields. You can select an attribute from the list of available attributes provided, or you can create your own custom attribute. One of the most common reasons for a custom attribute is to have a value that can be used dynamically in a report or a dashboard, such as a department name or a territory name.

The list of available attributes includes attributes in these categories:

- Account details
- Product content
- Look and feel
- Asserted configuration
- Account metrics
- Calendar configuration

Many extra attributes are inheritable. Other attributes, such as a username, are not. Each of these attributes is unique to a specific account. Attributes set at the tenant level can be configured to be inherited by all the users under that tenant.

Procedures

Add an extra attribute to an account

1. Open the **Reporting User Attribute Management** page.
2. In the left panel, select the account you want to add attributes to.
3. In the **Extra Attributes** section of the right panel, add a new attribute.
    - If you want to use a predefined attribute, click  at the bottom left of the table to open the **Select Attribute** dialog box. Select the attribute you want to add and click **Done**. The attribute is added to the table.

- If you want to add your own custom attribute, click  at the bottom left of the table to add a new row to the table.

4. Complete the information for the new attribute.
   - For a predefined attribute, enter a value in the **Value** column.
   - For your own custom attribute, enter a name in the **Name** column and a value in the **Value** column.
5. If you want the new attribute to be inheritable by child accounts, select the **Inheritable** check box on the attribute's row.

   NOTE You can set attributes to be inheritable only on the tenant account, and only if you have administrative permissions.
6. When all new attributes are added, click **Save**.

Edit an existing extra attribute

1. In the **Extra Attributes** table, click the attribute value you want to edit and make your changes.
2. Click **Save**.

Delete an existing extra attribute

1. In the **Extra Attributes** table, select the attribute you want to delete.
2. Click  at the bottom left of the table. The attribute is removed from the table.
3. Click **Save**.

Attribute	Category	Description
apply.infospace.dry.run	Asserted Configuration	Apply infospace dry run
calabrio.application_attributes.feature_flag	Asserted Configuration	Feature flag for using application fields on attributes.
calabrio.bi.cdm_trial.asset_filter	Asserted Configuration	Cisco Data Management Trial Asset Filter Tags
calabrio.bi.cdm_trial.question_restriction	Asserted	Cisco Data Management Trial Question

Attribute	Category	Description
	Configuration	Restriction Tags
calabrio.bi.cdm_trial.question_ restriction.override	Asserted Configuration	Cisco Data Management Trial Question Restriction Override
calabrio.bi.cdm_trial.user.end_date	Asserted Configuration	Cisco Data Management Trial End Date
calabrio.bi.contribution_download_limit	Asserted Configuration	Limit how may contributions can be downloaded at once
calabrio.bi.data_owner_id	Asserted Configuration	The account ID number of the tenant data owner (LBA) account, if any
calabrio.bi.quick_delete_enabled	Asserted Configuration	Whether or not to allow “quick” deletes of contributions from the engine via the UI. “Quick” deletes are more direct but less thorough than regular deletes and may leave data artifacts behind.
calabrio.client.beta.export.enabled	Asserted Configuration	Enable “beta” report export features when using the React renderer
calabrio.client.dev_mode.enabled	Asserted Configuration	Enable the Data Explorer Dev Tool drawer for client-side-only attributes override in 1.1 Renderer (CTL)
calabrio.client.logger.enabled	Asserted Configuration	Should the client logger be enabled?
calabrio.client.wordcloud_truncation_ length	Asserted Configuration	Specify the word cloud maximum character length per word.
calabrio.dashboard.formula_editor	Asserted Configuration	Enable Formula Editor for editing Dashboard Formula Parameters.
calabrio.dashboardwindow_size	Asserted Configuration	Window size for Dashboard BrowseValues requests.

Attribute	Category	Description
calabrio.data.delete_contributions_batch_size	Asserted Configuration	Number of contributions to delete in a batch.
calabrio.data.load_contributions_batch_size	Asserted Configuration	Upload Data Contributions Batch Size (in number of bytes)
calabrio.database_bloat.request.ttl	Asserted Configuration	The maximum time (in seconds) that database bloat requests be queued for before being discarded.
calabrio.delete.contributions.request.ttl	Asserted Configuration	The expiry time (in seconds) for deleting all contributions.
calabrio.sprite.collections_merge_precedence	Asserted Configuration	Precedence of shared collections
calabrio.sprite.detailed_logging_until	Asserted Configuration	Produce verbose and DEBUG level engine logs until this time (UTC).
export.csv.trailing.space	Asserted Configuration	Option to add a trailing space to CSV export output.
export.fetch_size	Asserted Configuration	Maximum export window fetch size (both rows or columns).
indicee.account_quota	Config	Number of sub-accounts that an account may own
indicee.administered_accounts	Config	(Read only) Accounts or organizations that are administered by this account
indicee.administrative_contact.detail	Account Details	Text containing additional details about administrative contact
indicee.administrative_contact.name	Account Details	Text, normally an email address that should appear as the administrative contact for the account
indicee.app_upper_limit	Asserted	The maximum number of users that can be

Attribute	Category	Description
	Configuration	registered for specific app keys
indicee.app_user_limit	Asserted Configuration	The maximum number of users that can be registered for use by apps in general
indicee.application_quota	Config	(Read only) Number of iBIOS application keys that a user can register
indicee.asset_filter	Config	(Read only) Filter visible assets by tag e.g. -Finance +Marketing
indicee.avatar	Detail	The identifier of account's avatar image
indicee.c1.dashboard.default	Product Content	The default Webex WFO dashboard for the user
indicee.calendar.initial_picker_category	Look and Feel	The category that calendar pickers should default to.
indicee.content.creation.dashboard.enabled	Asserted Configuration	Whether dashboard creation is enabled.
indicee.content.creation.dashboard.tags	Asserted Configuration	Tags to auto-add newly created dashboards
indicee.content.creation.enabled	Asserted Configuration	Whether content (report and dashboard) creation is enabled.
indicee.content.creation.report.enabled	Asserted Configuration	Whether report creation is enabled.
indicee.content.creation.report.tags	Asserted Configuration	Tags to auto-add to newly created reports.
indicee.content.creation.tags	Asserted Configuration	Tags to auto-add to newly created reports and dashboards.
indicee.context_menu_enabled	Config	Whether content popup menus are enabled
indicee.contribution.single.enabled	Account	Whether or not the user can set a data set

Attribute	Category	Description
	Details	to single contribution mode
indicee.creation_time	Detail	(Read only) The time at which the account was created
indicee.currency	Asserted Configuration	The currency used for the user
indicee.custom_appkey	Config	Force an application key to be applied for this user
indicee.dashboard.navbar	Config	The list of content links to apply on dashboards opened by a user. These links are cumulative up the hierarchy and appear in the nav bar ahead of content that is locally authored into the dashboard. The attribute value is a list of items with the following format: [<display name>]:<d|r>:'<system reference identifier>'[;...]. For more information, see the topics: Obtain the SystemReference Identifier and Configure the dashboardnavigation bar.
indicee.dashboard.regen.browse.ttl	Asserted Configuration	The expiry time (in seconds) for background dashboard browse regeneration
indicee.dashboard.regen.export.ttl	Asserted Configuration	The expiry time (in seconds) for exporting report data
indicee.dashboard.regen.report.ttl	Asserted Configuration	The expiry time (in seconds) for background dashboard report regeneration
indicee.dashboard.regen.ttl	Asserted Configuration	The expiry time (in seconds) for background dashboard regeneration
indicee.dashboard.renderer	Asserted Configuration	Specify the version for the renderer used to render dashboards and reports

Attribute	Category	Description
indicee.dashboards.dto_include_windows	Asserted Configuration	When true dashboards generated in the background include all results windows
indicee.dashboards.show_launch_previews	Asserted Configuration	Disables the use of preview images during Dashboard rendering when set to False
indicee.dataupload.request.ttl	Asserted Configuration	The meximum time (in seconds) that dataupload requests be queued for before being discarded
indicee.date_format	Config	The preferred date format for output where not controlled by other means. This is given in the Unicode standard tr-35 form see: http:// unicode.org/reports/tr35/ tr35-10.html#Date_Format _Patterns.
indicee.days_since_logged_out	Metric	(Read only) The number of days passed since this user last logged out
indicee.delivery enabled	Asserted Configuration	Enable report delivery for this account
indicee.department	Detail	The department property of an account
indicee.deploy_infospaces	Config	(Read only) Indicates if the user is allowed to deploy information spaces to other users. Must also be an admin.
indicee.description	Detail	A description for the account
indicee.disk_quota	Config	The maximum allowed size of disk storage
indicee.display_name	Detail	The display name of the account. This is the screen name that the user has chosen to identify themselves to others.
indicee.email	Detail	The email associated with the account
indicee.error_count	Metric	(Read only) The total number of system

Attribute	Category	Description
		errors recorded while this user is logged in. Propagates upward
indicee.extension	Detail	The telephone extension for the account
indicee.first_name	Detail	The first name of a user
indicee.fiscal_calendar	Calendar Configuration	JSON that describes the fiscal calendar to use. Example: indicee.fiscal_calendar = {“weekStartDay”: “Monday”} changes the first day of the week from the default Sunday to Monday.
indicee.gwt.enabled.loggers	Asserted Configuration	List of GWT client-side diagnostic loggers to be enabled.
indicee.id	Detail	(Read only) The internal unique identifier of the account
indicee.industry	Detail	The industry property of an account
indicee.infospace.request.ttl	Asserted Configuration	The maximum time (in seconds) that delivery requests will be queued for before being discarded
indicee.landing_page	Content	The login dashboard for the user
indicee.landing_pages	Content	(Read only) A list of dashboards selectable in the admin UI for the indicee.landing_ page. Cumulative down the hierarchy.
indicee.last_error	Metric	(Read only) The last system error message recorded by an account propagates upward
indicee.last_login_account	Metric	(Read only) The account that was last logged in. This is only meaningful as a propagated value.
indicee.last_login_ip	Metric	(Read only) The last IP from which a user

Attribute	Category	Description
		logged in propagates upward
indicee.last_login_time	Metric	(Read only) The last time at which a user successfully logged in propagates upward
indicee.last_logout_time	Metric	(Read only) The last time at which a user logged out or timed out propagates upward
indicee.last_name	Detail	The last name of a user
indicee.last_report_run	Metric	(Read only) The reference of the last report run propagates upward
indicee.last_report_running_time	Metric	(Read only) The runtime duration of the last report run propagates upward
indicee.last_save_time	Detail	The last time a user saved
indicee.last_showcase	Detail	The version of last showcase content that has been displayed
indicee.lnf.app-name	LnF	The name of the application (default: “Indicee”)
indicee.lnf.appurl	LnF	The URL of the application (default: “secure.indicee.com”)
indicee.lnf.company-name	LnF	The name of the vendor (default: “Indicee”)
indicee.lnf.email.contact	LnF	The email address for the general contact (default: “contact@indicee.com”)
indicee.lnf.email.feedback	LnF	The email address for feedback (default: “feedback@indicee.com”)
indicee.lnf.email.noreply	LnF	The email address for outgoing notifications (default: “noreply@indicee.com”)

Attribute	Category	Description
indicee.lnf.email.sales	LnF	The email address for the sales department (default: “sales@indicee.com”)
indicee.lnf.email.support	LnF	The email address for the support department (default: “support@indicee.com”)
indicee.lnf.email.terms	LnF	The email address for terms (default: “terms@indicee.com”)
indicee.lnf.google.adwords -code	LnF	The code to inject to drive Google adwords.
indicee.lnf.google.analytics -code	LnF	The code to inject to drive Google analytics.
indicee.lnf.grammar.a-or-an	LnF	The indefinite article pertaining to the company name (default: “an” to go with “Indicee”)
indicee.lnf.image.btn_qs_video	LnF	The image resource for the QuickStart video (default: “/images/ btn_qs_ video.jpg”)
indicee.lnf.image.loading_lg	LnF	The image resource used while content is loading (default: “/images/ loading_lg.gif”)
indicee.lnf.image.logo_lrg	LnF	The brand logo in large format(default: “/images/ logo_lrg.gif”)
indicee.lnf.image.logo_sm	LnF	The brand logo (default: “/ images/logo_ sm.gif”)
indicee.lnf.image.logo_sm _color	LnF	The color brand logo (default: “/images/ logo_sm_color.gif”)
indicee.lnf.image.Partner_Security	LnF	The partner security badge (default: “/images/ Partner_Security.png”)

Attribute	Category	Description
indicee.lnf.image.testdrive _logo	LnF	The image resource used for the Test Drive button (default: "/images/ logo_ testDrive.gif")
indicee.lnf.livechat.button.enabled	LnF	Sets whether the livechat button is displayed (default: true)
indicee.lnf.livechat.monitor .enabled	LnF	Sets whether the livechat monitor is enabled (default: true)
indicee.lnf.locale	LnF	The locale for the product (default: "en")
indicee.lnf.name-possessive	LnF	The possessive form of the vendor name (default: "indicee's")
indicee.lnf.name	LnF	The product name (default: "Indicee")
indicee.lnf.name.footer	LnF	The product name badge appearing in the page footer (default: "Indicee")
indicee.lnf.name_cap	LnF	The product name in capital letters (default: "INDICEE")
indicee.lnf.phone-number	LnF	The contact telephone number of the vendor (default: "1-888-681-3840")
indicee.lnf.siteurl	LnF	The displayed website (default: "www.indicee.com"
indicee.lnf.siteurl_cap	LnF	The website rendered in capital letters (default: "WWW.INDICEE.COM")
indicee.lnf.url.about	LnF	The web page for "about" information (default: "http://www.indicee.com/ about/")
indicee.lnf.url.help	LnF	The web page for help (default: "http// www.indicee.com/ support/help/")
indicee.lnf.url.privacy	LnF	The web page for "privacy policy" information (default: "http://

Attribute	Category	Description
		www.indicee.com/legal/ privacy/")
indicee.lnf.url.security	LnF	The web page for "security" information (default: "http:// www.indicee.com/legal/ security/")
indicee.lnf.url.terms	LnF	The web page for "terms and conditions" information (default: "http://www.indicee.com/ legal/terms/")
indicee.lnf.verisign.enable	LnF	Sets whether Verisign functionality is enabled (default: true)
indicee.locale	Asserted Configuration	The locale used for the model
indicee.login_count	Metric	(Read only) The number of times an account has logged in cumulatively propagates upward
indicee.manage_infospaces	Config	Permission to create and manage multiple information spaces for lifecycle management
indicee.materialization.background	Asserted Configuration	Whether the background materialization is enabled when uploading a contribution file
indicee.materialize.request.ttl	Asserted Configuration	The maximum time (in seconds) that materialization requests be queued for before being discarded
indicee.max_upload_size	Config	The maximum allowed size of a data upload
indicee.measure_filter	Config	(Read only) Filter visible Measures by tag e.g. -Finance +Marketing
indicee.model_guesser_enabled	Asserted Configuration	Allows the model guesser to be enabled

Attribute	Category	Description
indicee.organization	Detail	The organization property of an account
indicee.parent	Detail	(Read only) The parent account
indicee.per_app_user_limit	Config	The maximum number of registered users for specific apps by app key
indicee.phone	Detail	The telephone number for the account
indicee.pref.logout.url	Look and Feel	The URL user should be directed to after logout
indicee.pref.ui.asset_browser.default_page_size	Look and Feel	Default number of assets to return from API
indicee.pref.ui.asset_browser.default_view	LnF	The view in which the Asset Browser will display when initialized
indicee.pref.ui.asset_browser.list_filter	Look and Feel	The list filter for Dashboards and Reports in the Asset Browser - e.g. ALL, OWNED, SHARED_TO, SHARED_BY, GROUP
indicee.pref.ui.asset_browser.preview_location	LnF	The location of the Asset Browser preview pane
indicee.pref.ui.asset_browser.property_visibilities	LnF	The set of asset property columns that are visible in the Asset Browser
indicee.pref.ui.asset_browser.sort_ascending	LnF	Whether the Asset Browser sort property is displayed in ascending order
indicee.pref.ui.asset_browser.sort_property	LnF	Which property in the Asset Browser is currently sorted
indicee.pref.ui.filter_picker.size	Look and Feel	The size at which the Filter Picker is initially displayed
indicee.pref.ui.formula_editor.size	LnF	The size at which the Formula Editor is initially displayed

Attribute	Category	Description
indicee.pref.ui.formula_editor.text.pos	LnF	Positions of the Formula Editor splitters when displayed
indicee.pref.ui.grouping_picker.size	LnF	The size at which the Group Picker is initially displayed
indicee.pref.ui.measure_picker.size	LnF	The size at which the Measure Picker is initially displayed
indicee.pref.ui.measure_picker.text.pos	LnF	Positions of the Measure Picker splitters when displayed
indicee.pref.ui.model_editor.hidehelp	LnF	Whether to hide the in- product help for the Model Editor
indicee.question_restriction	Config	(Read only) User security pre-filter for Questions. Restricts the data that users can see in reports.
indicee.report.background.maxtime	Asserted Configuration	The maximum time (in seconds) that background report rendering (e.g. for mail delivery) is allowed to run for
indicee.report.background.shared	Asserted Configuration	If true, shared reports are also considered when regenerating reports for a user
indicee.report.bulkupdate.enabled	Asserted Configuration	Enable bulk report updates for this account
indicee.report.cache_default	Config	Asserts a default for the main cache flag on new reports
indicee.report.cache_min_ttl	Config	The minimum time that a report will be retained in cache
indicee.report.cache_per_user_default	Config	Asserts a default for whether reports are cached per user on new reports
indicee.report.cache_ttl	Config	The maximum time that a report will be

Attribute	Category	Description
		retained in cache
indicee.report.clientcache.tilesize	Asserted Configuration	The size of tiles in browser-side report caching
indicee.report.defer_regeneration	Config	Defer regeneration of impacted reports after a change of data e.g. upload by given time seconds
indicee.report.delivery.request.ttl	Asserted Configuration	The maximum time (in seconds) that delivery requests will be queued for before being discarded
indicee.report.error_show _contact	Config	Show admin contact in the event of reporting errors or validation failures
indicee.report.hide_out_of_date	Asserted Configuration	Hide the warning that a cached report is out of date
indicee.report.loading_state	Asserted Configuration	Set Report View loading state (can be either “QUERYING” OR “LOADING_ REPORT,” the former is default. Works for renderer 1.1 only.
indicee.report.regen.request.ttl	Asserted Configuration	The maximum time (in seconds) that report/dashboard requests will be queued for before being discarded.
indicee.report.validation_mode	Config	Report validation mode - strict, relaxed or minimal
indicee.reports_run	Metric	(Read only) The total number of reports that have been run propagates upward
indicee.role	Config	The role of the account Power User or Consumer
indicee.rpc.ttl	Asserted Configuration	The expiry time (in seconds) for rpc requests

Attribute	Category	Description
indicee.session.timeout	Config	The web session timeout for the users in seconds
indicee.sharing_quota	Config	The maximum number of users to which content can be shared via groups
indicee.showcase_content _root	Content	(Read only) A URL pointing at the root of showcase content with directories per version
indicee.showcase_content _size	LnF	(Read only) Asserts a size for the showcase content to be displayed width/height json
indicee.showcase_enabled	Detail	(Read only) Whether the display of the showcase content for new versions is enabled
indicee.sso_identity_providers	Config	(Read only) List of identity providers to use from SSO configuration
indicee.status	Detail	(Read only) The current status of the account e.g. active suspended
indicee.timezone	Detail	The default timezone for the user
indicee.title	Detail	The business title of the user
indicee.total_logged_in_time	Metric	(Read only) The total amount of time a user has been logged in cumulatively propagates upward
indicee.total_report_running_time	Metric	(Read only) The total amount of time spent running reports cumulatively propagates upward
indicee.used_account_quota	Metric	The current remaining account quota
indicee.used_disk_quota	Metric	The current remaining disk quota
indicee.used_sharing_quota	Metric	The current remaining sharing quota

Auto-groups

The auto-group feature creates a group of all the users under a tenant account. This group can then be used to deliver reports to all users within the group.

By default, tenant accounts have the auto-group feature enabled. The feature cannot be disabled.

Create and manage tenants in the UDM

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If a tenant is using a connector to access data from a data source other than the Webex WFO databases, the tenant must have a database account configured in the UDM (Unified Data Mart). This is not necessary if the tenant is using only data from the Webex WFO databases.

The configured connector brings in data from that other data source and loads it into the UDM database. The tenant can then use Data Explorer to create reports from the UDM database, or from a combination of the UDM database and the Webex WFO databases.

EXAMPLE The Acme Co.'s instance of Webex WFO is configured to use a Cisco Unified Contact Center Enterprise ACD in its contact center. However, they also use an Amazon Connect ACD and want to create reports using that data, which includes many fields not in the Webex WFO databases. A connector is used to bring the Amazon Connect data into the UDM and make it available to Data Explorer.

NOTE This task is normally handled by Professional Services.

Prerequisites

- Data UDM Administration permission

Page location

Application Management > Data Management > Unified Data Mart Administration

Procedures

Add the tenant to the UDM

1. Open the **Unified Data Mart Administration** page. A blank **Provision Tenant** page is displayed.
2. Complete the fields on the page.

Field	Description
Tenant ID	Enter the tenant's Webex WFO tenant ID.
Tenant Name	Enter the tenant's name.
Tenant Host	Select the server where the UDM database is hosted from the drop-down list. If the UDM database is in the Cloud, select **AWS**. If the UDM database is on premises, select **OP**.
RO Username	Enter a username for a database user with read-only access. This field and the RO Password field create this database user account. The username must be a valid Postgres value.
RO Password	Enter a password for the read-only database user account. The password must be a valid Postgres value.
Select Connector	Select the appropriate connector for the data source.

3. Click **Submit**.

Edit an existing UDM tenant

1. Open the **Unified Data Mart Administration** page. A blank **Provision Tenant** page is displayed.
2. In the left panel, click **Tenants > Manage** to display a list of configured tenants.
3. Locate the desired tenant in the list. To help you find the tenant, you can:
   - Sort the table by any of the table columns.
   - Enter a string in the search field to filter the table to only entries that contain that string.

4. Click **Edit**  next to the desired tenant to display the **Update tenant** dialog box.
5. Make the needed changes, and then click **Update**.

Create and manage connectors in the UDM

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Use this page to register new connectors in the Unified Data Mart (UDM) and update or delete existing connectors. Connectors are a set of connection data and credentials, workflows, transformations, and destination schemas associated with specific data entities or services such as ACDs, IVRs, WFO, or back-office solutions.

Prerequisites

- Data UDM Administration permission

Page location

Application Management > Data Management > Unified Data Mart Administration

Procedures

Register a new connector

1. Open the **Unified Data Mart Administration** page. A blank **Provision Tenant** page is displayed.
2. In the left navigation menu, click **Connectors > Create** to display the **Create Connector** page.
3. In the Connector Name field, enter a name for the new connector.
4. In the Connector Path field, enter the relative path to the appropriate KJB (Kettle job) file in the ETL folder.

   EXAMPLE `etl/avaya/red/avaya_cms_etl/etl/avaya_cms.kjb`
5. Click **Submit**. You should receive a **200 -success** status message.

Edit or delete an existing connector

1. Open the **Unified Data Mart Administration** page. A blank **Provision Tenant** page is displayed.
2. In the left navigation menu, click **Connectors > Manage** to display a list of existing connectors on the **Connectors** page.
3. Locate the connector you want to edit. You can use the **Search** field at the right of the page to help locate it.
4. At the right of the connector's listing is an Edit button and a delete button.
   - To edit the connector, click **Edit**  , make the needed changes in the resulting **Update connector** dialog box, and click **Update**.
   - To delete the connector, click **Delete**  , and then confirm the deletion.

Create and manage on-demand report jobs

Before you can create an on-demand job, you must download Cloud deployment workflow YAML files from Github and edit them to replace placeholder strings with the tenant's name.

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Prerequisites

- Data Real Time Administration permission
- Cloud deployment workflow YAML files for the tenant

Page location

Application Management > Data Management > Real-Time (RT) Job Management

Procedures

Create an on-demand job

1. Open the **Real-Time (RT) Job Management** page. The **Create OnDemand Job** is displayed.
2. On the **Create OnDemand Job** page, click **Select Config** and choose the workflow YAML file to be used for this job.
3. Click **Upload**. If the file is uploaded successfully, you will see a Status message of **200**.

   NOTE You must have a successful upload before you can submit the job.

4. Complete the fields in the lower half of the page as follows.

Field	Enter
Job Name	Optional. Enter a descriptive name for the job. The name can be up to 128 characters long. The first character must be alphanumeric. Allowable characters are alphanumeric, hyphens, and underscores.
Job Definition	Select the appropriate job definition from the drop-down list. Click the **View Job Definition** button to view the job definition's properties, including the name, build version, memory, and vCPU.
Job Type	Select the appropriate job type from the drop-down list.
Job Queue	Select the appropriate job queue from the drop-down list. Click **View Job Queue** to view the job queue's properties, including the name of the queue and its priority.

5. Click **Submit**. If the job is submitted successfully, you will see a Status message of **200**.

Manage an on-demand job

1. Open the **Real-Time (RT) Job Management** page.
2. In the left-hand navigation pane, click **OnDemand Jobs > Manage**.

3. On the **Ondemand Jobs** page, select the appropriate job queue from the drop-down list.

    - You can search for the jobs in the job queue you selected with the **Search** button. Otherwise, all jobs for the job queue are listed.
    - Clear your job queue selection with the **Clear** button.
    - Refresh the job queue list with the **Refresh** button.

    Jobs that are successfully launched and running display their status as **RUNNING**. Click the **red X** button to terminate a running job and change its status to FAILED.

Configure SAML authentication

Security Assertion Markup Language (SAML) authentication allows you to use common external identity providers (IdP) to authenticate usernames and passwords for Webex WFO, the service provider (SP). This method of user authentication and password management is commonly referred to as single sign-on (SSO).

After SAML authentication is configured through your external IdP, the metadata needs to be downloaded, exported, and configured in Webex WFO. See Set up IAM authentication for information on configuring your IdP in Webex WFO.

Login Pages — The login page you use is determined by your organization. See the "Identify your login page" procedure in Log in to Webex WFO with your subdomain URL for more information.

Configure identity providers

Webex WFO integrates with IdPs that support SAML 2.0 authentication (see Set up IAM authentication for the list of supported IdPs). The following general parameters apply when configuring the SAML assertion in an IdP.

Assertion Component	Configuration
Attributes	The IdP must send an assertion containing your users' email address as an attribute. This email address must match the email address used for Webex WFO authentication. Attribute names are case sensitive. **EXAMPLE** The specific name of the email attribute depends on the IdP that you use. The following are examples:

Assertion Component	Configuration
	■ emailAddress ■ email ■ mail ■ user.email
Signatures	The SAML assertion must be signed. The signing key is provided in the XML data. The SAML assertion signature algorithms are listed below. ■ rsa-sha256 ■ rsa-sha1 ■ rsa-md5 ■ rsa-ripemd160 ■ rsa-sha384 ■ rsa-sha512 ■ dsa-sha1
Key sizes	Encrypted assertions are supported only with a maximum key size of 128 bits.

Prerequisites

You need to set up an application for Cisco IAM (identity and access management) in your IdP. The following list contains values required to setup this application.

1. Assertion Consumer Service URL. After you successfully authenticate with your IdP, the user is redirected to this URL with the SAML response. The URL varies depending on your organization.

IAM Domain Names	
Australia	`https://id-aus.calabriocloud.com/am/Consumer/metaAlias/bravo/calabriosp`

IAM Domain Names	
Canada	`https://id-ca.calabriocloud.com/am/Consumer/metaAlias/bravo/calabriosp`
European Union	`https://id-eu.calabriocloud.com/am/Consumer/metaAlias/bravo/calabriosp`
United Kingdom	`https://id-uk.calabriocloud.com/am/Consumer/metaAlias/bravo/calabriosp`
United States	`https://id.calabriocloud.com/am/Consumer/metaAlias/bravo/calabriosp`
Singapore	`https://id-sgp.calabriocloud.com/am/Consumer/metaAlias/bravo/calabriosp`

2. Service Provider Entity ID:
    - Your Service Provider Entity ID is **calabriosp** .
3. The email address must be passed in an attribute named "mail".
4. If the SAML request needs to be signed, the signing certificate for it can be found in the Cisco Identity and Access Management (IAM) Service Provider metadata for your region.

IAM Service Provider Metadata	
Australia	`https://id-aus.calabriocloud.com/am/saml2/jsp/exportmetadata.jsp?entityId=calabriosp&realm=bravo`
Canada	`https://id-ca.calabriocloud.com/am/saml2/jsp/exportmetadata.jsp?entityId=calabriosp&realm=bravo`
European Union	`https://id-eu.calabriocloud.com/am/saml2/jsp/exportmetadata.jsp?entityId=calabriosp&realm=bravo`

IAM Service Provider Metadata	
United Kingdom	`https://id-uk.calabriocloud.com/am/saml2/jsp/exportmetadata.jsp?entityId=calabriosp&realm=bravo`
United States	`https://id.calabriocloud.com/am/saml2/jsp/exportmetadata.jsp?entityId=calabriosp&realm=bravo`
Singapore	`https://id-sgp.calabriocloud.com/am/saml2/jsp/exportmetadata.jsp?entityId=calabriosp&realm=bravo`

5. (Optional) Service Provider initiated Sign-on URL. When a user opens this URL, the service provider, Cisco, redirects to your IdP to authenticate and sign on the user. This is not required for most IdPs.

   Use the Cisco IAM Service for your region.

IAM Service	
Australia	`https://id-aus.calabriocloud.com/am/saml2/jsp/spSSOInit.jsp?metaAlias=/bravo/calabriosp&idpEntityID=[IDP_ENTITY_ID_URL_ENCODED]`
Canada	`https://id-ca.calabriocloud.com/am/saml2/jsp/spSSOInit.jsp?metaAlias=/bravo/calabriosp&idpEntityID=[IDP_ENTITY_ID_URL_ENCODED]`
European Union	`https://id-eu.calabriocloud.com/am/saml2/jsp/spSSOInit.jsp?metaAlias=/bravo/calabriosp&idpEntityID=[IDP_ENTITY_ID_URL_ENCODED]`
United Kingdom	`https://id-uk.calabriocloud.com/am/saml2/jsp/spSSOInit.jsp?metaAlias=/bravo/calabriosp&idpEntityID=[IDP_ENTITY_ID_URL_ENCODED]`
United	`https://id.calabriocloud.com/am/saml2/jsp/spSSOInit.jsp?metaAlias`

IAM Service	
States	`=/bravo/calabriosp&idpEntityID=[IDP_ENTITY_ID_URL_ENCODED]`
Singapore	`https://id-sgp.calabriocloud.com/am/saml2/jsp/spSSOInit.jsp?metaAlias=/bravo/calabriosp&idpEntityID=[IDP_ENTITY_ID_URL_ENCODED]`

EXAMPLE In this example for the United States IAM service, <`https://www.example.com/123`> is the IDP entity ID that becomes <`https%3A%2F%2Fwww.example.com%2F123`> when the URL is encoded.
`https://id.calabriocloud.com/am/saml2/jsp/spSSOInit.jsp?metaAlias=/bravo/calabriosp&idpEntityID=https%3A%2F%2Fwww.example.com%2F123`

6. You need to assign users or groups who need access to Webex WFO to this application.

Configure Okta

The following is an overview of how to configure Okta as your IdP:

1. Create an Okta app.
2. Configure the Okta app.

After you configure Okta, you have to download a metadata file and save the metadata file (see Export SAML Metadata). Afterward, follow the procedure detailed in Set up IAM authentication to connect your IdP to Webex WFO.

Create an app in Okta

1. Log in to Okta.

   NOTE You must be a Super Administrator in Okta to create and configure an app.

2. Navigate to Applications > Applications.
3. Click **Add Application**.
4. Click **Create New App**.
5. In the Create New Application Integration dialog box, configure the fields as follows.

Field	Configuration
Platform	Select **Web**.
Sign on method	Select **SAML 2.0**.

Configure the Okta app

1. In the General Settings tab, configure the fields as follows.

Field	Configuration
App name	Enter a unique name for Webex WFO.
App logo	(Optional) Upload an image to identify Webex WFO in Okta.
App visibility	(Optional) Limit who can see the image in Okta.

2. Click **Next**.
3. On the Configure SAML tab, configure the fields as follows.

NOTE If Advanced Settings is hidden, click **Show Advanced Settings**.

Field	Configuration
General	
Single sign on URL	Copy and paste the Assertion Consumer Service URL that was listed as a prerequisite. Leave the **Use this for Recipient URL and Destination URL** check box selected (default).
Audience URI (SP Entity ID)	Copy and paste your Service Provider Entity ID that was listed as a prerequisite.
Name ID format	Select **EmailAddress**.
Application username	Select **Email**.

Field	Configuration
Response	Select **Signed**.
Assertion Signature	Select **Signed**.
Signature Algorithm	Select either **RSA-SHA1** or **RSA-SHA256**.
Digest Algorithm	Select either **RSA-SHA1** or **RSA-SHA256**.
Assertion Encryption	Select **Unencrypted**.
Enable Single Logout	Leave the **Allow application to initiate Single Logout** check box cleared (default).
Authentication context class	Select **PasswordProtectedTransport**.
Honor Force Authentication	Select **Yes**.
SAML Issuer ID	Leave blank.
Attribute Statements	
Name	Enter **mail**. **NOTE** This allows a user's email address to be properly mapped for SAML assertion.
Name format	Select **Unspecified**.
Value	Select **user.email**.

NOTE You do not need to configure any attributes in the Group Attribute Statements section.

4. Click **Next**.
5. In the Feedback tab, select the Feedback option that is appropriate to your company's use of Okta.

NOTE Your choice does not affect the ability of Webex WFO to use Okta as an IdP.

6. In the Assignments tab, assign the groups and users that will have access to Webex WFO.
7. Click **Finish**.

Configure OneLogin

The following procedure details how to integrate your OneLogin IdP for Webex WFO Identity and Access Management (IAM) Service Provider (SP).

Configure OneLogin

1. Log in to OneLogin as an administrator.
2. From the menu bar, go to **Applications**.
3. Click **Add App**.
4. In the **App Listing** search for the Calabrio ONE app.
5. **Save** your changes.

Configure AD FS

This section details how to integrate your Active Directory Federation Services (AD FS) IdP for Webex WFO Identity and Access Management (IAM) Service Provider (SP).

The following is an overview of how to configure single sign-on for Active Directory Federation Services (AD FS):

1. Configure a Global Authentication Policy.
2. Configure Relying Party Trust for your identity provider.
3. Configure the LDAP email claim rule for the Webex WFO trust.
4. Configure the incoming claim transform email address custom rule for the Webex WFO trust.
5. Configure the incoming claim add mail attribute custom rule for the Webex WFO trust.
6. Extract your Webex WFO service provider certificate.
7. Configure the secure hash algorithm and import your Webex WFO service provider certificate.
8. Assign users and/or groups to Active Directory for the AD FS.
9. Save your AD FS Federation Metadata XML file.
10. Follow the procedure detailed in Set up IAM authentication to connect your IdP to Webex WFO.

Configure Global Authentication Policy

1. Open the Windows Server AD FS Management Console.
2. Select the **Authentication Policies** folder.
3. Under **Global Settings** in **Primary Authentication**, click **Edit**. The Edit Global Authentication Policy window appears.
4. Under the **Intranet** section in the **Primary** tab, select the **Forms Authentication** check box and the **Windows Authentication** check box. If the check boxes are already selected, click **Cancel**.

Configure Relying Party Trust for your identity provider

Configuring Relying Party Trust for your identity provider is a multistep procedure.

First, begin the Add Relying Party Trust Wizard.

1. Open the Windows Server AD FS Management Console.
2. Expand the **Trust Relationships** folder.
3. Right-click the **Relying Party Trusts** folder, and then click **Add Relying Party Trust**. The Add Relying Party Trust Wizard appears.
4. Click **Start**.

Next, configure Relying Party Trust with the Add Relying Party Trust Wizard.

1. Choose **Enter data about the relying party manually**, and then click **Next**.
2. Enter “Webex WFO” in the **Display name** field, and then click **Next**.
3. Choose **AD FS profile**, and then click **Next**.
4. Click **Next** on the “Configure Certificate” step. You do not need to specify an optional token encryption certificate.
5. On the “Configure URL” step, click the **Enable support for the SAML 2.0 WebSSO protocol** check box.
6. Under **Relying party SAML 2.0 SSO service URL**, enter the Assertion Consumer Service URL (listed as a prerequisite) in the text field, and then click **Next**.
7. On the “Configure Identifiers” step, enter the Entity ID (listed as a prerequisite) in the **Relying party trust identifier** text field, click **Add**, and then click **Next**.
8. On the “Configure Multi-factor Authentication Now?” step, click the **I do not want to configure multi-factor authentication settings for this relying party trust at this time** check box, and then click **Next**.

9. On the “Choose Issuance Authorization Rules” step, click **Permit all users to access this relying party** check box, and then click **Next**.
10. On the “Ready to Add Trust” step, click **Next**.
11. On the “Finish” step, click the **Open the Edit Claim Rules dialog for this relying party trust when the wizard closes** check box.
12. Click **Close**. The Edit Claim Rules for Calabrio ONE window appears.

Configure the LDAP email claim rule for the Webex WFO trust

1. Click **Add Rule...** under the **Issuance Transform Rules** tab in the Edit Claim Rules window.
2. Select **Send LDAP Attributes as Claims** from the **Claim rule template** drop-down list, and then click **Next**.
3. Enter “LDAP Email Address” in the **Claim rule name** field.
4. Select **Active Directory** from the **Attribute store** drop-down list.
5. Select **E-Mail Addresses** from the **LDAP Attribute** drop-down list.
6. Select **E-Mail Address** from the **Outgoing Claim Type** drop-down list.
7. Click **Finish** to complete configuration of this claim rule and add the incoming claim transform rule.

Configure the incoming claim transform email address custom rule for the Webex WFO trust

1. Click **Add Rule...** under the **Issuance Transform Rules** tab in the Edit Claim Rules window.
2. Select **Send Claims Using a Custom Rule** from the **Claim rule template** drop-down list, and then click **Next**.
3. Enter “Transform Email Address” in the **Claim rule name** field.
4. Enter the following in the **Custom rule** field.

> **NOTE** In the following example, **calabriosp** is the **Entity ID**; however, the entity ID value you see may be unique to your organization. Refer to the prerequisites section for details on

how to identity your entity ID.

```
c:[Type ==
"http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress"]
=> issue(Type =
"http://schemas.xmlsoap.org/ws/2005/05/identity/claims/nameidentifier", Issuer
= c.Issuer, OriginalIssuer = c.OriginalIssuer, Value = c.Value, ValueType =
c.ValueType, Properties
["http://schemas.xmlsoap.org/ws/2005/05/identity/claimproperties/format"] =
"urn:oasis:names:tc:SAML:1.1:nameid-format:emailAddress", Properties
["http://schemas.xmlsoap.org/ws/2005/05/identity/claimproperties/spnamequalifi
er"] = "calabriosp");
```

5. Click **Finish** to complete configuration of this claim rule.

Configure the incoming claim add mail attribute custom rule for the Webex WFO trust

1. Click **Add Rule...** under the **Issuance Transform Rules** tab in the Edit Claim Rules window.
2. Select **Send Claims Using a Custom Rule** from the **Claim rule template** drop-down list, and then click **Next**.
3. Enter “Add mail Attribute” in the **Claim rule name** field.
4. Enter the following in **Custom rule** field.

```
c:[Type ==
"http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress"]
=> issue(Type = "mail", Value = c.Value);
```

5. Click **Finish** to complete configuration of this claim rule.
6. Click **OK** to finish editing claim rules and close the Edit Claim Rules window.

Extract Webex WFO service provider certificate

1. In an internet browser, navigate to the IAM Service Provider Metadata URL (listed as a prerequisite).
2. Copy the contents of “X509Certificate” from under SPSSODescriptor > KeyDescriptor use=”signing”> to a file with .cer extension such as EUSigningCert.cer on the AD FS server.



Configure the secure hash algorithm and import Webex WFO service provider certificate

1. Open the Windows Server AD FS Management Console.
2. Open the Webex WFO trust you created in one of the previous procedures to open the Calabrio ONE Properties window.
3. Click the **Advanced** tab and select **SHA-1** from the **Secure hash algorithm** drop-down list.
4. Click the **Signature** tab, and then click **Add...**. Select the Webex WFO service provider certificate created in the previous procedure.

   NOTE If the Webex WFO service provider certificate is not listed, you might need to select **All files (*.*)** in the file-type filter in the lower right corner of the window next to the **File name** text field.

5. Click **OK** to finish editing the trust properties and close the Calabrio ONE Properties window.

Assign users and groups to Active Directory used for AD FS

Add desired user(s) and group(s) to the Active Directory used for AD FS to grant them access to Webex WFO via AD FS. A user's email address must match the email address configured for the user in Webex WFO exactly.

Save your AD FS Federation Metadata XML file

Where in the below URL, <ADFS Hostname> is your ADFS hostname.

```
https://<ADFS Hostname>/FederationMetadata/2007-06/FederationMetadata.xml
```

AD FS Identity Provider-Initiated Single Sign-On

1. Navigate to the following unique URL in an internet browser.

   ```
   https://<ADFS Hostname>/adfs/ls/idpinitiatedsignon.aspx
   ```

   Where in the above URL, <ADFS Hostname> is your ADFS hostname.

2. Click **Sign in to one of the following sites**, and select **Calabrio ONE** from the drop-down list.
3. Enter your user credentials in the text fields, and then click **Sign in**. You are redirected and logged in to the Webex WFO site.

NOTE You can follow the procedure detailed in Set up IAM authentication to connect your IdP to Webex WFO.

Troubleshooting procedures

AD FS event errors

The Event Viewer window displays logs of AD FS authentication issues. You can check past events to investigate errors.

1. Navigate to **Event Viewer** > **Applications and Services Logs** > **AD FS** > **Admin**.
2. Click the desired event in the Admin list for more details.

NameId Format in SAMLRequest issue

The NameId Format in SAMLRequest is `urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified`.

If issues occur, update the Name ID Format field on the IAM Authentication page. See Set up IAM authentication for more information.

> **NOTE** In the following example, **calabriosp** is the **Entity ID**; however, the entity ID value you see may be unique to your organization. Refer to the prerequisites section for details on how to identity your entity ID.

```
Encountered error during federation passive request.

Additional Data

Protocol Name:
Saml

Relying Party:
calabriosp

Exception details:
Microsoft.IdentityServer.Protocols.Saml.InvalidNameIdPolicyException: MSIS7070: The
SAML request contained a NameIDPolicy that was not satisfied by the issued token.
Requested NameIDPolicy: AllowCreate: True Format:
urn:oasis:names:tc:SAML:1.1:nameid-format:emailAddress SPNameQualifier: calabriosp.
Actual NameID properties: Format: urn:oasis:names:tc:SAML:1.1:nameid-
format:emailAddress, NameQualifier:  SPNameQualifier: , SPProvidedId: .
   at Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolManager.Issue
(HttpSamlRequestMessage httpSamlRequestMessage, SecurityTokenElement onBehalfOf,
String sessionState, String relayState, String& newSamlSession, String&
samlpAuthenticationProvider, Boolean isUrlTranslationNeeded,
WrappedHttpListenerContext context, Boolean isKmsiRequested)
   at
Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.RequestBearerToken
(WrappedHttpListenerContext context, HttpSamlRequestMessage httpSamlRequest,
SecurityTokenElement onBehalfOf, String relyingPartyIdentifier, Boolean
isKmsiRequested, Boolean isApplicationProxyTokenRequired, String& samlpSessionState,
String& samlpAuthenticationProvider)
```

```
   at
Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.BuildSignInResponseC
oreWithSerializedToken(HttpSamlRequestMessage httpSamlRequest,
WrappedHttpListenerContext context, String relyingPartyIdentifier,
SecurityTokenElement signOnTokenElement, Boolean isKmsiRequested, Boolean
isApplicationProxyTokenRequired)
   at
Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.BuildSignInResponseC
oreWithSecurityToken(SamlSignInContext context, SecurityToken securityToken,
SecurityToken deviceSecurityToken)
   at Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.Process
(ProtocolContext context)
   at Microsoft.IdentityServer.Web.PassiveProtocolListener.ProcessProtocolRequest
(ProtocolContext protocolContext, PassiveProtocolHandler protocolHandler)
   at Microsoft.IdentityServer.Web.PassiveProtocolListener.OnGetContext
(WrappedHttpListenerContext context)
```

```
Encountered error during federation passive request.

Additional Data

Protocol Name:
Saml

Relying Party:
calabriosp

Exception details:
Microsoft.IdentityServer.Protocols.Saml.InvalidNameIdPolicyException: MSIS7070: The
SAML request contained a NameIDPolicy that was not satisfied by the issued token.
Requested NameIDPolicy: AllowCreate: True Format:
urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified SPNameQualifier: calabriosp.
Actual NameID properties: Format: urn:oasis:names:tc:SAML:1.1:nameid-
format:emailAddress, NameQualifier:  SPNameQualifier: , SPProvidedId: .
   at Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolManager.Issue
(HttpSamlRequestMessage httpSamlRequestMessage, SecurityTokenElement onBehalfOf,
String sessionState, String relayState, String& newSamlSession, String&
samlpAuthenticationProvider, Boolean isUrlTranslationNeeded,
WrappedHttpListenerContext context, Boolean isKmsiRequested)
   at
Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.RequestBearerToken
(WrappedHttpListenerContext context, HttpSamlRequestMessage httpSamlRequest,
SecurityTokenElement onBehalfOf, String relyingPartyIdentifier, Boolean
isKmsiRequested, Boolean isApplicationProxyTokenRequired, String& samlpSessionState,
String& samlpAuthenticationProvider)
   at
Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.BuildSignInResponseC
oreWithSerializedToken(HttpSamlRequestMessage httpSamlRequest,
WrappedHttpListenerContext context, String relyingPartyIdentifier,
SecurityTokenElement signOnTokenElement, Boolean isKmsiRequested, Boolean
isApplicationProxyTokenRequired)
   at
Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.BuildSignInResponseC
oreWithSecurityToken(SamlSignInContext context, SecurityToken securityToken,
SecurityToken deviceSecurityToken)
   at Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.Process
```

```
(ProtocolContext context)
   at Microsoft.IdentityServer.Web.PassiveProtocolListener.ProcessProtocolRequest
(ProtocolContext protocolContext, PassiveProtocolHandler protocolHandler)
   at Microsoft.IdentityServer.Web.PassiveProtocolListener.OnGetContext
(WrappedHttpListenerContext context)
```

Missing SPNameQualifier of your Entity ID

If you see the following error message, attempt the Configure the incoming claim transform email address custom rule for the Webex WFO trust procedure again.

NOTE In the following example, **calabriosp** is the **Entity ID**; however, the entity ID value you see may be unique to your organization. Refer to the prerequisites section for details on how to identity your entity ID.

```
Encountered error during federation passive request.

Additional Data

Protocol Name:
Saml

Relying Party:
calabriosp

Exception details:
Microsoft.IdentityServer.Protocols.Saml.InvalidNameIdPolicyException: MSIS7070: The
SAML request contained a NameIDPolicy that was not satisfied by the issued token.
Requested NameIDPolicy: AllowCreate: True Format:
urn:oasis:names:tc:SAML:1.1:nameid-format:emailAddress SPNameQualifier: calabriosp.
Actual NameID properties: Format: urn:oasis:names:tc:SAML:1.1:nameid-
format:emailAddress, NameQualifier:  SPNameQualifier: , SPProvidedId: .
   at Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolManager.Issue
(HttpSamlRequestMessage httpSamlRequestMessage, SecurityTokenElement onBehalfOf,
String sessionState, String relayState, String& newSamlSession, String&
samlpAuthenticationProvider, Boolean isUrlTranslationNeeded,
WrappedHttpListenerContext context, Boolean isKmsiRequested)
   at
Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.RequestBearerToken
(WrappedHttpListenerContext context, HttpSamlRequestMessage httpSamlRequest,
SecurityTokenElement onBehalfOf, String relyingPartyIdentifier, Boolean
isKmsiRequested, Boolean isApplicationProxyTokenRequired, String& samlpSessionState,
String& samlpAuthenticationProvider)
   at
Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.BuildSignInResponseC
oreWithSerializedToken(HttpSamlRequestMessage httpSamlRequest,
WrappedHttpListenerContext context, String relyingPartyIdentifier,
SecurityTokenElement signOnTokenElement, Boolean isKmsiRequested, Boolean
isApplicationProxyTokenRequired)
   at
Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.BuildSignInResponseC
oreWithSecurityToken(SamlSignInContext context, SecurityToken securityToken,
```

```
SecurityToken deviceSecurityToken)
   at Microsoft.IdentityServer.Web.Protocols.Saml.SamlProtocolHandler.Process
(ProtocolContext context)
   at Microsoft.IdentityServer.Web.PassiveProtocolListener.ProcessProtocolRequest
(ProtocolContext protocolContext, PassiveProtocolHandler protocolHandler)
   at Microsoft.IdentityServer.Web.PassiveProtocolListener.OnGetContext
(WrappedHttpListenerContext context)
```

Configure Azure AD

Follow these procedures to integrate your Azure AD IdP with Webex WFO Identity and Access Management (IAM) Service Provider (SP).

Set up Azure AD IDP

1. Sign into your Azure portal.
2. On the left navigation panel, click on **Azure Active Directory**.
3. In the **Azure Active Directory** pane, click on **Enterprise applications**.
4. In the Enterprise applications pane, click on **New application**.
5. Click **Non-gallery application**.
6. Enter a name for the Webex WFO application and click **Add**. The name you enter for Webex WFO is referred to as Webex WFO <Application Name> in these procedures.
7. After the application is saved and loaded, click **Single sign-on** in the left-hand menu and then click **SAML**.
8. In the setup screen, click the pencil icon in the **Basic SAML Configuration** box.
9. Enter the following values into the fields.
    - Identifier (Entity ID) - listed as a prerequisite.
    - Reply URL (Assertion Consumer Service URL) - listed as a prerequisite.

    Do not enter any data into any other fields.
10. If the Sign on URL is marked as a required field, instead of an optional field, then copy and paste the Service Provider initiated Sign-on URL that was listed as a prerequisite.

- The Azure AD Identifier for the Webex WFO application in Azure AD is in the **Set up <Calabrio ONE Application Name>** box in the setup screen. You can use a URL encoder to decode it.

  EXAMPLE In this example for United States IAM, `https://www.example.com/123` is the Azure AD Identifier that becomes `https%3A%2F%2Fwww.example.com%2F123` when the URL is encoded.

  NOTE For IdP-Initiated SAML, the Sign on URL field in the app in Azure AD must be empty.

11. Click **Save**.
12. Navigate to the setup screen.
13. Click the pencil icon in the **User Attributes & Claims** box.
14. Click **...** the (ellipsis symbol) to edit the claim for **http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress** under **Additional claims**.
15. Enter **mail** in the **Name** field.
16. Delete the pre-populated text in the **Namespace** field.
17. Ensure the **Attribute** button is selected as the **Source** (default).
18. Ensure **user.mail** is selected from the **Source attribute** drop-down list (default).
19. Click **Save**.
20. In the left-hand menu click **Users and groups**.
21. Click **Add user**.
22. In the **Add Assignment** pane, click **Users and groups**.
23. Select the user or group you want to assign to the application for access to Webex WFO. Click **Select**.
24. Click **Assign** to assign the user or group.
25. In the setup screen, click the pencil icon in the **SAML Signing Certificate** box.
26. Enter a notification email in **Notification Email** field for the certificate expiry reminders.
27. Click **Save**.
28. Click **Download** for **Federation Metadata XML**.

29. Save the metadata file. Then follow the procedure detailed in Set up IAM authentication to connect your IdP to Webex WFO.

Troubleshoot single sign-on

After Webex WFO IAM has been configured to use the application for Webex WFO in Azure AD, you can test the settings to see if single sign-on works for your account. This can be done using the Webex WFO URL provided by Cisco Professional Services Account Representative.

You can test single sign-on from Azure AD.

1. Sign into your Azure portal.
2. In the left navigation panel, click **Azure Active Directory**.
3. In the **Azure Active Directory** pane, click **Enterprise applications**.
4. In the **Enterprise applications** pane, click on the **Webex WFO application**.
5. Click **Single sign-on** in the left-hand menu.
6. Click the **Test** button in the **Test Single Sign-on with <Webex WFO Application Name>** box to check if single sign-on is working. You can test using the user who is currently signed in or another user.

Troubleshoot error messages

If an error message appears follow the steps below.

1. Copy and paste the specifics from the error message into the **What does the error look like?** box.
2. Click **Get resolution guidance**.
3. Read the guidance to fix the issue.

Related Content

For more information on Microsoft Azure AD see the reference material linked below.

- Single Sign-On SAML protocol
- Application management documentation
- Quickstart: Add an application to your Azure Active Directory (Azure AD) tenant
- Understand SAML-based single sign-on
- Debug SAML-based single sign-on to applications in Azure Active Directory

Export SAML Metadata

After SAML authentication is configured for your IdP, the metadata needs to be downloaded and exported. Then follow the procedure detailed in Set up IAM authentication to connect your IdP to Webex WFO.

Download Okta SAML Metadata

1. Navigate to Applications > Sign On tab.
2. Click **Identity Provider metadata** to start the metadata download.

Download SAML Metadata for other IdPs

Most identity providers allow users to download metadata. To do so, follow the steps detailed below.

1. Navigate to your identity provider's page.
2. Find the button that allows you to download your IdP's metadata.

   NOTE The name of the IdP metadata download button may vary depending on your IdP.

3. Save the metadata file then follow the procedure detailed in Set up IAM authentication to connect your IdP to Webex WFO.

Manage service provider certificates for Webex WFO

Not all IdPs or IdP configurations require service provider certificates.

IdP	Certificate Required
ADFS	Yes
Okta	No
Other IdPs	Varies by configuration.
Azure AD	No

If your IdP or IdP configuration requires a service provider certificate to integrate with Webex WFO, use the signing certificate listed in the prerequisite.

Related topics

- Set up IAM authentication — Follow this procedure to connect your IdP to Webex WFO.
- Log in to Webex WFO
- Troubleshoot login issues

Set up IAM authentication

Use the IAM (identity and access management) Authentication page to enable an external identity provider (IdP) to authenticate Webex WFO sessions, enable direct login using Webex WFO's IAM service, or enable multi-factor authentication.

The IAM Authentication page is only available for Cloud deployments of Webex WFO.

If you are using an external identity provider, see Configure SAML authentication to learn how to configure your organization’s IdP prior to using this page to enable your IdP connection to Webex WFO.

Multi-factor authentication is a method in which a user is granted access to a website after successfully proving their identity using at least two means of verification. Webex WFO multi-factor authentication uses a login password and an email of a one-time password to verify a user's identity and grant them access to Webex WFO. The following workflow details what happens when a user attempts to login once multi-factor authentication is configured.

1. The user successfully enters their email and password on the login page.
2. The user receives an email from Webex WFO that contains their one-time password.
3. The user enters their one-time password on the login page and is successfully authenticated.

Prerequisites

- You need the **Administer Tenant** permission to access this page. See Manage roles and permissions for QM, Analytics, and Insights for more information.
- Your external IdP must be configured for Webex WFO. Follow the procedures detailed in Configure SAML authentication to set up your IdP.
- Follow the "**Configure identity providers**" and "**Export SAML Metadata**" procedures in Configure SAML authentication if your IdP is not on the list below. If you are not able to successfully configure your IdP, please contact Cisco Support.

Identity Provider
AD FS
Azure AD
Ping Federate
OKTA
Cisco Duo
OneLogin

Page location

Application Management > Administration > IAM Authentication

Procedure

Configure an external IDP

1. Under Enable Authentication, select the **Enable IAM External Authentication Entity (Company Login)** box to allow authentication using an external IdP.

   IMPORTANT Changes to your configuration will cause login issues with your identity provider if you do not make corresponding updates to your identity provider application.

2. Enter the required information in the available fields. See Field descriptions for more information.
3. Click **Save**.

Configure direct login

1. Under Enable Authentication select **Enable IAM Authentication (Direct Login)** to authenticate using Webex WFO's IAM service.
2. Click **Save**.

Configure multi-factor authentication

1. Under Enable Authentication, select **Enable IAM Authentication (Direct Login)** to authenticate using Webex WFO's IAM service.

2. Under IAM Authentication Settings, select **Enable One-Time Password via Email**.
3. Click **Save**.

NOTE If users do not receive their one-time password emails within one minute, instruct them to check their spam folders or work with their IT administrator to ensure the one-time password email from "supportservices_noreply@calabriocloud.com" is not blocked.

Field descriptions

Field	Description
Enable Authentication	At least one of the two check boxes must be selected.
Enable IAM Authentication (Direct Login)	Enables authentication through the Webex WFO IAM Service or multi-factor authentication.
Enable IAM External Authentication Entity (Company Login)	Enables authentication using an external IdP.
IAM Authentication Settings	
Multi-factor Authentication - Enable One-Time Password via Email	When configured, all tenant users receive an email from Cisco that contains a one-time password whenever they attempt to log into Webex WFO. The one-time password email is delivered to the email address linked to an individual's Webex WFO user account. The password expires after five minutes.
Identity Provider Settings	
Entity ID	The entity ID information from the customer's configured IdP. **EXAMPLE** `http://www.okta.com/mxkgk2l57kJrrPAeo0h7TEST`
IDP X.509 Certificate	Import, export, or view an SP X.509 certificate. Acceptable file formats are CER, CRT, and CERT. **IMPORTANT** The certificate must be Base64 encoded.
Authorization Requests	Select if SAML requests need to be signed.

Field	Description
Signed - Require signed SAML request	
Name ID Format	The default is as follows. `urn:oasis:names:tc:SAML:1.1:nameid-format:emailAddress`
Single Sign-On Service Endpoint (HTTP-POST/HTTP-Redirect)	The value provided for a Single Sign On Service Endpoint (HTTP-Redirect). Include http or https in the url. **EXAMPLE** `https://dev-111111.oktapreview.com/app/dev-111111_exampletest20220608_1/mpkznqqbkzvTHE3Nc0h7/sso/saml`
SAML Binding	Select if SAML bonding is required to post or redirect. **NOTE** Check if your identity provider requires post or redirect. Azure AD, AD FS, and Ping Federate IdPS require post.

Related topics

- Configure SAML authentication — Learn how to configure your organization's external IdP for Webex WFO before using the IAM Authentication page to connect your organization's IdP and Webex WFO's IAM service.
- Log in to Webex WFO — Learn how to log into Webex WFO after configuring an authentication method.

Configure the password policy

Use the Password Policy page to configure your user-password policy to meet your organization's security requirements.

Field descriptions

NOTE These settings apply only to passwords managed by Webex WFO. Passwords handled by an external identity provider (IdP) via single sign-on adhere to that IdP's unique password policy (see Configure an Authentication Method and Set up IAM authentication).

Field	Description
Minimum password length	The minimum number of characters a user's password must be for your organization. The Webex WFO minimum password length is eight characters. Default value = 8.
Prevent reuse of the last ___ passwords	Select this check box to prevent users from setting a password that matches any of a specified number of previous passwords. Default value = 5
Require new password after ___ days	Select this check box to require users to set a new password after a specified number of days. You are notified upon login if your password is set to expire within seven days. If your password expires, you must set a new password the next time you log in. Default value = 90. **NOTE** If you shorten the expiration period, you can cause existing passwords to expire. For example, if you shorten the expiration period from 90 days to 60 days, passwords that are older than the new 60-day limit will become expired.
Lock user account after ___ failed login attempts	Select this check box to lock a user's account after a specified number of failed login attempts. If a user's account becomes locked, that user will be unable to log in until they reset their password, or an administrator unlocks the account or resets the password. Default value = 5. A user with the Administer Password Policy permission can unlock an account from the Users page (see Manage Users). **NOTE** If a user's account is locked, login will be disabled

Field	Description
	through both Webex WFO and single sign-on. However, an account only becomes locked following failed Webex WFO login attempts. Failed single sign-on login attempts are handled by the IdP. **NOTE** This option is enabled by default for new customers starting with Version 10.0 Update 2017.9. Customers who configured their password policy before the release of Version 10.0 Update 2017.9 will maintain those settings.

Some additional password complexity requirements are not configurable. These requirements are described below.

Passwords must conform to the following rules.

- Must be a minimum of 8 characters.
- Must contain at least one of each of the following.

  Uppercase letters
  Lowercase letters
  Numbers 0-9
  Special characters `! # $ % & ( ) , . / : ; = ? @ ^ ` |`
- Cannot contain your name or email address.

NOTE Passwords do not expire.

Restrict access to specific IP addresses

On the Network Access page, tenant administrators can enhance their tenant's security by controlling (or "whitelisting") which IP addresses users are allowed to access Webex WFO from.

Tenant administrators can add one or more IP address ranges, and users can only access Webex WFO features if they log in to Webex WFO from an IP address within the configured ranges. If users log in to Webex WFO from an IP address that is not within the configured ranges, they receive an error message and cannot log in.

IP address ranges whitelisted by a tenant administrator apply to that tenant only. System administrators can whitelist additional IP ranges, and IP ranges whitelisted by a system administrator apply to all tenants in the system. If both a tenant administrator and a system administrator whitelist IP ranges, users can access Webex WFO from both the tenant whitelist and the system whitelist.

Webex WFO currently supports whitelisting only for IPv4 addresses.

> **NOTE** Tenant administrators who have been added by a system administrator can access their tenant from any IP address, even an IP address that is not whitelisted. This ensures that tenant administrators can access their tenant even if there is an incorrect whitelisting configuration.

Enable whitelisting

1. Select **Enable Whitelist Access Restriction**.
2. Click **Add IP Range**. The Add IP Range dialog box appears.
3. In the Name field, enter a unique name for the IP address range.
4. In the IP Range Start field, enter the first valid IPv4 address that you want to include in the range.
5. In the IP Range End field, enter the last valid IPv4 address that you want to include in the range.

   > **NOTE** You must enter an IP address in the IP Range End field. If you enter the same IP address that you entered in the IP Range Start field, users can only access Webex WFO from that IP address.

6. Click **Add**.
7. Click **Save**.

IP Address Ranges table

The IP Address Ranges table enables you to monitor, edit, and delete the IP address ranges that tenant administrators have whitelisted.

> **NOTE** System administrators can also whitelist IP address ranges. IP address ranges whitelisted by a system administrator apply to all tenants in the system, but the ranges that they whitelist do not appear in the tenant's IP Address Ranges table. For a complete list of whitelisted IP address ranges, contact your system administrator.

Field	Description
Name	The name of the IP address range.

Field	Description
IP Range Start	The first IP address that is included in the range.
IP Range End	The last IP address that is included in the range.
Actions	■ Edit icon—Enables you to change the name, start, or end of an existing IP range. ■ Delete icon—Removes an existing IP range from the whitelist. Any users who currently log in to Webex WFO from the IP addresses included in this range will not be able to access Webex WFO features from those IP addresses.

Related topics

- Security Update: TLS 1.1 and weak SSL/TLS 1.2 ciphers will be deprecated

Troubleshoot SSO setup issues

Problem	Things to check
I want to set up SSO for the first time. Where do I start?	Cloud ■ Ensure that you followed the instructions correctly at Configure SAML authentication and Set up IAM authentication Classic Cloud/11.5 On-prem ■ Ensure that you followed the instructions correctly at Configure an authentication method. Teletopi WFM cloud/On-prem ■ Contact your account manager or customer success manager for setup assistance.
I do not see my IdP on the list. Is it supported?	If you do not see your IdP on the list, contact your

Problem	Things to check
	account manager or customer success manager for assistance.
You haven't provided all of the information that Cisco needs.	Contact your account manager or customer success manager and fill out a security questionnaire, so that Calabrio has all of the required information for the IdP. Calabrio will then escalate this to a development team for assistance.
Does Cisco support more then one IdP?	A tenant can only support one IdP setup.
We are moving to a new IdP and need help.	You must remove the information from the IAM authentication page and then follow the steps to set up a new SSO/SAML connection. Cloud ■ Ensure that you followed the instructions correctly at Configure SAML authentication and Set up IAM authentication Classic Cloud/11.5 On-prem ■ Ensure that you followed the instructions correctly at Configure an authentication method. Teletopi WFM cloud/On-prem ■ Contact your account manager or customer success manager for setup assistance.

Guidelines for accessing WFM through Azure Virtual Desktop (AVD)

Azure Virtual Desktop (AVD) is an application virtualization software which allows you to access Windows applications, like the WFM desktop client, on individual devices from a shared server or cloud system.

For more information, read the following articles:

- Access WFM through Azure Virtual Desktop (AVD)
- Create a shortcut to AVD
- Manage export of files on AVD
- Manage password on AVD
- Troubleshoot issues with AVD

Manage password on AVD

Reset your password or choose to change your password whenever you want. To ensure strong passwords, there is a password policy. The password policy is stated below.

NOTE

- Regardless of if you change or reset your password, it takes 30 minutes for the Active Directory to update the change.

Password policy

- 8 characters minimum and 256 characters maximum.
- 3 out of 4 of the following required.
  - Lowercase characters.
  - Uppercase characters.
  - Numbers.
  - Symbols.
- Characters allowed.
  - A-Z
  - a-z
  - 0-9
  - @ # $ % ^ & * - _ ! + = [ ] { } | \ : ' , . ? / ` ~ " ( ) ; < >
  - Blank space
- When you change the password, you cannot reuse the last password.
- When you reset the password, you can reuse the last password.

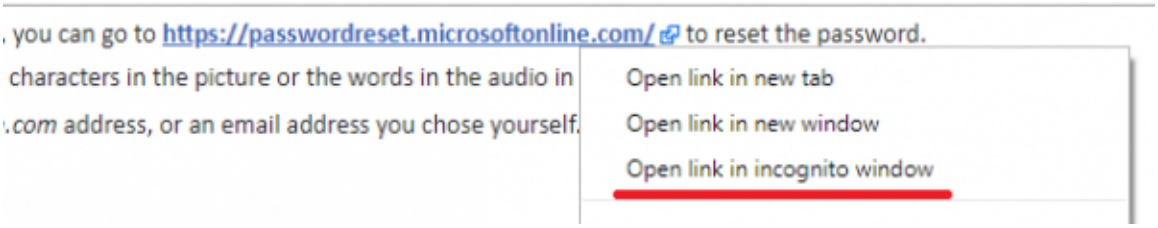
> **NOTE** Microsoft constantly analyzes security telemetry data to identify weak passwords. Terms that are often used as the basis for weak passwords are added to the global banned password list. If you choose as password that includes a term that is on their list, you'll see the message "We've seen that password too many times before. Choose something harder to guess." Go to Microsoft's website to read more about the global banned password list.

Procedures

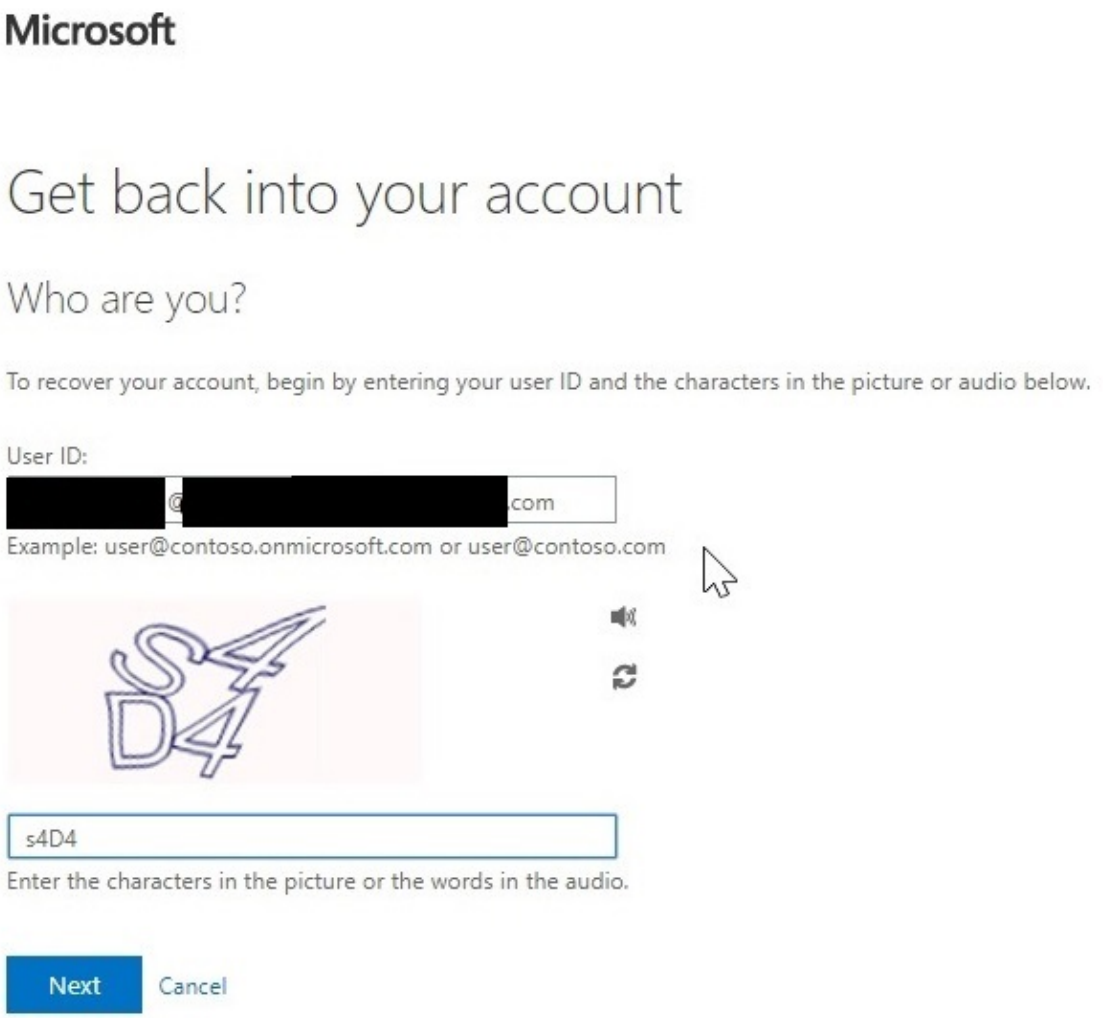
Reset password

1. To reset your password, go to https://passwordreset.microsoftonline.com/

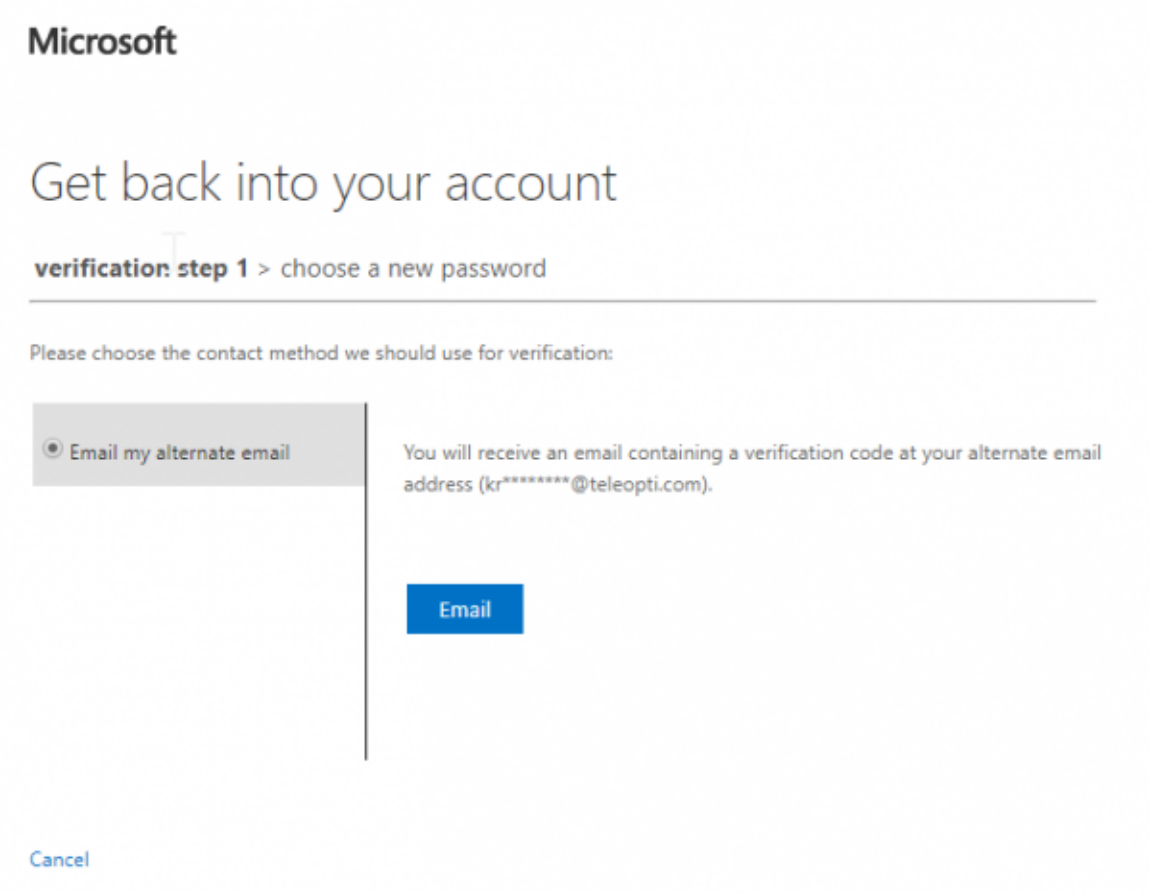
   Right-click the link above and select to open in Incognito (Chrome) or InPrivate (Edge) mode to ensure that you log in with the correct account and are not automatically logged in with your regular Microsoft account.



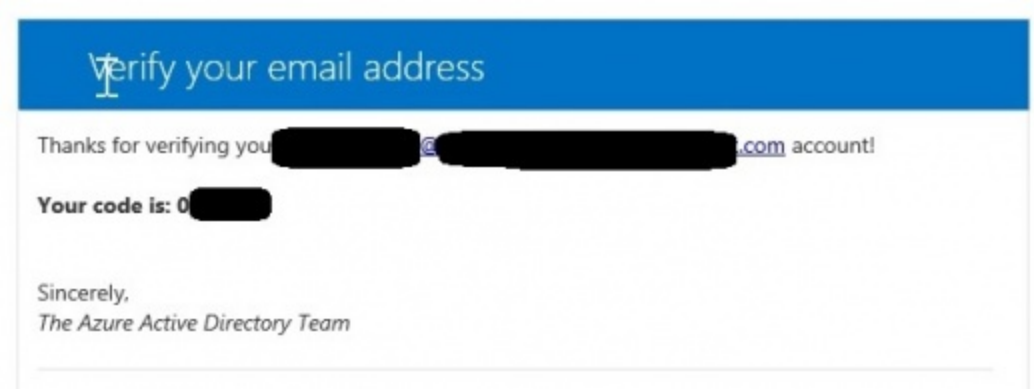
2. Enter your **@teleoptiapp.com** or **@avdapp.calabriocloud.com** address in the first field and the characters in the picture or the words in the audio in the second field. Click **Next**.



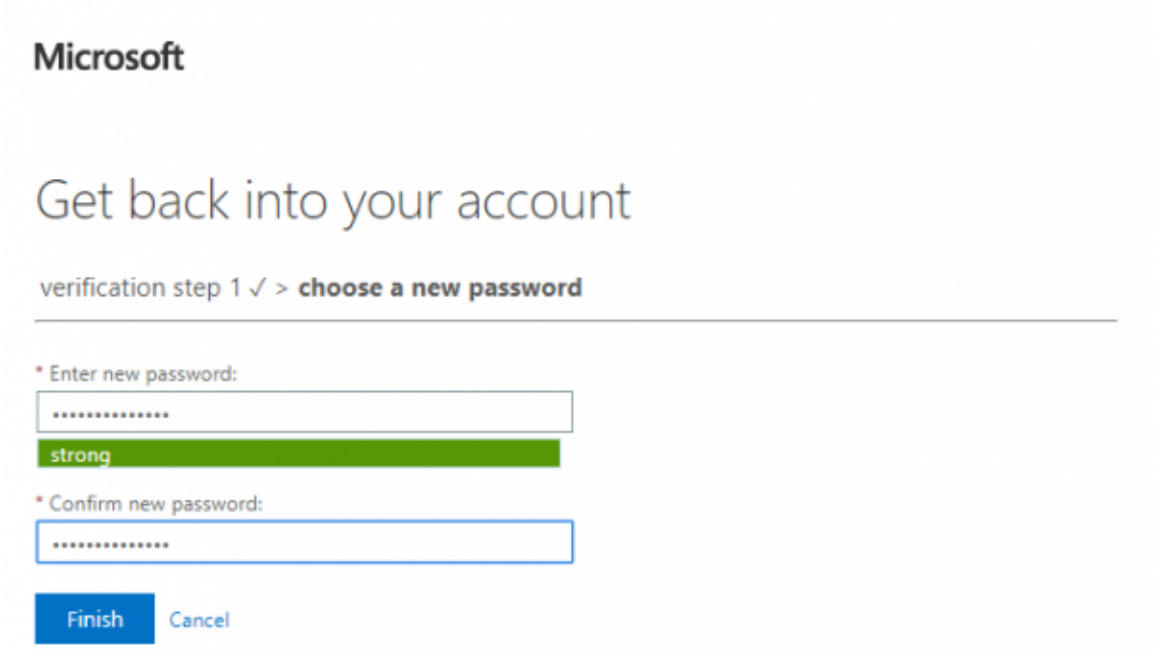
3. Click the **Email** button to send a password reset email to the registered email address.



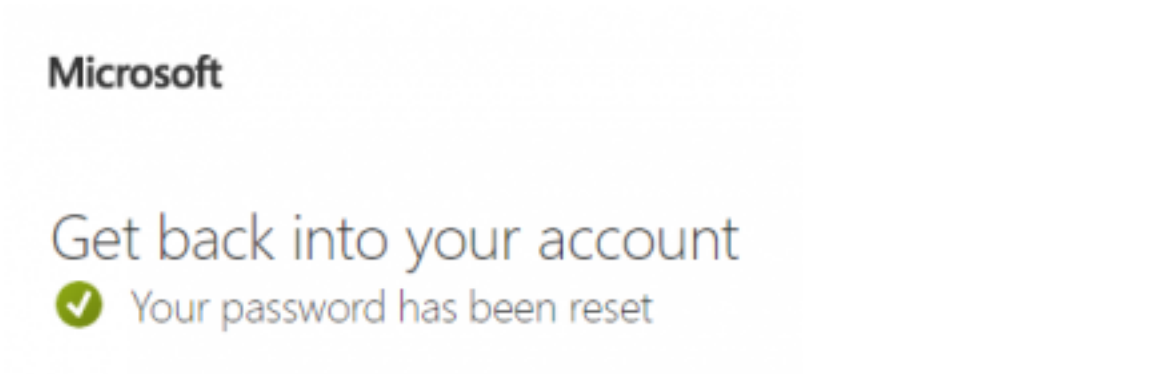
4. You will receive an email with a verification code.



5. Enter your verification code.
6. Enter your new password, and confirm it by entering the same password again in the second field.



7. Your password has been reset.



NOTE

- After successfully resetting your password, it takes up to 30 minutes before you can log in using the new password.
- If needed, contact Cisco support for assistance.

Change password

- To change your password, go to https://account.activedirectory.windowsazure.com/ChangePassword.aspx

NOTE After successfully changing your password, it might take up to 30 minutes before you can log in using the new password.

Related topics

- Guidelines for accessing WFM through Azure Virtual Desktop (AVD)
- Create a shortcut to AVD
- Manage export of files on AVD
- Troubleshoot issues with AVD

Create a shortcut to AVD

Create a shortcut to directly access the Azure Virtual Desktop login page in guest mode in Chrome. This can be done in similar ways for other browsers.

Create a shortcut for Chrome

1. Open Chrome.
2. Click the three dots at the far right to open the menu.
3. Select **More tools** and **Create shortcut**.
4. Right-click the new shortcut on your desktop and select **Properties**.
5. On the **Shortcut** tab, remove the filled-in **Target** and enter this instead: "C:\Program Files (x86)\Google\Chrome\Application\chrome.exe" --guest https://poweruser.teleopticloud.com
6. Click the **General** tab and enter the name for this shortcut in the field at the top.
7. Click **OK** to save.
8. The shortcut will now automatically open Azure Virtual Desktop login page in guest mode.

Related topics

- Guidelines for accessing WFM through Azure Virtual Desktop (AVD)
- Manage password on AVD
- Manage export of files on AVD
- Troubleshoot issues with AVD

Manage export of files on AVD

If you want to export files from the WFM client on Azure Virtual Desktop (AVD), you can use both the web version and the desktop version of AVD. After you install the desktop version of AVD, you must subscribe to the workspace on the remote AVD machine. The files you export can then be saved on your local computer. You cannot save files to folders on, for example, your company network. Follow the instructions for Windows or Mac below to install the desktop client and subscribe to a workspace.

NOTE You must have admin rights for the local computer where you want to install the desktop client.

IMPORTANT

- When prompted to log in, use your AVD credentials.
- If you choose to **Subscribe with URL**, use this URL: https://rdweb.wvd.microsoft.com/api/arm/feeddiscovery

NOTE You can use the web client to import forecasts and new employees. For further information, see Import new employees for WFM, Import forecasts for several skills at a time, and Import external forecasts.

Windows

Follow this guide to install the AVD client and subscribe to a workspace.

- Connect to Azure Virtual Desktop with the Windows client.

NOTE On Windows, subscribing to a workspace automatically lets you access your local C:\ drive from AVD.

Mac

On Mac computers, follow the steps below.

1. First, follow this guide to install the AVD macOS client: Connect to Azure Virtual Desktop with the macOS client.
2. Then follow these steps to subscribe to a workspace and select what folder to access from AVD.
    - Select **Add Work or School Account**, and login with the AVD account when prompted.
    - After you sign in, the **Apps** tab shows the WFM application that you can launch by clicking on it.
    - If the local folders are not visible in the Windows app, then follow the steps in the image below to redirect the local folders.
    - Relaunch the Windows app.

Web

File transfer on the web version of Windows app works without any extra configuration. You only need to ensure that the file is saved in the Downloads folder in **Remote Virtual Drive**.

Related topics

- Access WFM through Azure Virtual Desktop (AVD)
- Create a shortcut to AVD
- Manage password on AVD
- Manage export of files on AVD

Troubleshoot issues with AVD

Please see the official Microsoft documentation. For supported browsers and OS and to get started with the web client: Get started with Windows App to connect to devices and apps

Cisco only supports the web client/HTML5 client. If you run into problems using the Azure Virtual Desktop client, please use the web version instead. If the problems remain, please open a support ticket with Cisco support.

For troubleshooting issues with Windows app, see this - Basic troubleshooting for Windows App.

Logged in with the wrong account

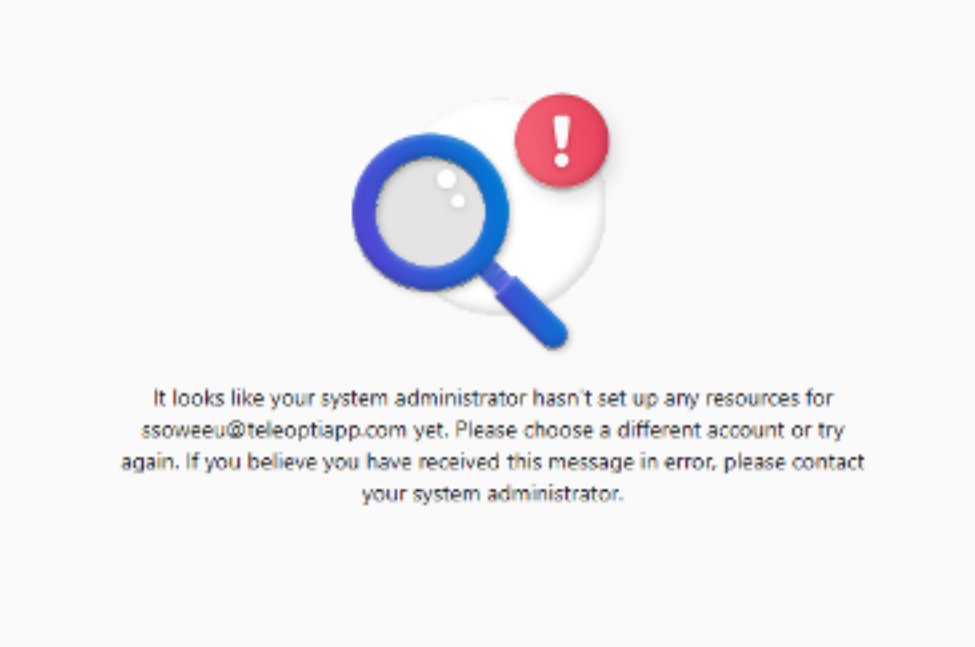
If you see a message that you do not have access or that no resources are set up for you, this means that you're already signed in with another Azure Active Directory/Office 365 account. You must use your AVD account (ending with **@teleoptiapp.com** or **@avdapp.calabriocloud.com**to access Azure Virtual

Desktop.

To solve this, sign out or use an InPrivate/incognito browser window to access Azure Virtual Desktop.

No Resource landing page

If you see the below screen upon login, then just click on the **Apps** tab on the left side.



Keyboard input

If you are using Azure Virtual Desktop and have issues with keyboard input, for example in the date picker, enable the input method editor. Click the gear icon in Azure Virtual Desktop navigation bar to find the toggle to enable the input method editor.

> **NOTE** When the input method editor is enabled, you must disable the numeric lock to use the number pad to type numbers.

Copy and paste

If you are using Azure Virtual Desktop to access the admin client and you want to copy information from a local source, for example an Excel document, to a table in the Azure client, you must use **Ctrl**+**C** and **Ctrl**+**V** to copy and paste. You must also select **Ctrl**+**V** before you start copying content from your local source.

Other issues

If you for some reason experience any problems with the WFM application, you can use the "Reset my session" button to close all open applications and reset the Azure Virtual Desktop session.

Related topics

- Guidelines for accessing WFM through Azure Virtual Desktop (AVD)
- Create a shortcut to AVD
- Manage export of files on AVD
- Manage password on AVD

Connect to an Active Directory server for QM and Analytics

You can use a connection to an Active Directory (AD) server in your environment for user authentication, sync, or both.

To unlink synced users, go to Unlink synced users.

Page location

Application Management > Global > System Configuration > Active Directory Configuration

Prerequisites

- At least one configured AD domain exists.
- Each AD domain has at least one configured user path.
- The Webex WFO server is in the same domain as the user.

Procedures

Configure Active Directory

NOTE For more information about any of the fields on this page, go to About Active Directory configuration for QM and Analytics in the *Webex WFO User Guide*.

1. Select **Create New Active Directory Configuration**.
2. Enter the Domain Name, Host Name, Port, User Name, and Password in the Active Directory Authentication section.
3. (Optional) Select the **Use SSL** check box, and then import the certificate.
4. (Sync only) Enter the Root DN, Organizational Units, and Synchronization Interval (Minutes) in the Active Directory Sync section.
5. (Sync only) Select the property to match the AD user with the Webex WFO user from the **User Profile Matching Property** drop-down list.

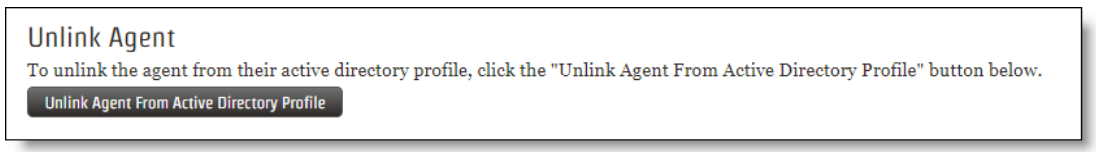
   NOTE After the AD sync is set up, the matching property allows you to verify that the sync is working and unlink users. Select **Default** to link users by Windows login.

6. Click **Test Connection** to ensure that your AD connection is configured correctly.
7. Click **Save**.
8. (Sync only) Navigate to Application Management > Global > System Configuration > Data Server Configuration.
9. (Sync only) Select the data server for AD sync from the **Select Data Server Configuration** drop-down list.
10. (Sync only) In the **Active Directory Sync** section, select the **Enable Active Directory Sync** check box, and then move the AD server from **Available** to **Assigned**.
11. (Sync only) Click **Save**.

Verify that AD sync is working

You can verify the AD sync after the synchronization interval has passed.

1. Navigate to Application Management > Global > User Configuration > Users.
2. Select a user who has the same identity as an AD user, based on the matching property that you selected in step 6 above. If the Unlink Agent section (below) appears on the screen, AD sync is working.



Unlink synced users

When a Webex WFO user and an AD user are unlinked, the following happens:

- Changes to properties in the AD do not transfer to Webex WFO.
- The user's Windows login can be edited.
- Webex WFO retains the Recording user profile and all the values stored in it.

1. In Webex WFO, navigate to Application Management > Global > User Configuration > Users.
2. If necessary, select the **Edit an existing user** radio button.
3. Select the user to unlink from the **Select User** drop-down list.
4. Click **Unlink Agent from Active Directory Profile** (in the Unlink Agent section). A warning message appears.
5. Click **Yes**.
6. Change the matching property field so that the Webex WFO user no longer has the same identity as the AD user.

   The following table describes how to change the Webex WFO user, depending on which matching property you selected when you linked the users.

Matching Property	Change
First Name / Last Name	Change the value in the First Name or Last Name field.
Employee ID	Change or delete the value in the Employee ID field.
Default	Change or delete the value in the Windows Login field.
User Name	Change the value in the User Name field.

7. Click **Save**.
8. (Optional) To permanently unlink users, change the equivalent properties in the AD. If you do not change the AD information, the Webex WFO user might be matched with the AD user again the next time the sync runs.

Related topics

- About Active Directory configuration for QM and Analytics in the *Webex WFO User Guide*— Learn more about how Active Directory configuration works.

About Active Directory configuration for QM and Analytics

The Active Directory Configuration page lets you create or edit a connection between Webex WFO and an Active Directory (AD) server in your environment. You can use this connection for user authentication, sync, or both.

Note the following parameters when configuring the connection with the AD server, whether for authentication, sync, or both:

- At least one configured AD must exist.
- Each AD domain must have at least one configured user path.
- The Webex WFO server must be in the same domain as the user.

Authentication

AD authentication enables you to use AD users and passwords for authentication in Webex WFO. It is available only for on-premises deployments of Webex WFO.

Sync

AD sync enables Webex WFO to sync Webex WFO users with AD users. When AD sync is configured, Webex WFO matches existing Webex WFO users with existing AD users. Then, whenever an AD user's first name, last name, employee ID, or email address is changed, Webex WFO also changes the corresponding values of the matched Webex WFO user.

- AD sync does not add or deactivate Webex WFO users.
- If Webex WFO cannot match an AD user with any existing Webex WFO user, it does not add a new Webex WFO user.
- If an AD user who is synced with a Webex WFO user is deleted in AD, Webex WFO does not deactivate the Webex WFO user.

You can review which AD users are matched with Webex WFO users and which ones are not on the Active Directory Sync page (see Review Active Directory sync results for QM and Analytics).

Matching users

The following list provides an overview of how Webex WFO matches users.

1. The administrator configures the AD connection, including the organizational units that contain the users to be synced.
2. The administrator selects one of four matching properties: Default, Employee ID, First Name / Last Name, or User Name. If the administrator selects Default, Webex WFO uses the Default matching

property only. If the administrator selects First Name / Last Name, Employee ID, or Email, Webex WFO first uses the Default matching property, then uses the selected matching property.

3. Each matching property designates a field on the Users page and an equivalent property in AD. Webex WFO compares Webex WFO users and AD users based on the values that the field and the property contain. When exactly one user in Webex WFO and one user in AD have the same value, Webex WFO matches the users.

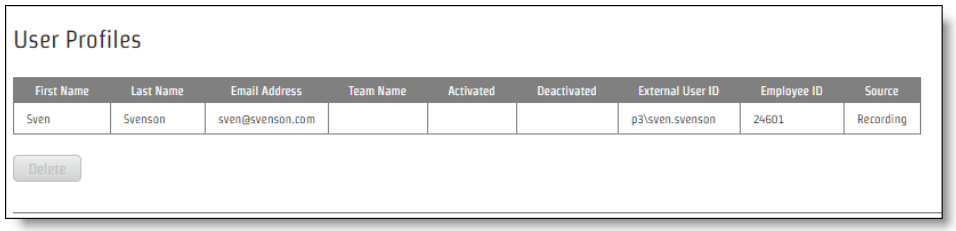
   The following table describes which field and which equivalent property must have the same value for Webex WFO to match users.

Matching Property	Users Page	AD Property	Notes
Default	Windows Login	User logon name (pre-Windows 2000)	If selected, Webex WFO matches users with the Default matching property only. AD has two user logon name properties: the "User logon name property" (<user>@<domain>) and the "User logon name (pre-Windows 2000)" property (<domain>\<user>). Webex WFO matches users on the "User logon name (pre-Windows 2000)" property only. If you edit the "User logon name (pre-Windows 2000)" property in AD after users are matched, Webex WFO unmatches the AD user from the Webex WFO user, regardless of the matching property that Webex WFO used to match them originally.

Matching Property	Users Page	AD Property	Notes
First Name / Last Name	First Name	First name	If selected, Webex WFO first matches users with the Default matching property, then with the First Name / Last Name matching property.
	Last Name	Last name	First Name / Last Name is not case-sensitive. If multiple Webex WFO users have the same First Name and Last Name as a single AD user, Webex WFO does not match the AD user with any Webex WFO user.
Employee ID	Employee ID	employeeID	If selected, Webex WFO first matches users with the Default matching property, then with the Employee ID matching property. If multiple Webex WFO users have the same Employee ID as a single AD user, Webex WFO does not match the AD user with any Webex WFO user.
User Name	User Name	E-mail	If selected, Webex WFO first matches users with the Default matching property, then with the User Name matching property.

4. For each Webex WFO user whom Webex WFO matches with an AD user, Webex WFO does the following:

- Adds a Recording user profile, if the user does not already have one.



- Populates any of the following fields in the Recording user profile whose equivalent properties are configured in AD: First Name, Last Name, Email Address, External User ID, and Employee ID.
- Disables editing the Windows Login field on the User's page.

5. If the Recording user profile has the correct precedence, Webex WFO transfers the values from the Recording user profile to the Webex WFO user.

> **NOTE** If an Override user profile does not already exist, Webex WFO does not create one. This means that the values in the Recording user profile can overwrite the identity traits of a user who was manually created in Webex WFO, including first name, last name, user name, and employee ID. For more information about user profiles, see Manage user profiles for QM and Analytics and Configure global settings, "User Profile Precedence."

Syncing matched users

When someone changes a matched user in AD, Webex WFO detects it and makes several changes. The following table summarizes these changes.

Change in AD	Resulting Change in Webex WFO
"First name" property is changed	First name in the Recording user profile is changed. If the Recording user profile has the correct precedence, the user's first name is also changed on the User's page.
"Last name" property is changed	Last name in the Recording user profile is changed. If the Recording user profile has the correct precedence, the user's last name is also changed on the User's page.
"employeeID" property is	Employee ID in the Recording user profile is changed. If the

Change in AD	Resulting Change in Webex WFO
changed	Recording user profile has the correct precedence, the user's employee ID is also changed on the User's page.
"E-mail" property is changed	Email address in the Recording user profile is changed. If the Recording user profile has the correct precedence, the user's user name is also changed on the User's page.
"User logon name (pre-Windows 2000)" property is changed	The user is unmatched.

Unmatching synced users

If you no longer want a Webex WFO user to be linked with an AD user, you can unlink them. When a Webex WFO user is unlinked from an AD user, Webex WFO stops updating the user and the user's Recording user profile when properties are changed in AD, and it enables the user's Windows login for editing.

Unmatching a Webex WFO user does not delete the Recording user profile or delete any of the values stored in it, nor does it prevent the Webex WFO user from being matched with the AD user again the next time that sync runs. To permanently prevent Webex WFO from matching users, you must also change the Webex WFO user before sync runs again so that the Webex WFO user no longer has the same identity (as determined by the matching property that is currently selected) as the AD user.

Field descriptions

The fields on the Active Directory Configuration page are described below.

Active Directory Authentication

Field	Description
Domain Name	The domain of AD. This domain must be unique among any other AD domains. This domain must also match the domain of a user's Windows login as configured in the Windows Login field on the Users page.

Field	Description
Host Name	The host name or IP address of the AD server.
Port	The port used to access the AD server. The default is port 389, or 636 if you are using SSL. The Webex WFO server must allow socket communication on this port to be able to access the AD server for user authentication.
User Name	The Windows login of a user with read access to the AD database. This user name is used to verify configuration information and validate user paths.
Password	The password for the user with read access to the AD database.
Authentication Enabled	Select this check box to enable AD authentication. Leave this check box cleared if you are using AD sync only.
Use SSL	Select this check box to use Secure Socket Layer (SSL) for the connection to the AD server. Selecting this option changes the default port number in the Port field.
Certificate	(Appears when you select **Use SSL**) The certificate that provides the AD identity and public key for SSL communication. Contact your AD administrator for the location of the certificate for AD. In many cases, this certificate is issued by the Certificate Authority on the AD machine.

Active Directory Sync

Field	Description
Root DN	The domain component of the distinguished name of the organizational unit that stores the AD users who you want to sync with Webex WFO users.

Field	Description
	EXAMPLE You want to sync AD users who are stored in an organizational unit that has the following distinguished name: `ou=Agents,ou=Users by Role,ou=User Accounts,dc=example,dc=com` You enter `dc=example,dc=com` in the Root DN field.

Organizational Units	The distinguished name of the organizational unit that stores the AD users, minus the domain component. To specify multiple organizational units in the same domain, separate their distinguished names (minus the domain component) with a semicolon.
	EXAMPLE
	You want to sync AD users who are stored in an organizational unit (Agents) that has the following distinguished name:
	`ou=Agents,ou=User Accounts,dc=example,dc=com`
	You enter the following text in the Organizational Units field:
	`ou=Agents,ou=User Accounts`
	Then, you decide you want to also sync AD users who are stored in another organizational unit, Supervisors. This organizational unit is in the same domain, and it has the following distinguished name:
	`ou=Supervisors,ou=User Accounts,dc=example,dc=com`
	You edit the text in the Organizational Units so that it reads as follows:
	`ou=Agents,ou=User Accounts;ou=Supervisors,ou=User`

Field	Description
	 Accounts The table on the Active Directory Sync page contains all AD users who are located in the organizational units that you designate, both those who are matched with Webex WFO users and those who are not. See Review Active Directory sync results for QM and Analytics.
Synchronization Interval (Minutes)	The frequency in minutes that Webex WFO syncs with AD. Webex WFO also updates the table on the Active Directory Sync page according to this interval. The minimum is 10 minutes.
User Profile Matching Property	The matching property or properties that Webex WFO uses to determine whether a Webex WFO user and an AD user have the same identity. If you select Default, Webex WFO matches users with the Default matching property only. If you select First Name / Last Name, Employee ID, or Email, Webex WFO first matches users with the Default matching property, then matches users with the selected matching property. Changing the matching property does not unmatch users who are already matched.

Download Smart Desktop and Webex WFO Data Server installers

Use the Downloads page to access the Webex WFO Smart Desktop and Webex WFO Data Server installers available for your tenant.

To download an installer that you want, click the link for it.

Page location

Application Management > Global > Administration > Downloads

Download	Description
Webex WFO Data Server, Webex WFO Smart Desktop	The Data Server (CalabrioONEDataServerSetup_<TenantName>.exe) and Smart Desktop (CalabrioONEDesktopSetup_<TenantName>.exe) installers for this tenant. These installers are configured to connect to only the tenant that they are downloaded from. In multitenant environments, this means that they cannot be downloaded and transferred to another tenant. For more information about installing the Smart Desktop and Webex WFO Data Server, see the *Installation Guide for Cloud Deployments* .

Related topics

- Configure the Data Server for QM and Analytics
- Download Data Server logs
- Monitor Data Server status
- Monitor agents in real time

Configure the Data Server for QM and Analytics

The Data Server Configuration page enables you to set up Data Server features based on a contact center's geographic location. For example, you can configure a contact center in New York differently than a contact center in California. This allows each site to operate with minimal WAN traffic.

Navigate to Application Management > Global > Administration > Downloads to download the Webex WFO Data Server. Information on how to install the Webex WFO Data Server can be found in "Installing the Webex WFO Data Server" in the *Webex WFO Installation Guide*.

Prerequisites

- You have the Administer Tenant or Update Tenant permission.

Page location

Application Management > Global > System Configuration > Data Server Configuration

Data Server configuration in multi-tenant environments

Some data server features are not available in multi-tenant environments. In such an environment, the following configuration options do not appear on the Data Server Configuration page:

- Regional Data Server Reconciliation Settings
- Data Server Device Sync Settings
- Recording SIPREC Signaling Server Settings
- Recording CTI Signaling Server Settings
- Recording Capture Server Settings

Field descriptions

Use the Data Server Configuration page to configure and maintain the data server features. For more information about how to configure the Data Server for a specific ACD, see the following pages or the ACD's integration guide or tech note if available:

If your organization has any of the following integrations, consult that ACD's integration guide for additional data server configurations specific to the ACD.

- Cisco Unified Contact Center Enterprise
- Cisco Unified Contact Center Express
- Cisco Webex Contact Center

The fields on the Data Server Configuration page are described below.

Select Data Server Configuration

Select the URL for the contact center data server whose regional features you want to configure.

Display Name

Enter the display name of the data server you selected.

Regional Data Server ACD Sync Settings

Select the Enable Sync check box to enable ACD synchronization on the regional data server, and then use the Available and Assigned panes to assign servers to ACD synchronization.

Regional Data Server ACD Capture Settings

Select the Enable Capture check box to enable ACD capture on the regional data server, and then use the Available and Assigned panes to assign servers to ACD capture.

Regional Data Server Real-Time Event Settings

Select the Enable Real-Time Events check box to enable real-time events on the regional data server, and then use the Available and Assigned panes to assign servers to real-time event capture.

Regional Data Server Staged Upload Settings

Select the Enable Staged Upload check box to enable staged uploads on the regional data server, and then configure the tenant's staged upload settings. For more information about Stage Upload, see Configure staged upload.

NOTE Enabling this component alone does not cause agent PCs to use Stage Upload. Agents must also be associated with the Staged Upload Data Server through Teams or the IP Address Filter and one or more correctly configured rules in the QM Workflow Daily Event.

Field	Description
Location	The UNC path to the storage location. A UNC path requires the following format: \\ComputerName\SharedFolder\Resource **NOTE** If the UNC path is changed, the recordings on the previous staged upload location must be moved manually. The UNC path and user name must be accessible by both the Webex WFO Desktop installed on the agent's desktops and the Data Server.
Username	The user name of the user who administers the staged upload server.
Password	The password of the user who administers the staged upload server.

Staged Upload IP Address Filter Configuration

This section is visible only when staged upload is enabled. Enter ranges of IP addresses in CIDR notation that include the IP addresses of the agent PCs with Smart Desktop that you want to use Staged Upload. Any agent whose PC has an IP address that is included in the IP Address Filter is associated with the Stage

Upload Data Server.

> **NOTE** Agents who are associated with the Staged Upload Data Server by IP address will use Staged Upload only if they are also associated with a correctly-configured QM Workflow Daily Event. For more information about Two-Stage Upload, see "Configuring the Staged Upload Component" in the *Design Guide for On-Premises* or *Cloud Deployments*.

Enter an IP address range and click **Save**. You can add multiple ranges, which are listed in the pane above the entry field. Once added to the pane, you can also edit or delete a range. Click the pencil icon to edit the range, and click the X icon to delete the range.

Regional Data Server Reconciliation Settings

Select the Enable Reconciliation check box to enable the reconciliation of the data server. Move the servers that are to be reconciled from the Available pane to the Assigned pane.

Active Directory Sync

Select the Enable Sync check box to enable Webex WFO to match and syncWebex WFO users with Active Directory users. See Connect to an Active Directory server for QM and Analytics.

Data Server Device Sync Settings

Select **Enable Device Sync** to enable syncing selected ACDs via the selected data server. Move the servers that are to be synced from the Available pane to the Assigned pane.

Recording SIPREC Signaling Server Settings

Select the Enable SIPREC Signaling check box to enable SIPREC signaling services. Enter the host name or IP address of the data server where the SIPREC Signaling service is installed.

> **NOTE** This location must be accessible by the installed instances of Smart Desktop.

Recording CTI Signaling Server Settings

Select the Enable CTI Signaling check box to enable CTI signaling services. Enter the host name or IP address of the data server where the CTI Signaling service is installed.

> **NOTE** This location must be accessible by the installed instances of Smart Desktop.

Recording Capture Server Settings

Select the Enable Audio Recording check box to enable network recording instead of or in addition to endpoint recording (via Smart Desktop). Then enter the following information:

- Host name or IP address of the data server on which the capture server is installed. This address must be accessible by the installed instances of Smart Desktop.
- Enter the folder file path where recording files are to be temporarily stored before upload. This folder must be accessible by a user with Local System credentials.

Media Import Server Settings

Select the Enable Media Import check box to enable the import of recording files from an external location. Move the ACDs that are the sources of the recordings from the Available to the Assigned pane.

Regional Data Server GIS File Location

Enter the path to the directory from which the Data Server imports files. If you are using the default location (..\reports) under the Data Server installation directory, the field can remain blank.

Local Web Service Settings

Select the Enable Local Web Service check box to enable API integration on this data server. If enabled, you have the option to enable the following:

- Cisco IP Phone Services Controls—Select this check box to allow Cisco-enabled recording controls from supported Cisco devices.

  NOTE See Configure Cisco IP Phone Services Controls for QM and Analytics for the configuration procedure.

- Simplified Recording Controls API—Select this check box to use the native data server authentication for Cisco recording controls.

SFTP Configuration

Enter the data required to configure your secure FTP server.

Field	Description
Host Name	The secure FTP server host name.
Username	The user name of the user who administers the SFTP server.
Password	The password of the user who administers the SFTP server.

HRMS Configuration

Select the Enable HRMS Export to enable this data server to export data. If you have multiple data servers, only one should be enabled to export data.

Configure Cisco IP Phone Services Controls for QM and Analytics

The Cisco IP phone services controls component enables Cisco recording controls from supported Cisco devices. Follow the steps detailed below to configure Cisco IP phone services in Webex WFO and Cisco Unified Communications Manager.

Prerequisites

- You need to have Web Access over HTTP enabled on the devices where you plan to use the Cisco IP Phone Service Recording Controls.
- You need a Webex WFO Data Server.

Page location

Application Management > Global > System Configuration > Data Server Configuration

Procedures

Configure IP Phone Service recording controls in Webex WFO

1. Under **Local Web Service Settings**, select the **Enable Local Web Service** check box to enable API integration on this data server.
2. Select the **Enable Cisco IP Phone Service Controls** check box.
3. Configure all other fields as desired. See Configure the Data Server for QM and Analytics for more information.
4. Click **Save**.

Enable and start the Webex WFO Data Server Web Services service

The Webex WFO Data Server Web Services service is disabled by default.

1. Navigate to **Services** in your Server Manager application. Right-click the **Calabrio ONE Data Server Web Services** service, and then select **Properties**. The **Properties** pop-up displays.
2. Within the **General** tab, select **Automatic** from the **Startup type** drop-down list.
3. Click **OK**. The **Services** page displays.
4. Right-click **Calabrio ONE Data Server Web Services**.
5. Click **Start**.

Add a phone service in Cisco Unified Communications Manager

This procedure is conducted in Cisco Unified Communications Manager Administration. See “Phone Service Addition” in *Cisco Unified IP Phone Services Application Development Notes for Cisco Unified Communications Manager and Multiplatform Phones* for more information on configuring Cisco IP Phone Services.

1. Navigate to **Device** > **Device Settings** > **Phone Services**.
2. Enter the values for the parameters detailed below to configure for Cisco Recording Controls IP Phone Service.

Parameter	Value
Service URL	http://<Data Server IP Address>:8080/recordingcontrolsservlet
Service Category	XML Service
Service Type	Standard IP Phone Service

Subscribe a device to the phone service

To use a Cisco IP Phone Service a device must first be subscribed to it.

1. Navigate to the Phone Configuration screen. Select **Subscribe/Unsubscribe Services** from the **Related Links** drop-down list.
2. Select the service, then click **Next**.
3. Click **Subscribe**.

Related topics

- Configure the Data Server for QM and Analytics

Configure Extension Mobility for Cisco Network Recording (for QM and Analytics)

Webex WFO supports two ways of configuring Extension Mobility (EM) for Cisco Network Recording. The terms used in this topic are those used in the current product. The terms used may differ depending on your product version. When configuring agents for Extension Mobility, note that if the user is on a phone call when they log out of a device, the recording will stop.

Standard Extension Mobility

This is the original way to configure EM in Webex WFO. It works for single cluster systems, and it is the recommended way to configure EM for those environments.

Device associations configuration

User Profile Configuration

- Associate a user with the user profile in Contact Devices
- Do not configure a recording group for the user profile
- The user profile does not need to be associated with the JTAPI user in Cisco Unified Communications Manager (Unified CM)

Device Configuration

- Associate devices with a default hoteling agent or leave them unassociated with any user
- Configure a recording group and recording type (Network) for the device
- Device must be associated with the JTAPI user in Unified CM

How it works

Detecting EM login and logout depends on the set of extensions that are changing on the device. This means that Webex WFO has two requirements for user profile extension configurations:

- The set of extensions on a user profile must uniquely identify that user profile
- The set of extensions on a user profile must be different from the extensions configured for any device that user profile might log in to

When an extension mobility profile logs in to or out of a device, the set of extensions on that device change. This is how logins and logouts are detected, and it is also how Webex WFO determines which user profile (if any) is logged in to the device. Each time the set of extensions changes on a device, Webex WFO checks to see if the set of extensions matches a user profile known by Webex WFO. If it does, Webex WFO associates the user on the user profile with the device. If the set of extensions on the device does not match any user profile, and there's currently a user profile logged in to the device, then Webex WFO unassociates the user profile from the device.

Extension Mobility Cross-Cluster

This style of configuring EM was introduced to support Cisco's Extension Mobility Cross-Cluster (EMCC) feature. In order to use the EMCC feature, there is substantial configuration required in each of the Unified CM clusters. That is not covered here. Refer to the *Feature Configuration Guide for Cisco Unified CM* for your version for information on configuring EMCC.

NOTE The IP Phone Service Recording Controls is not supported in Cisco's EMCC feature.

Device associations configuration

User Profile Configuration for User Profiles that log on to phones homed to other clusters

- Associate a user with the user profile in Contact Devices
- Configure user profile with a recording group and recording type (Network)
- User profile must be associated with the JTAPI user in Unified CM

Device Configuration for devices that User Profiles from this cluster will log in to

- Associate devices with a default hoteling agent or leave them unassociated with any user
- Configure a recording group and recording type (Network) for the device
- Device must be associated with the JTAPI user in Unified CM

How it works

Similar to standard configuration, correctly detecting EM login and logout depends on the current set of extensions on the device. The same configuration requirements apply:

- The set of extensions on a user profile must uniquely identify that user profile.
- The set of extensions on a user profile must be different from the extensions configured for any device that user profile might log in to.

Logging into a Home Cluster Device

- When a user profile logs into a device on its home cluster (as in the same Unified CM cluster the user profile is configured on), EM works the same as in the standard configuration.
- Calls are recorded using the recording group configured on the device the profile is logged in to.

Logging into a Remote Cluster Device

NOTE The Build in Bridge (BIB) must be enabled on the visiting cluster in the callManager service parameters before EMCC is configured.

- When a user profile logs in to a device that is on a remote cluster (as in a Unified CM cluster different from the one the user profile is configured on), the home Unified CM cluster creates a temporary phantom visiting device.
- The Cisco CTI Service detects the creation of this device. When the phantom device comes in service, Webex WFO checks the set of extensions to see if it matches a user profile that has a user and recording group associated with it.

- If it does, CTI registers the phantom device to record with the user and recording group configured on the matching user profile.
- When the user profile logs out of the remote device, the home Unified CM cluster removes the phantom device, and the Cisco CTI Service disposes it.

Related topics

- Associate phones with agents, recording groups, and recording types— Learn how to associate devices from your ACD with Webex WFO users, recording groups, and recording types.

Configure telephony groups for QM and Analytics

Telephony groups are the backbone of an organization's recording infrastructure. Use the Telephony Groups page to create, edit, and delete telephony groups, signaling groups, and recording groups.

A telephony group consists of at least one signaling source, one signaling group, one signaling server, one recording group, and your contact center devices. You can add backups for any of these items. Adding backups is optional, but we recommend it for resiliency purposes.

NOTE Some telephony group types do not support a backup signaling source.

Different configurations of telephony groups, signaling groups, and recording groups are supported based on the telephony group type. The tables below describe telephony group configuration and CTI service details based on telephony group type.

Cisco Unified Communications Manager

Telephony Groups	1 or more
Signaling Groups per Telephony Group	1 or more
Recording Groups per Signaling Group	1 or more
CTI Service Notes	Each CTI service in a signaling group can have a separately administered list of Unified CM CTI Managers to connect to for JTAPI.

Other

Telephony Groups	1 or more

Other (cont'd)

Signaling Groups per Telephony Group	1
Recording Groups per Signaling Group	1
CTI Service Notes	N/A

Prerequisites

You have the Configure Telephony Groups permission

Page location

Application Management > QM > QM Configuration > Telephony Groups

Procedures

Configure a telephony group

1. Enter a unique name for the telephony group.
2. Select the platform type for the telephony group.
3. Click **Add**. Additional fields appear on the page.
4. Complete configuration under the **Telephony** tab according to the specified telephony group type.
    - Cisco Unified Communications Manager (Unified CM)—See Configure Cisco Unified Communication Manager for QM and Analytics.
5. Click **Next** to continue to signaling group configuration.

Configure a signaling group

1. Enter a unique name for the signaling group.
2. Click **Add**.
3. Enter the configuration details for the signaling group according to the table below.
4. Click **Next** to continue to recording group configuration.

Signaling group configuration

Field	Description
Primary QM Signaling Data Server	
Primary QM Signaling Data Server	The data server of the primary signaling service. The drop-down list is populated with data servers configured with the CTI or SIPREC signaling (depending on the telephony group type). This signaling service can only belong to a single signaling group.
Primary JTAPI CTI Manager primary signaling server	(Unified CM only) The data server of the primary CTI Manager for the primary QM signaling data server. The CTI Manager is a service that runs on Unified CM and handles JTAPI events for every Unified CM in the cluster. The drop-down list is populated with the Unified CM servers configured under the Telephony tab.
Backup JTAPI CTI Manager primary signaling server	(Unified CM only) The data server of the backup CTI Manager for the primary QM signaling data server. The drop-down list is populated with the Unified CM servers configured under the Telephony tab.
Backup QM Signaling Server	
Backup QM Signaling Data Server	(Optional) The data server of the backup signaling service. The drop-down list is populated with data servers configured with the CTI or SIPREC signaling (depending on the telephony group type). This signaling service can only belong to a single signaling group. The signaling service remains on the backup server until you manually initiate failover to the primary server.
Primary JTAPI	(Unified CM only) (When configuring a backup signaling server

Field	Description
CTI Manager backup signaling server	only) The data server of the server for the primary CTI Manager for the backup QM signaling data server. The CTI Manager is a service that runs on Unified CM and handles JTAPI events for every Unified CM in the cluster. The drop-down list is populated with the Unified CM servers configured under the Telephony tab.
Backup JTAPI CTI Manager backup signaling server	(Unified CM only) Only available when configuring a backup signaling server. The name of the CTI Manager for the backup QM signaling data server. The drop-down list is populated with the Unified CM servers configured under the Telephony tab.

Configure a recording group and assignments

1. Enter a unique name for the recording group.
2. Click **Add**.
3. Select the recording group and the priority for each Record server host name and IP address.
4. Click **Save**.

NOTE

When configuring recording groups, remember the following points:

- If you have users in a Gateway recording or CUBE recording environment who require screen recording, you must create a recording group that connects to a CTI server and has no Record servers assigned to it.
- You can assign one or more Record servers to a recording group. A recording group requires at least one primary Record server.

  Signaling services exhaust the capacity of the primary Record servers before sending calls to secondary Record servers. If the primary signaling server is disabled (due to manual shutdown or system error), the secondary signaling server still sends calls to the primary Record servers unless the primary Record servers are also unavailable.

- A Record server can belong to only one recording group.
- You can move Record servers between recording groups.

Change the settings for a telephony group

- Select the telephony group, edit as needed, and then click **Save**. The table below shows when your changes take effect.

Telephony Group Type	Service	To apply configuration settings
Unified CM	Recording CTI Service	Restart the service.
	Webex WFO (VoIP Devices)	Reload the VoIP Device window.
	Desktop Recording service	Restart the service.
	Network Recording service	Restart the service. If you add a backup Recording CTI Service from the postinstall.exe while in Update Mode, you must restart the Network Recording service.

Related topics

- Configure Cisco Unified Communication Manager for QM and Analytics

Configure Cisco Unified Communication Manager for QM and Analytics

The CUCM Telephony Platform Configuration options appear when you add or edit a telephony group with a Cisco Unified Communications Manager (Unified CM) telephony type. It allows you to configure a Cisco Unified CM cluster.

The Cisco Unified CM window also allows you to configure the following users:

- Simple Object Access Protocol (SOAP) Administrative XML Layer (AXL) user
- Unified CM Java Telephony Application Programming Interface (JTAPI) user

These users are used by the Computer Telephony Integration (CTI) service to log in to Unified CM.

A Unified CM cluster is comprised of a set of Unified CM servers that share the same database and resources and have one or more CTI Managers. The CTI Manager is a service that runs on Unified CM and handles JTAPI events for every Unified CM in the cluster (see Configure telephony groups for QM and Analytics).

You can specify one or more Unified CM telephony groups. A Unified CM telephony group requires at least one CTI Manager.

Installing JTAPI

During the installation process, Webex WFO installs the JTAPI.JAR file from the JTAPI client in `C:\Program Files\Common Files\Calabrio ONE\Data Server\CtiSignalling\lib`. Click **Download/Install JTAPI** on each of the signaling servers for the Unified CM telephony group. Optionally, you can manually install the JTAPI.JAR file by copying and pasting it in the correct directory.

Field descriptions

Field	Description
Enable Network Recording	Select this check box to enable network recording for the Unified CM telephony group. When the check box is selected, the Recording CTI service will listen for SIP messages. **NOTE** The Recording CTI service and CUBE SIP CTI, Sonus SIPREC, or Acme SIPREC service will interfere with each other while listening for SIP messages if the Enable Network Recording check box is selected. **EXAMPLE** You are recording voice through Gateway Recording (using the CUBE SIP CTI or Acme SIPREC service) and recording screen from a single server. **NOTE** CUBE recording does not capture call direction. The Contact Direction for CUBE recordings will be shown as

Field	Description
	"Outbound."
SOAP AXL Access Username	The AXL (Administrative XML Layer) authentication user name on the publisher for this cluster used to synchronize Unified CM devices. This user name is created when you configure Unified CM. **NOTE** If you change a user name or password, you must restart the associated data server.
SOAP AXL Access Password	The AXL authentication password on the publisher. This password is created when you configure Unified CM.
Version	The Unified CM version on the publisher. **NOTE** You cannot configure new telephony groups for unsupported versions of Unified CM. If your organization uses Unified CM version 14, select **12.5** from the **Version** drop-down list.
JTAPI Access Username	The JTAPI user name for CTI. All phone devices, used for recording or monitoring, are associated with this application user (end user). The Recording CTI service logs into the Unified CM with this user. The user name must be between one and 32 alphanumeric characters. **NOTE** If you change a user name or password, you must restart all associated signaling services.
JTAPI Access Password	The JTAPI user's password for CTI. This must be between one and 32 alphanumeric characters.
Device Synchronization Data Server	The data server that is used to synchronize devices.
Secure SIP Setup	Generate a certificate and keystore if you are using secure session

Field	Description
	initiation protocol (SIP). See Generate a certificate for secure SIP.
Telephony Group Servers	
Publisher and Subscribers	A list of available server host names/IP addresses. You can enter one publisher Unified CM, and one or more subscriber Unified CMs. Choose which host name/IP address is associated with the publisher CTI Manager service. All other Unified CMs are associated with a subscriber CTI Manager service.
Host Name	The host name or IP address of the publisher or subscriber (if any) Unified CM. When using host names, verify the server can resolve the name of the subscribers. If the host name cannot be resolved, the Recording CTI service cannot log in.

Generate a certificate for secure SIP

1. Click **Generate SIP Trunk Certificate**. The **Generate Certificate For Secure SIP** dialog box appears.
2. In **Subject Name**, enter a unique name and store it in an easy-to-access location. When you configure the SIP Trunk Security Profile in CUCM, you must enter this name in the X.509 Subject Name field.
3. Click **Generate Certificate**. A ZIP file containing two files downloads:
    - sip.keystore—This file contains the keystore. Copy the keystore, and then paste it in the following location on the Signaling Server:

      ```
      C:\Program Files\Common Files\Calabrio ONE\Data
         Server\config
      ```

    - sip_certificate.pem—This file contains the public certificate. Upload the certificate to CUCM.

Configure an ACD

The ACD Configuration page lets you set up a connection between Webex WFO and one or more ACDs. Once an ACD has successfully synchronized, it cannot be deleted from Webex WFO.

> **NOTE** If your organization has New WFM, then New WFM implementations are done in a separate process. A select number of integrated platforms can be configured using the WFM Integrations page (see Manage WFM integrations). If your integrated platform is not listed on the WFM Integrations page, then it requires a project managed by Professional Services.

Prerequisites

- You have the Administer ACD Configuration permission (see Manage roles and permissions for QM, Analytics, and Insights).
- The Data Server service is installed on a server with access to the Webex WFO system before you test the ACD connection.

  > **NOTE** The installation file for the Data Server service is located on the Downloads page (see Download Smart Desktop and Webex WFO Data Server installers). If the Data Server service is not installed when you test the connection, you receive the following error message: “Error: Please verify gathering service is running.”

Page location

Application Management > Global > System Configuration > ACD Configuration

Procedures

Add an ACD

1. Select a tenant.
2. Click **Add**. The ACD Details dialog box opens.
3. Select the type of ACD from the **Select ACD** drop-down list.
4. Enter the ACD’s name in the **Name** field.
5. Click **OK**. The ACD Details dialog box closes, and configuration options display on the ACD Configuration page.
6. Configure the ACD by completing the fields. See the links below for ACD-specific instructions.

- Connection settings for Amazon Connect (for QM and Analytics)
- Connection settings for Cisco Unified Contact Center Enterprise
- Connection settings for Cisco Unified Contact Center Express
- Connection settings for Cisco Webex Contact Center
- Connection settings for Cisco Webex Contact Center 2.0
- Connection settings for Avaya CM with Contact Center Elite (for QM and Analytics)
- Connection settings for Avaya IP Office with ACCS (for QM and Analytics)
- Connection settings for Five9 (for QM and Analytics)
- Connection settings for InContact (for QM and Analytics)
- Connection settings for generic ACDs
- Connection settings for Microsoft Dynamics 365 Customer Service
- Connection settings for Serenova (for QM and Analytics)
- Connection settings for Eventide NexLog (for QM and Analytics)
- Connection settings for Twilio Flex (for QM and Analytics)
- Connection settings for UJET (for QM and Analytics)

7. Click **Test Connection** to ensure your entries are correct and Webex WFO is connected to the ACD.
8. When the connection tests successfully, click **Save**.

Delete or modify an ACD

- To delete an ACD, select the ACD, click **Delete**, and click **Yes**.
- To modify an ACD, select the ACD, edit the fields as desired, and click **Save**.
- To change the name of an ACD, select the ACD, click **Edit**, change the name in the **Name** field, click **OK**, and click **Save**.

How data for QM and Analytics syncs between the ACD and Webex WFO

Webex WFO can synchronize data with some ACDs. For synchronization information on specific ACDs, see the integration guide for that ACD. The Sync Service automatically extracts the following information from an ACD and loads it into Webex WFO:

- Agents
- Teams
- Relationships between agents and teams

NOTE When the ACD syncs new data, such as new agents or teams, and you are already logged in, you cannot view them. Your scope is determined when you log in. Since these teams and users were created after you logged in, you will not have scope over them until you log out and then log in again.

NOTE Any teams, agents, or relationships you create in Webex WFO are not synced back to the ACD. They are maintained only in Webex WFO.

How agent data for QM and Analytics syncs between the ACD and Webex WFO

Webex WFO assumes that every user imported from the ACD to Webex WFO is an agent. As a result, it creates a user record and a user profile and assigns the agent role to the user. Some ACDs can assign the supervisor role to users, and that role is assigned to the user in Webex WFO.

When someone changes user data in the ACD, the Sync service detects it and makes several changes in Webex WFO. The following table summarizes these changes.

Change in the ACD	Resulting Change in Webex WFO
New agent is added	New agent is added. Specifically, the Sync service: ■ Applies the ACD agent first and last name to the Webex WFO agent first and last name. ■ Applies the ACD login ID to the Webex WFO Employee ID and ACD ID. You can change the Employee ID but not the ACD ID. Changing the Employee ID has no effect on the ACD login ID. ■ Sets the Webex WFO start dates for the company and department to the current date. ■ Assigns the corresponding team to the agent as the agent's team. **NOTE** If the ACD does not have a team assigned to the agent, you can manually assign a team to the agent in Webex WFO.
Agent's first or last name is	Agent's first or last name is changed.

Change in the ACD	Resulting Change in Webex WFO
changed	
Agent is deleted	Agent status is set to Inactive.

How team data for QM and Analytics syncs between the ACD and Webex WFO

When team data is changed in the ACD, the Sync service detects it and makes several changes in Webex WFO. The following table summarizes these changes.

Change in the ACD	Resulting Change in Webex WFO
New team is added	New team is added with the same name. Makes any agent who is a member of the team in the ACD a member of the team in Webex WFO.
Team name is changed	Team name is changed.
New agent is added to the team	New agent is added to the team.
Team is changed	No change.
Agent is removed from a team	No change.

You can create new teams in Webex WFO and assign agents to them, but these new teams are not synchronized back to the ACD.

An agent can belong to only one team. If you move an agent from one team to another in Webex WFO, you do not affect that agent's team assignment in the ACD.

Connection settings for Cisco Unified Contact Center Enterprise

The following fields appear if the ACD you select is Cisco Unified Contact Center Enterprise.

> **NOTE** If your organization has New WFM, then New WFM implementations are done in a separate process. A select number of integrated platforms can be configured using the WFM Integrations page (see Manage WFM integrations). If your integrated platform is not listed on the WFM Integrations page, then it requires a project managed by Professional Services.

NOTE If agents in your Unified CCE ACD are not configured to use a selected skill group as their default skill group, then they automatically belong to the ACD's default skill group. Historical data is not captured for the ACD default skill group but is for specific default skill groups. As a result, the agents' time is not correctly attributed to the service queue they support in Webex WFO. Set a selected ACD skill group that the agent primarily supports as their default skill group in order to report their productivity correctly. Note that if they handle calls for other service queues, their time might not be correctly attributed to the appropriate service queue.

Section	Description
Historical Reporting Interval	The historical data reporting interval that is configured in your Unified CCE system. If your ACD is configured to a 15-minute interval, you must select the 15-minute option to ensure that Webex WFO is compatible with your ACD and that all data is imported into Webex WFO. If the reporting intervals do not match, then the historical ACD data will not be captured correctly.
ACD Filtering	Use an ACD filter to limit the users who are synced from the ACD. For example, you might configure a Team Name filter that allows you to sync users who belong to a team that matches a certain naming pattern. You can configure multiple ACD filters. **IMPORTANT** If you only select the **Service Name** in the **Prefix Type** drop-down list, no teams or agents sync over. Any teams or agents already synced over are deactivated. If you change a filter that uses the **Service Name** in the **Prefix Type** drop-down list, all previously synced service queues stay active, even if they are not captured by the changed filter. **NOTE** If you only select the **Team Name** in the **Prefix Type** drop-down list, related service queues still sync over. If you change a filter that uses the **Team Name** in the **Prefix Type** drop-down list, any agents or teams no longer captured by the filter are deactivated.
IP Configuration	This is used to get historical data.

Section	Description
	HDS Primary IP Address or Hostname—The IP address or host name of the primary historical database server (HDS). HDS Secondary IP Address or Hostname— (Optional) The IP address or host name of the secondary historical database server. AWDB Primary IP Address or Hostname—The IP address or host name of the primary Admin Workstation database server (AWDB). AWDB Secondary IP Address or Hostname— (Optional) The IP address or host name of the secondary Admin Workstation database server. Unified CC Instance—The instance name of the Microsoft SQL Server for the Unified CCE database.
Authentication	This is used to get historical data. Select the authentication method the database login uses: NT—If you select NT Authentication, the following fields appear: ■ Username ■ Password ■ Domain ■ Peripheral ID—The ICM peripheral ID for the system. SQL—If you select SQL Authentication, the following fields appear: ■ SQL User—The login name of the Webex WFO SQL user. ■ Password—The password of the Webex WFO SQL user. ■ Peripheral ID—The ICM peripheral ID for the system.
CTI Servers	This is used to get agent real-time data.

Section	Description
	Primary CTI IP Address or Hostname—The IP address or host name of the primary CTI server associated with the system. Primary CTI Port—The port of the primary CTI server associated with the system. Secondary CTI IP Address or Hostname—The IP address or host name of the secondary CTI server associated with the system. Secondary CTI Port—The port of the secondary CTI server associated with the system.
Departments	Enterprise Name—The name of the department or departments by the enterprise name. An enterprise name represents a tenant in a Cisco Hosted Collaboration Solution (HCS).
CDR Reconciliation Configuration	(Read only) CDR (call-detail record) Base—The folder on the Data Server where the Data Server imports CDR files from the Unified CCE ACD and uploads them to Webex WFO. Webex WFO creates a directory with an ACD-specific subdirectory that contains the cdrBase and uploadDir directories when the Regional Data Server Reconciliation Settings feature is enabled on a Data Server and the Unified CCE ACD is assigned to that feature. The base directory path that you enter along with the ACD unique identifier display below the field. The following subdirectories are created: ■ ACD-specific directory—This directory is named with a unique ACD server ID number. Because users can configure multiple ACD servers to use the same directory, a folder with a unique identifier is needed to make sure CDR files are uploaded to the correct ACD. The ACD-specific directory contains the following directories:

Section	Description
	■ cdrdir—The Data Server places incoming CDRs from the Unified CM billing server in this folder. When configuring the Unified CM Billing Application Server, you must use the following name for the Directory Path parameter: /cdr/ ■ CdrFailures ■ uploaddir—The Data Server places reconciled CDR and Unified CCE data in this folder until the data is uploaded. ■ UploadFailures **NOTE** This field is used for Quality Management purposes only.
Synchronization Interval	Interval (Minutes)—The length of the interval at which the ACD is synchronized with the Data Server. This is how often the Data Server attemps to synch the user, team, and service queue to Webex WFO.
Capture Settings	ACD Capture Delay—Select the amount of time WFM waits before pulling ACD statistics after an interval ends. The default delay is 15 minutes. Enable Data Recapture—Select this check box to recapture the entire previous day. If the agent routinely handles calls that last more than the maximum default delay, you can opt to recapture the entire previous day's data from midnight to midnight. The recaptured data overwrites what was captured during the day. This ensures that your statistics are correct and that the data for very long calls is in the correct interval. Recapture Time—Select the time to recapture the previous day's data from the ACD. The default is 03:00.

Connection settings for Cisco Unified Contact Center Express

NOTE If your organization has New WFM, then New WFM implementations are done in a separate process. A select number of integrated platforms can be configured using the WFM Integrations page (see Manage WFM integrations). If your integrated platform is not listed on the WFM Integrations page, then it requires a project managed by Professional Services.

The following fields appear if you select Cisco Unified Contact Center Express as the ACD.

Section	Description
ACD Filtering	Use an ACD filter to limit the users who are synced from the ACD. For example, you might configure a Team Name filter that allows you to sync users who belong to a team that matches a certain naming pattern. You can configure multiple ACD filters. **IMPORTANT** If you only select the **Service Name** in the **Prefix Type** drop-down list, no teams or agents sync over. Any teams or agents already synced over are deactivated. If you change a filter that uses the **Service Name** in the **Prefix Type** drop-down list, all previously synced service queues stay active, even if they are not captured by the changed filter. **NOTE** If you only select the **Team Name** in the **Prefix Type** drop-down list, related service queues still sync over. If you change a filter that uses the **Team Name** in the **Prefix Type** drop-down list, any agents or teams no longer captured by the filter are deactivated.
IP Configuration	Primary IP Address or Hostname—The IP address or host name of the primary Unified CCX server. Primary Instance Name—The name of the primary database for the Unified CCX database instance. Secondary IP Address or Hostname—The IP address or host name of the secondary Unified CCX server. Secondary Instance Name—The name of the secondary database for the Unified CCX database instance.

Section	Description
	The primary and secondary instance names are in the following format: `<hostname>_uccx` Where the host name is the name of the Unified CCX database server. **IMPORTANT** You must complete the IP Configuration fields for the following features: ■ WFM—Historical Data Capture and Sync ■ QM—Reconciliation and Sync
Authentication	Username—The user name of the historical reporting user in Unified CCX. ■ Enter **uccxhruser**. This is the historical reporting user found in Unified CCX Administration > Tools > Password Management. Password—The password set in Unified CCX for the historical reporting user. **IMPORTANT** Before changing this password be aware that other applications may also use this account. Client Locale—The client locale that is configured in Unified CCX. The locale for US English appears by default in this field. If the client locale is changed in Unified CCX, then you must also manually change it here. Server Locale—The server locale that is configured in Unified CCX. The locale for US English appears by default in this field. If the server locale is changed in Unified CCX, then you must also manually change it here.

Section	Description
	IMPORTANT You must complete the Authentication fields for all QM and WFM features.
CTI Servers	Primary CTI IP Address or Hostname—The IP address or host name of the primary CTI server associated with the system. Primary CTI Port—The port of the primary CTI server associated with the system. Secondary CTI IP Address or Hostname—The IP address or host name of the secondary CTI server associated with the system. Secondary CTI Port—The port of the secondary CTI server associated with the system. **IMPORTANT** You must complete the CTI Servers fields for WFM Real-Time Adherence.
CDR Reconciliation Configuration	Webex WFO creates a directory with an ACD-specific subdirectory that contains the cdrBase and uploadDir directories when the Regional Data Server Reconciliation Settings feature is enabled on a Data Server, and the ACD is assigned to that feature. The base directory path that you enter along with the ACD unique identifier are displayed below the field. The ACD-specific directory is named with a unique ACD server ID number. Because users can configure multiple ACD servers to use the same directory, a folder with a unique identifier is needed to make sure CDR files are uploaded to the correct ACD. The ACD-specific directory contains the cdrBase and the uploadDir directories. (Read only) CDR Base—The path to the Unified CCX Call Detail Record (CDR) directory. The path you specify must be local

Section	Description
	to the Data Server. UNC paths are not supported. For example: cdrBase Webex WFO creates a directory with an ACD-specific subdirectory that contains the cdrBase and uploadDir directories when the Regional Data Server Reconciliation Settings feature is enabled on a Data Server, and the Unified CCX ACD is assigned to that feature. This generates the following path for the base directory: `C:\cdr\<ACD_ID>` CDR Directory—The path to the Call Detail Record (CDR) directory. This is where incoming CDRs from the Unified CM billing service resides. The path you specify must be local to the Data Server. When configuring the Unified CM Billing Application Server, you must use the following name for the Directory Path parameter: /cdr/. UNC paths are not supported. For example: cdrDirectory Upload Directory—The path to the upload directory. This is where reconciled CDR and Unified CCE or Unified CCX data resides until uploaded. The path you specify must be local to the Data Server. UNC paths are not supported. For example: uploadDir **IMPORTANT** You must complete the CDR Reconciliation Configuration fields for QM Reconciliation.
Synchronization Interval	Interval (Minutes)—The length of the interval at which the ACD is synchronized with the Data Server.

Section	Description
Capture Settings	ACD Capture Delay—Select the amount of time WFM waits before pulling ACD statistics after an interval ends. The default delay is 15 minutes. Enable Data Recapture—Select the check box to recapture data from the entire previous day. If you routinely handle calls that last more than the maximum default delay, you can opt to recapture the entire previous day's data from midnight to midnight. The recaptured data overwrites what was captured during the day. This ensures that your statistics are correct and that the data for very long calls is in the correct interval. Recapture Time—Select the time to recapture the previous day's data from the ACD. The default is set to 03:00. **IMPORTANT** You must complete the Capture Settings fields for WFM Historical Data Capture.

Connection settings for Cisco Webex Contact Center

NOTE Webex WFO currently refers to Cisco Webex Contact Center (CWCC) as Cisco Customer Journey Platform (CJP).

NOTE If your organization has New WFM, then New WFM implementations are done in a separate process. A select number of integrated platforms can be configured using the WFM Integrations page (see Manage WFM integrations). If your integrated platform is not listed on the WFM Integrations page, then it requires a project managed by Professional Services.

The following fields appear if you select **Cisco Customer Journey Platform** as the ACD.

Section	Description
ACD Filtering	**NOTE** This integration does not support the ACD Filtering feature. Use an ACD filter to limit the users who are synced from the ACD.

Section	Description
	For example, you might configure a Team Name filter that allows you to sync users who belong to a team that matches a certain naming pattern. You can configure multiple ACD filters.
Cisco Customer Journey Platform API	Cisco Customer Journey Platform API URL—The path to the CWCC API. Include the complete URL. **EXAMPLE** https://rest-sbxa.ccone.net/aws/api Cisco Customer Journey Platform Media API URL—The path to the CWCC Media API. Include the complete URL. **EXAMPLE** https://rd-sbxa.ccone.net/cri/get-decrypted-recording User Name—The user name with access to the CWCC API and CWCC Media API. API Key—The requesting API Key for the CWCC API and CWCC Media API. Cisco Webex Contact Center 1.0 — Select this checkbox to enable API requests specific to Webex Contact Center 1.0 or newer. Cisco Tenant ID — Enter the alphanumeric identifier of the Webex Contact Center tenant account.
Synchronization Interval	Interval (Minutes)—The length of the interval at which the ACD is synchronized with the Data Server.
Capture Settings	ACD Capture Delay—The amount of time WFM waits before pulling ACD statistics after an interval ends. The default delay is 120 minutes. Historical data from CWCC may not be available for up to 120 minutes after an interval ends.

Section	Description
	NOTE Enable Data Recapture—Select this check box to recapture data from the entire previous day. If you routinely handle calls that last more than the maximum default delay, you can opt to recapture the entire previous day's data from midnight to midnight. The recaptured data overwrites what was captured during the day. This ensures that your statistics are correct and that the data for very long calls is in the correct interval. Recapture Time—Enter the time to recapture the previous day's data from the ACD.
Enable RTE Messaging for Screen Recording	Enables the Smart Desktop to record screens for calls recorded by CWCC.

Integrating core configuration data

Webex WFO syncs the following core configuration data with equivalents from CWCC through three API requests.

Users

When Webex WFO imports a new user from CWCC, it creates a new Webex WFO user who has a CWCC user profile.

When someone changes user data in CWCC, the sync service detects it and makes several changes in Webex WFO. The following table summarizes these changes.

NOTE Users with a Not Active status in CWCC are not imported unless they are restored.

Change in CWCC	Resulting Change in Webex WFO
New user is added	New user is added. Specifically, the sync service: ■ Applies the CWCC user's first and last name to the Webex WFO user's first and last name. ■ Applies the CWCC user's TID to the Webex WFO user's ACD

Change in CWCC	Resulting Change in Webex WFO
	ID. ■ Sets the Webex WFO start dates for the company and department to the date that the sync occurred. ■ Assigns the Webex WFO user to the default team. **NOTE** Webex WFO does not preserve the relationship between CWCC users and teams. See Teams. ■ If the CWCC user is contact-center enabled, assigns the default agent role to the Webex WFO user. No other Webex WFO roles are synced with CWCC. **NOTE** If you remove the agent role from a Webex WFO user who is synced with a CWCC user who is contact-center enabled, the agent role is reassigned the next time Webex WFO syncs with CWCC.
User's first or last name is changed	User's first or last name is changed.
User is deleted	User is deactivated.

Teams

Webex WFO syncs with CWCC teams of any type (Capacity Based or Agent Based), as long as they are active. It does not preserve the relationship between CWCC users and CWCC teams. You must manually reassign users to teams in Webex WFO.

When team data is changed in CWCC, the sync service detects it and makes several changes in Webex WFO. The following table summarizes these changes.

Change in CWCC	Resulting Change in Webex WFO
New team is added	New team is added with the same name. This name is read-only.
Team name is changed	Team name is changed.
New user is added to a	No change. Webex WFO does not preserve the relationship

Change in CWCC	Resulting Change in Webex WFO
team	between CWCC users and CWCC teams.
User is removed from a team	No change. Webex WFO does not preserve the relationship between CWCC users and CWCC teams.
Team is deleted	No change.

You can create new teams in Webex WFO and assign users to them, but these new teams are not added to CWCC.

A Webex WFO user can belong to only one team.

Service Queues

Webex WFO syncs the following Entry Points/Queues from CWCC with service queues:

- Queues
- Outdial Queues

When either a queue or an outdial queue data is changed in CWCC, the sync service detects it and makes several changes in Webex WFO. The following table summarizes these changes.

Change in CWCC	Resulting Change in Webex WFO
New queue is added	First, a new service queue is added. Specifically, the sync service does the following: ■ Applies the CWCC queue name to the Webex WFO service queue name ■ Applies the queue TID to the Webex WFO service queue ID ■ (Read only) Gives the Webex WFO service queue a service queue type of Voice [Interactive] ■ (Read only) Gives the Webex WFO service queue a Source ACD of CWCC Second, a new skill mapping is added. Specifically, the sync service does the following:

Change in CWCC	Resulting Change in Webex WFO
	■ Applies the CWCC queue name to the skill mapping name ■ Assigns the Webex WFO service queue that is associated with the CWCC queue to the skill mapping and gives it a priority of 1
Queue name is changed	Applies the new CWCC queue name to the Webex WFO service queue name only. Webex WFO does not apply the new CWCC queue name to the associated Webex WFO skill mapping.
Queue is deleted	No change. Neither the service queue nor the skill mapping is deleted.

Connection settings for Cisco Webex Contact Center 2.0

The following fields appear if you select Cisco Webex Contact Center 2.0 as your ACD.

> **NOTE** If your organization has New WFM, then New WFM implementations are done in a separate process. A select number of integrated platforms can be configured using the WFM Integrations page (see Manage WFM integrations). If your integrated platform is not listed on the WFM Integrations page, then it requires a project managed by Professional Services.

Field	Description
ACD Name	A unique name for the ACD.
Username	Your Cisco Webex Contact Center username. This is a user email address associated with administrative credentials in Cisco Webex Contact Center.
API URL	The complete base URL of the Cisco Webex Contact Center API, including the protocol identifier.
Tenant ID	The alphanumeric identifier of the Cisco Webex Contact Center tenant account.
Products Enabled - Quality Management	Quality Management has been purchased as a Webex WFO product. Webex WFO offers support for Webex Contact Center 2.0 omnichannel systems. Webex Contact Center 2.0 voice, chat, and

Field	Description
	SMS channels are supported. This means call recordings, SMS transcripts, and chat transcripts can be ingested into Webex WFO.
Voice	Enables Webex Contact Center 2.0 voice channels.
Digital (Chat, SMS, Email, Social)	Enables Webex Contact Center 2.0 digital (chat, SMS) channels.
Metadata Mapping	(Optional) Allows you to map CWCC metadata to custom metadata labels in Webex WFO. See Sync Metadata to Webex WFO for more details. CWCC metadata values are synced with CWCC contacts into Webex WFO. The CWCC metadata values are mapped to metadata labels created in Metadata Manager (located at Application Management > QM > QM Configuration > Metadata Manager). After successfully mapped, metadata can be used to add a variety of trackable information to a contact in Webex WFO. Metadata fields can be found in the Details panel on the Media Player page (Interactions > open a contact). You can view, edit, or delete a metadata field from your system.
Synchronization Interval (Minutes)	Indicates how often (in minutes) you want to sync users, teams, and service queues in Webex WFO with their equivalents in Cisco Webex Contact Center. For more information about syncing with Webex Contact Center, see Core Configuration Data.
Capture Delay (minutes)	Sets the amount of time you want WFM to wait before it imports ACD statistics after an interval ends.
Enable Data Recapture	(Optional) Select this check box if you want to recapture data from the entire previous day
Enable RTE Messaging for Screen Recording	(Optional) Allows you to record the screens of CWCC agents who are configured for screen recording in Webex WFO. For more information about screen recording, see QM Data.

Field	Description
Metadata Language Mapping	This section appears when you select **Digital** in the **Products Enabled** section. Here, you can set the custom metadata that assigns a language to a text-based contact like an email or a chat message. The metadata options available come from the **Metadata Mapping** section. Webex WFO uses a text contact's language to find results when you use the Text Search filter on the Interactions page. Webex WFO assigns a language to a text-based contact using the following information, in this order: A. A language that is already assigned to the contact when it is imported into Webex WFO. B. A language assigned to a custom metadata field that you configure here (the Metadata Language Mapping section). C. The fallback language that you configure in the **Fallback text language** section below. D. The default language (English).
Fallback text language	This section appears when you select **Digital** in the **Products Enabled** section. Select the language to assign to text contacts if they do not have an associated language when they are imported into Webex WFO and do not have a metadata value as defined in the **Metadata Language Mapping** section above. Webex WFO uses a text contact's language to find results when you use the Text Search filter on the Interactions page. Webex WFO assigns a language to a text-based contact using the following information, in this order: A. A language that is already assigned to the contact when it is imported into Webex WFO. B. A language assigned to a custom metadata field that you configure in the **Metadata Language Mapping** section above. C. The fallback language that you configure here (the Fallback text

Field	Description
	language section). D. The default language (English).
Authorization URL	**NOTE** This section only appears when you edit an existing ACD. It does not appear when you create a new ACD. The Webex WFO data servers connect with Webex Contact Center for an access token every twelve hours. If a token refresh failure occurs then the OAuth process breaks. Configuring this setting allows your system to reestablish the OAuth authentication in the event of a token refresh failure for a maximum of sixty days. A token refresh failure can occur for several reasons such as the following. ■ Changing the email address of the administrator account. ■ Deactivating the account in Active Directory. ■ Changing the password in Active Directory. ■ Switching from Active Directory sync to single sign-on in your Cisco account. ■ Changing domains.

Connection settings for generic ACDs

You can add one or more generic ACDs. Adding a generic ACD automatically creates an ACD Server ID, which is used as the source of historical data in a CSV file that is imported (see the *Webex WFO Data Import Reference Guide* for more information).

NOTE The ACD Server ID is not visible until you leave and then reopen the page.

NOTE If your organization has New WFM, then New WFM implementations are done in a separate process. A select number of integrated platforms can be configured using the WFM Integrations page (see Manage WFM integrations). If your integrated platform is not listed on the WFM Integrations page, then it requires a project managed by Professional Services.

Import contacts in bulk

Third parties use the Bulk Contact Import APIs to merge and insert metadata and recordings in a multi-part HTTPS request.

There are two Bulk Import APIs:

- Bulk Contact Import API—Used by third parties; allows insertion of both metadata and recordings in a multi-part HTTPS request

  NOTE You can also use the Bulk Contact Import API to import contacts in bulk through the Data Server. See Using the Data Server for bulk contact import.

- Real-time Contact API—Used by Webex WFO Smart Desktop recording client; inserts metadata first and then uploads recordings separately later, based on the response from the metadata insertion. This allows the client to delay uploading recordings and allows contacts to be inserted while the call is still in progress. However, this forces the client to track IDs to upload the recordings for the correct contact.

Protocol and URI

Bulk contact import API

URI	`/api/upload/contacts`
Method	POST
Permissions	Administer Tenant
Content Type	multipart/form-data

Real-time bulk contact import API (metadata)

URI	`/api/rest/wfo/contact/import`
Method	POST
Permissions	Capture Contacts, Record Voice/Record Screen
Content Type	application/JSON

Supported formats

The following formats can be included in a multipart request.

Type	Description
CSV	A comma-separated file used to assign metadata.
JSON	The same metadata format as the Real-time API, but can be used for bulk import.
WAV	An audio recording format.
WEBM	A combined audio and video recording format.
WEBMA	An audio-only (WebM container) format.
WEBMV	A video-only (WebM container) format.
SPX	An audio format.
WMV	A combined audio and video recording format (or video only if paired with audio in the same contact).
OPUS	An audio format.

Request and response fields

The CSV and JSON files include fields defined in the following table. Not all fields are used in both types of files. The file the field applies to is indicated in the description.

Name	Req?	Description
AgentId	Y	Used in CSV and JSON. The Agent ID in one of three formats. Processing figures out which format is used based on parsing the contents. ■ Person ID. A unique identifier from WfoPerson.id. This number is also used in the User Export spreadsheet (Application Management > Global > Users > Import and Export > Export > User ID column). It is not the same as the ID in the Webex WFO user profile. ■ AD Login. A domain\username (requires “\”).

Name	Req?	Description
		▪ Email address. An email address (requires “@”). When using a CSV to upload contacts, the agent ID is required. If you are using JSON to make the request, the agent ID is optional. In the latter case, the agent ID is set to the ID of the authenticated user initiating the upload. Max characters = 254 Default = none
AssocCallId	N	Used in CSV and JSON. An ID that ties contacts together. For example, a transferred call from one agent to another each have the same ID. Max characters = 52 Default = NULL
Audio.Location	N	Used in CSV and JSON. In the Audio sub-object. The key (file) name of the recording in the multipart request. This can be any supported recording format (audio/screen/combined). Only a single audio file per contact is allowed. The key name must have a valid extension that matches the media type of the recording. The extension identifies the file as an audio or screen recording, or both. Max characters = 128 Default = None
Audio.StartTimeMs	N	Used in CSV and JSON. In the Audio sub-object. The start time in milliseconds GMT since 1970-01-01 (UNIX time) of the audio recording. This is used to determine the audio offset from when the contact starts. Max characters = long Default = ContactStartTimeMs
CalledAddress	N	Used in CSV.

Name	Req?	Description
		The called phone number. Max characters = 64 Default = Empty string
Called	N	Used in JSON. The called phone number. Max characters = 64 Default = NULL
CallId	N	Used in CSV and JSON. An ID that identifies a contact. Max characters = 128 Default = NULL
Calling	N	Used in JSON. The calling phone number. Max characters = 64 Default = NULL
CallingAddress	N	Used in CSV. The calling phone number. Max characters = 64 Default = Empty string
ClientTimeZone	N	Used in CSV and JSON. The time zone in UTC format. Windows Time is also supported. The Desktop Recording client sends Windows Time, which is mapped to Olson time. Max characters = 255 Default = Customer's time zone as defined in Webex WFO

Name	Req?	Description
		EXAMPLE –06:00
ContactStartTimeMs	N	Used in CSV and JSON. The start time in milliseconds GMT since 1970-01-01 (UNIX time). A value in this field is required, so if the value is missing, the API uses the current upload time. Note that this likely results in a poor user experience, with many contacts that have the same timestamp. **IMPORTANT** If you are importing contacts with Excel, you must format the Start Time column to display milliseconds (consult the Excel user documentation for more information). Otherwise, Excel truncates milliseconds, resulting in a false time and preventing recordings from importing correctly. Max characters = long Default = current upload time **EXAMPLE** 1447100000000 - 11/09/2015 20:13:20 GMT
Direction	N	Used in CSV and JSON. The direction of the call, inbound or outbound. 1 = outbound 0 = inbound Max characters = 1 Default = NULL
Line	N	Used in CSV and JSON. The agent's line/extension. Max characters = 64 Default = NULL

Name	Req?	Description
metadata.<custom metadata field name>	N	Used in CSV. The custom metadata fields to populate. The field will be created if it does not exist. Any column beginning with “metadata” will be treated as a custom metadata field. **EXAMPLE** To set “accountNumber”, create a column named “metadata.accountNumber”. Max characters field name = 39 Max characters of custom metadata value = 2056
CustomMetadata	N	Used in JSON. The custom metadata fields to populate. The field will be created if it does not exist. The object contains data in the form of name/value pairs. **EXAMPLE** “accountNumber”:”123456” Max characters field name = 39 Max characters of custom metadata value = 2056
Recording1	Y	Used in CSV. The key (file) name of the recording in the multipart request. This can be any supported recording format (audio/screen/combined). Only a single audio file per contact is allowed. The key name must have a valid extension that matches the media type of the recording. The extension identifies the file as an audio or screen recording, or both. Max characters = 128 Default = None
Recording2	N	Used in CSV. The key (file) name of the recording in the multipart request. This can be any supported recording format

Name	Req?	Description
		(audio/screen/combined). Only a single audio file per contact is allowed. The key name must have a valid extension that matches the media type of the recording. The extension identifies the file as an audio or screen recording, or both. Max characters = 128 Default = None
Recording3	N	Used in CSV. The key (file) name of the recording in the multipart request. This can be any supported recording format (audio/screen/combined). Only a single audio file per contact is allowed. The key name must have a valid extension that matches the media type of the recording. The extension identifies the file as an audio or screen recording, or both. **NOTE** There must be an audio file or the import fails. Max characters = 128 Default = None
Recording2Offset	N	Used in CSV. The offset of Recording2 from Recording1. **EXAMPLE** An audio file (WAV) that starts 5 seconds after the screen file (WEBM) has an offset of 5000 (5000 = 5 seconds). Max characters = Long Default = 0
Screen.Location	N	Used in CSV and JSON. In the Screen sub-object. The key (file) name of the recording in the multipart request. This can be any supported recording format (audio/screen/combined). Only a single audio file per contact is allowed. The key name must have a valid extension

Name	Req?	Description
		that matches the media type of the recording. The extension identifies the file as an audio or screen recording, or both. Max characters = 128 Default = None
Screen.StartTimeMs	N	Used in CSV and JSON. In the Screen sub-object. The start time in milliseconds GMT since 1970-01-01 (UNIX time) of the screen recording. This is used to figure out the screen offset from when the contact starts. Max characters = long Default = ContactStartTimeMs

CSV file examples

CSV can be uploaded as part of a multipart upload request. Some rules regarding the format are as follows.

- The number of columns is variable. For example, if you always want to use the customer's time zone, you do not have to include the TimeZone column in the CSV.
- The columns included in the CSV can be in any order.
- The number of columns in each row must match the number of header columns.
- If a value has a comma, it must be surrounded by quotes.
- If a value is not known for a specific contact, but the header exists, use a empty string for that column.

> **NOTE** A successful response is formatted in JSON, because the response adds some status for each contact and recording.

Full example

This example shows a file that uses every field possible for a CSV file.

```
1 AgentId,ContactStartTimeMs,TimeZone,AssocCallId,CallId,CalledAddress,Line,CallingAd
  dress,Direction,Recording1,Recording2,Recording2Offset,metadata.accountNumber
2 abc/bunkowm,1447100000000,America/Chicago,103585664793210000,30611848,1801,1800,180
  0,1,call1.webmv,call1.wav,5000,1234567890
3 mark.bunkowske@abc.com,1447110000000,America/Chicago,103585664793220000,30611848,18
  01,1800,1800,1,call2.wav,,,987654321
```

Short example

This example shows only the fields required for a CSV file.

```
AgentId,ContactStartTimeMs,Recording1
2,1447100000000,call1.wav
2,1447110000000,call2.wav
```

JSON file examples

Contact information can be imported into Webex WFO in JSON format as an alternative to CSV format.

Full Example

The following is an example of a formatted JSON file.

```
{
   "AgentId":"john.smith@acme.com",
   "AssocCallId":"103585664793254280",
   "CallId":"30611848",
   "CalledAddress":"1801",
   "CallingAddress":"1800",
   "ClientTimeZone":"Central Standard Time",
   "ContactStartTimeMs":1447075073000,
   "Direction":1,
   "Audio":[
      {
         "Location":"25.wav",
         "StartTimeMs":1447075080000
      }
   ],
   "Screen":[
         "Location":"25.webm",
         "StartTimeMs":1447075075000
   ],
   "CustomMetadata":{
         "accountNumber":"123456",
         "department":"sales"
    }
}
```

Short example

This example shows only the fields required for a JSON file.

```
{
   "AgentId":"acme\smithj",
   "ContactStartTimeMs":1447075073000,
   "Audio":[
      {
```

```
            "Location":"25.wav"
        }
    ]
}
```

ZIP format

The ZIP format is handled differently than CSV or JSON, in that it is a collection of files that are processed as if they were individual files within the multipart request.

- The name of the file is the key that needs to be referenced in the CSV/JSON.
- Any folder structure in the ZIP file is flattened and ignored.

For example, a multipart request looks like the following.

```
batch.zip
   batch.csv (contains 2 rows, for call1 and call2)
   call1.wav
   call2.wav
```

This multipart request is processed as if the files were all in the ZIP or all individually in the multipart request.

Notes

- The order of files does not matter.
- An upload for a contact that contains a recording file name but does not include that recording will fail to be inserted.
- An upload that contains a recording the is not referenced in a CSV or JSON will ignore that recording.

IMPORTANT You must have Tenant Administrator access, access to the data server to use for the Bulk Contact Import, and the Bulk Import permission checked for your role.

Using the Data Server for bulk contact import

You can use the Bulk Contact Import API to upload contacts in bulk through the Data Server.

Using the Bulk Contact Import API requires the following:

- Webex WFO Administrator role with the Bulk Import permission enabled.
- Read/write access to the Data Server.

To upload contacts in bulk through the Data Server:

PREREQUISITE For a bulk import to successfully upload files using a data server, the data server must be configured within Webex WFO. This can be a Data Server that is already being used for any other purpose or a new Data Server. If you are configuring a new Data Server for bulk import, see the topic, "Data Server Configuration" in the *Webex WFO User Guide*.

1. To use a data server that is already configured in Webex WFO navigate to the **Data Server Configuration** page (Application Management > System Configuration > Data Server Configuration) and select that data server.
2. In the **Regional Data Server ACD Sync Settings** section, ensure that **Enable Capture** is selected and that the **Generic (Default**) ACD is assigned.
3. Click **Save**.
4. Create a CSV (not JSON) file that contains all required fields, plus any optional ones that you want to add.
5. Prefix the file with the word CONTACT. The word is case-sensitive, and you must type it in upper-case.

   EXAMPLE
   Your CSV file is named ExampleContacts.csv. You must rename it with the CONTACT prefix as follows:

   CONTACT.ExampleContacts.csv

6. Place the CSV file and all associated media files in the GIS <tenant> folder on the Data Server. This folder is in the location defined by the Regional Data Server GIS File Location field on the Data Server Configuration page.

   EXAMPLE C:\Program Files\Common Files\Webex WFO\Data Server\gis\<tenant>

Import post-call survey IVR data

Data that is collected from post-call surveys via an IVR can be imported into Webex WFO using a generic IVR integration that uses CSV files saved to a specific folder on the Data Server. See “Add Post-Call Surveys to Contacts” in the *Webex WFO User Guide* for more information about configuration.

> **NOTE** This folder location is configured in Webex WFO on the Data Server Configuration page (Application Management > Global > System Configuration > Data Server Configuration) in the Regional Data Server GIS File Location field.

The File Observer service triggers the import of these data files into the database and attaches the data to contact recordings using the Contact ID, Associated Contact ID, or the ICM Call ID.

Two CSV files are required:

- The **Form** CSV file contains the survey questions and must be processed first.
- The actual survey results are imported through the **Results** CSV file.

Form CSV file

The Form file name must follow the format **Form_<Form ID>.csv**, where <Form ID> is a number.

The Form CSV file is formatted to contain the following information:

```
<form name>,<form status>,<form date>,<total score>
1,DIGITS,"Contact Identifier",0
<question number>,<question type>,<question text>,<question response and weight>
```

The first row in the Form CSV file contains the following information:

Field	Description
form name	The name of the survey form.
form status	The form’s status can be **editable** or **active**. Editable forms can be modified with another import. With editable forms existing result data is deleted before updating the form details. Active forms cannot be changed.
form date	The form’s date, in yyyy-mm-dd format.
total score	The total score possible in the survey.

The second row in the Form CSV file is required to have question ID 1 and is always the first question in any VR survey form. It is a placeholder for the contact identifier that is supplied in IVR survey results files (see Results CSV file):

```
1,DIGITS,"Contact Identifier",0
```

The third and all subsequent rows in the file contain the survey questions:

Field	Description
question number	The number assigned to the survey question. **IMPORTANT** Question number cannot be 1.
question type	The type of question. **NOTE** Only **OPTION** type questions (an answer on a scale, for example from 1 to 5) can have results saved and a survey must have at least one **OPTION** type question to be associated with a contact.
question text	The survey question.
question responses and weights	The question response and weight is a comma-separated array in the format <option id> - <text for result> - <value/weight>. Where ■ <option id> is an ID for the option that is unique in the scope of the question. ■ <text for result> is the text used to identify this option in a survey result line. ■ <value/weight> is the value of the question option.

Results CSV file

Each Results file is an output snapshot from the generic IVR system. For example, the IVR can be configured to export one file every 30 minutes and include all surveys taken within the last 30-minute interval. If a form has two questions, then each survey response file will have three lines per survey:

- Line 1 identifies the contact ID to associate with the survey answers.
- Lines 2–3 contain the survey answers for each question.

The Results file name must follow the format **Results_<yyyyMMdd>_<HHMM>_<unique ID>.csv** where <unique ID> is a value that makes sure that the file name is unique. It can be based on timestamp, agent ID, or a generic sequential increment.

The following is the format of each row in the Results CSV file:

```
<unique identifier>,<form ID>,<survey total earned score>,<question
   number>,<answer text>,<answer score/weight>
```

The first row of each survey result has the following additional syntax requirements:

```
<unique identifier>,<form ID>,<survey total earned score>,1,<contact ID or
   associated contact ID>,0
```

- The **1** indicates the first row has question number 1 (as is required).
- The <**contact ID or associated contact ID**> is the identifier for the contact.
- The **0** is a placeholder for the score/weight of this question.

The following table describes what each column in the file contains for each line.

Field	Description
unique identifier	An identifier matching the unique identifier in the Results file name.
form ID	The form ID used in the Form file name.
survey total earned score	The total score for the survey.
contact ID or associated contact ID	The identifier of the contact this survey applies to. **NOTE** The identifier that is used in the Results file is determined by the survey identifier selected on the Post Call Survey page in Webex WFO (Application Management > QM > QM Contact Flows > Post Call Survey).
question number	The question number matching the question number from the Form file.
answer text	The answer text matching one of the <text for result> option values for the question in the Form file.
answer score/weight	The score earned by the answer matching the <value/weight> for one of the option values for the question in the Form file.

A question is only included in the imported results if all of the following are true:

- The form ID matches the form ID of an imported form.
- The question number matches the question number on that imported form.
- The answer text and the answer score/weight match the text for result and value/weight for an answer option on that question.

Example

The following are examples of Form and Results CSV files for a scenario where a post-call survey consists of five questions. A customer answers the survey after a contact identified with the contact ID **987654321**.

The customer enters the following answers to the survey:

Question 301	3
Question 302	2
Question 303	3
Question 304	4
Question 305	4

The Form and Results file for this survey are as follows.

Form File Name: Form_3.csv

```
1 Customer_Satisfaction_Survey,editable,2019-10-17,200
2 1,DIGITS,"Contact Identifier",0
3 301, OPTION,Were you happy with wait time,1 - strongly disagree - 00,2 - disagree -
  10,3 - neither - 20,4 - agree - 30,5 - strongly agree - 40
4 302,OPTION,How was service,1 - strongly disagree - 00,2 - disagree - 20,3 - neither
  - 10,4 - agree - 30,5 - strongly agree - 40
5 303,OPTION,Did we resolve issue,1 - strongly disagree - 00,2 - disagree - 20,3 -
  neither - 10,4 - agree - 30,5 - strongly agree - 40
6 304,OPTION, Was agent knowledgeable - strongly disagree - 00,2 - disagree - 10,3 -
  neither - 20,4 - agree - 30,5 - strongly agree - 40
7 305,OPTION,How satisfied with general services,1 - strongly disagree - 00,2 -
  disagree - 10,3 - neither - 20,4 - agree - 30,5 - strongly agree - 40
```

Results File Name: Results_20191017_1309_1571310547.csv

```
1 1571310547,3,110,1,987654321,0
2 1571310547,3,110,301,neither,20
3 1571310547,3,110,302,disagree,20
```

```
1571310547,3,110,303,neither,10
1571310547,3,110,304,agree,30
1571310547,3,110,305,agree,30
```

Import and sync file-based data

You can import and synchronize QM and Analytics user and team data using GIS functionality to add and update this data.

NOTE You cannot delete data using files. That function remains a manual process.

The files are placed in the location configured in Webex WFO Application Management on the Data Server Configuration page in the Regional Data Server GIS File Location section. The Data Server will import files from this location. Once the files are processed by the sync process, the files are archived both on the Data Server and in the cloud.

Good files are archived under the ~/gis/archives<date> folder on the Data Server. They are kept for 1 week. Bad files are not uploaded. They are moved to the ~/gis/penaltyBox/<date> folder on the Data Server, and no further attempts are made to upload them.

Users file

User information is contained in a file called Users.csv. When the file is imported:

- Users are created if they do not exist in the Data Server, and roles are assigned.
- If users already exist, the user names and teams are updated, roles are assigned if not already assigned.

  NOTE Do not reactivate users that have been deactivated. This is to allow you to manually deactivate a team without deactivating users in the ACD.

- Users are assigned to the default team if the team colum is missing or if no team is specified for the user.
- Users must have at least one valid role assigned to them. If a role specified in the file does not exist in Webex WFO, then it is skipped without error.

The details of this file are as follows. Fields in the CSV file can be in any order from left to right.

Field	Required?	Type	Description
acdId	Yes	String	The user's identifier in the ACD.
acdServerId	Yes	Number	Identifier of the ACD. This is the number

|

Field	Required?	Type	Description
			of the ACD shown on the ACD Configuration page.
displayTimeZone	No	String	The time zone the user's schedules are to be displayed in, in Olson Timezone format. If none is provided, the tenant's timezone is used.
employeeId	No	String	The user's employee ID.
enableScheduling	Yes	Boolean	True or False. Enables the user to be scheduled.
firstName	Yes	String	The user's first name.
lastName	Yes	String	The user's last name.
roles	Yes	String	The roles assigned to the user. Multiple roles are delimited by semicolons. The roles listed must exist.
teamAcdId	No	String	The ACD ID of the team associated with the user.
username	No	String	The user's Webex WFO user name.
windowsLogin	No	String	The user's Windows login, if Active Directory is used.

File example

```
1 acdServerId,acdId,employeeId,firstName,lastName,roles,teamAcdId,username,windowsLo
  gin,displayTimeZone,enableScheduling
2 1,1001,123,Larry,Jones,Agent;Supervisor,9001,larry.jones@t.com,larry.jones,America
  /Chicago,true
3 1,1002,456,Bob,Henderson,Agent,9001,bob.henderson@t.com,bob.henderson,America/Chic
  ago,true
4 1,1003,789,Sara,Williams,Agent,9002,sara.williams@t.com,sara.williams,America/Chic
  ago,true
```

Teams file

Team information is contained in a file called Teams.csv. When the file is imported:

- Teams are created if they do not exist in the Data Server.
- If teams already exist, the team names are updated.
- Teams that were synchronized before but do not exist in the current upload file are deactivated.
- Do not reactivate a team that has been deactivated. This is to allow you to manually deactivate the team without deactivating it in the ACD.

The details of this file are as follows. Fields in the CSV file can be in any order from left to right.

Field	Required?	Type	Description
acdId	Yes	String	The team's identifier in the ACD.
acdServerId	Yes	Number	Identifier of the ACD. This is the number of the ACD shown on the ACD Configuration page.
name	Yes	String	The team's name.

File example

```
1 acdServerId,acdId,name
2 1,9001,Sales
3 1,9002,Support
4 1,9003,Customer Relations
```

Field	Required?	Type	Description
acdId	Yes	String	The service queue's identifier in the ACD.
acdServerId	Yes	Number	Identifier of the ACD. This is the number of the ACD shown on the ACD Configuration page.
name	Yes	String	The team's name.

Configure Legacy API Access

This page allows you to enable access to legacy APIs. Access to legacy APIs is necessary if you have applications that are not part of core Webex WFO products. Below are examples of applications that require legacy API access.

- Innovation Center applications
- Cisco Professional Services custom applications
- Customer-owned custom applications

Prerequisites

- The Administer Org. Structure permission.
- Webex WFO Cloud with the Webex WFO IAM Service implemented.

Page location

Application Management > Global > User Configuration > Legacy API Access

Procedures

Enable legacy API access for a user

1. Click **Enable or disable legacy API access for a user**.
2. Under **User Information**, select a user from the drop-down list.
3. Click **Enable legacy API Access**.
4. Under **Password**, enter your API password and confirm your API password.
5. Click **Save**.

Disable legacy API access for a user

1. Click **Disable legacy API access for a set of users**.
2. Under **Select Users**, select a user from the drop-down list.
3. Click **Save**.

NOTE More than one user can be enabled or disabled at a time by selecting multiple users from the **Select Users** drop-down list.

Related topics

Manage roles and permissions for QM, Analytics, and Insights — Learn more about the Administer Org. Structure permission.

View the *Webex WFO API Reference Guide*.

Create an API user for Classic Webex WFO

If you plan to use Webex WFO APIs for third-party integrations, Cisco recommends that you create an API user account. You configure an API user the same as a system administrator, but the purpose of this user is to enable third-party applications to authenticate with Webex WFO.

> **NOTE** To create this user, you must have the default system administrator role or a role with equivalent permissions. This role consumes one System Administrator license.

For more information on authorizing and authenticating a user with Webex WFO, see Authorize API in the API Reference Guide.

If you run into any issues, contact Support for assistance.

Create an API user account

1. Start Webex WFO and log in as a system administrator.

   > **NOTE** If you are logging into the product for the first time, create an additional Administrative account.

2. Navigate to Application Management > Global > User Configuration > Users.
3. Select the **Create a new user** option and complete the following fields in the User Information section.
   - **First Name** and **Last Name**—Enter a first and last name that identifies the purpose of the user. For example, enter **API** as the First Name and **User** as the Last Name.
   - **User Name**—Enter a valid email address. This is the user's Webex WFO user name that will be used to log in.
4. Enter a password that meets your tenant's password complexity requirements in the **Password** field.
5. In the **Roles** field, assign the user to the default system Administrator role.
6. Set the **Team** field to Default Team. You can set this value to an alternate team is you prefer.
7. Select the Associated Groups and Teams that this account should have scoping over. You can select individual teams, a Group name, or a Tenant name as a group. Selecting a Tenant name highlights all teams within that group.

11. In the WFM Views field, assign **EnterpriseView** as the main view. This allows the user to see all users.
12. Click **Save** in the upper, right corner of the user interface.

Related topics

View the *Webex WFO API Reference Guide*.

Manage dynamic scheduling

Dynamic Scheduling is an add-on app. This is a new feature that is not yet generally available. If you would like early access to this feature, contact your Cisco Account Manager.

Agents can use dynamic scheduling to select their availability. Dynamic scheduling uses a point system to encourage agents to choose shift times that are not popular, for example, early or late hours. An administrator creates an availability template. A scheduler uses the availability template to create an availability form. An agent uses the form to enter their availability.

In the **Schedules** tool in the WFM client, you must select the **Dynamic schedule availability** check box in the **Scheduling session options** window when scheduling and when optimizing schedules for agents. If you select several check boxes in the **Scheduling session options** window, this might cause conflicts in how the schedules are set up. For further information, view the Run automatic scheduling and Optimize schedule articles.

> **IMPORTANT** If an error message appears after you click **Save** in the Dynamic Scheduling app, your settings failed to save. Therefore, ensure you fix all errors and click **Save** again before you navigate to another part of the app.

Prerequisites

- Your organization's Webex WFO administrator has coordinated with Cisco Professional Services, or a supported Cisco partner has implemented Dynamic Scheduling for your organization.
- You have a Webex WFO user account with a DynamicSchedulingAdmin, DynamicSchedulingScheduler, or DynamicSchedulingAgent role assigned in WFM.

> **IMPORTANT** You must create these roles with these exact names in WFM.

- You have Schedules permissions.
- If you are an administrator, you have API access > Write schedule and API access > Read schedule permissions.

Page location

Add-Ons > Dynamic Scheduling > Open

Procedures

Log in to the Dynamic Scheduling app

1. Click **Dynamic Scheduling**.
2. Click **Open**.
3. If you belong to more than one business unit, select a business unit.
4. Click **Save**.

Administrators

General configuration

Enter a WFM API token for uploading data to WFM

You must generate a WFM API token, which is used to make the API calls to WFM to upload an agent's availability. For further information, see Generate access tokens for API access to WFM.

1. On the **WFM API** tab, in the **WFM API token** field, enter a token.
2. Click **Save**.

Configure colors for point ranges

You can configure the color of cell backgrounds that appear in the availability forms.

1. On the **Points** tab, in the **Start Number** and **End Number** fields, enter the points ranges.
2. Select a color for each points range.
3. Click the plus or minus icons to add or remove ranges.
4. Click **Save**.

Availability templates

You can create templates, which schedulers then use to create an availability form for agents. Click **Create new availability template** or click an existing template. You can also use the search box to find a template. Then, complete the below procedures for each tab in the availability template. To delete a template, click the trash can icon.

|

Configure settings

1. On the **Settings** tab, in the **Name** field, enter a name for the availability template.
2. In the **Description** field, enter a description for the template.
3. From the **Type** drop-down list, select **AdHoc** or **Recurring**. For example, you can use a **Recurring** template for the whole year and you can use an **AdHoc** template for a holiday week. If you select **Recurring**, select the frequency of the recurrence from the **Recurrence** drop-down list.
4. Select a day from the **Week start day** drop-down list.
5. Select a **Time zone**. This time zone is used to determine when data is sent to WFM.
6. Select a number of weeks from the **Submit at least this number of weeks in advance** drop-down list and the **Submit a maximum of this number of weeks in advance** drop-down list.
    - **Submit at least this number of weeks in advance** determines when an agent is required to submit their availability.
    - **Submit a maximum of this number of weeks in advance** determines how far in advance an agent can submit their availability. If it is an **AdHoc** availability, the agent can only submit their availability for the weeks between the start and end weeks.
7. Enter **Tag(s)** to attach keywords to the template. You can use these tags to search for the template after it is saved to the template list.
8. In the **Hours of operation** section, select check boxes for any days that you want to include in the template. Then, select a time range for each day. The **Hours of operation** settings must fall within the open hours of the skills that you have in WFM.
9. Enter a **WFM publish day**, a **WFM publish time**, and then select a number of weeks for **WFM publish in advance** to configure when the data is sent to WFM.
10. Toggle the **Enabled** slider on to activate a process, where the system will automatically submit availability forms for agents who meet the required points. The scheduler must manually publish the availability form for agents who do not submit the required points. If you toggle the **Enabled** slider off, you must manually submit all availability through Agent Monitoring.
11. Click **Save**.

Configure validation

You can configure the amount of hours that an agent must make themselves available for.

1. On the **Validation** tab, select if you want to **Allow day(s) without availability**. This setting allows agents to enter no availability on some days. If the minimum hours is set to zero, this grants the agents a day off.
2. Select if you want **Min hours** or **Max hours** from the **Validate on** drop-down list. These options determine if the **Required points** calculation on the **Points** tab is based on the minimum or maximum hours. If you select **Min hours**, you can enter a number in the **Additional hours** field.

   > **EXAMPLE** If you want to allow agents to take a day off on any given day, ensure that the minimum hours is zero for all days and enter the maximum working hours. Then, you can define the minimum hours required for agents to work per week in the **Additional hours** field.

3. (Optional) Expand **Day/hour requirements** and select a **Type** to configure granular validation requirements per day, hour, and so on.
4. Select check boxes for any days that you want to include in the template and then select a time range for each day.
5. Click **Save**.

Configure points

You can use a point system to encourage agents to choose shift times that are not popular, for example, early or late hours. There are 96 intervals per day, each worth 5 points. Intervals must always be in 15 minute increments, and points must always be whole numbers.

1. On the **Points** tab, enter the number of points that you want to assign to each interval. The **Required points** field shows how many points you must configure and is calculated from the minimum or maximum hours that you entered on the **Validation** tab.

   > **NOTE** You can only enable intervals that fall within the hours of operation.

2. (Optional) If you want to import points from a CSV file, click **Import**. If you want to export points to a CSV file, click **Export**. See this example file for details: Dynamic scheduling example file.
3. Click **Save**.

Configure messages

You can write a message for the agents and add it to the availability form.

1. On the **Messages** tab, toggle the **Enabled** slider on to activate the message option in the template.
2. In the **Subject** field, enter a subject.
3. In the **Message** field, enter a message that you want to appear for agents.
4. Click **Save**.

Viewing the audit log

View the audit log

You can view an audit log of all the changes that occur in the system.

1. Select a **Time period**.
2. Click an audit entry to view further details about a change. You can also use the search box to find an audit entry.

Schedulers

Availabilities

Schedulers can use a template to create an availability form for agents. Click **Create new availability**, select a template, and click **Apply**. Alternatively, click an existing availability form. You can also use the search box to find an availability form. Then, complete the below procedures for each tab in the availability form. To delete an availability form, click the trash can icon.

Configure settings

1. On the **Settings** tab, in the **Name** field, enter a name for the availability form.
2. In the **Description** field, enter a description for the form.
3. Toggle the **Active** slider on if you want to automatically publish only the active availabilities. Agents can view inactive availabilities but they cannot submit them.
4. From the **Type** drop-down list, select **AdHoc** or **Recurring**. For example, you can use a **Recurring** template for the whole year, and you can use an **AdHoc** template for a holiday week. If you select **Recurring**, select the frequency of the recurrence from the **Recurrence** drop-down list.
5. Select a day from the **Week start day** drop-down list.

   NOTE This day must match the work week start in the WFM client.

6. Select a **Time zone**. This time zone is used to determine when data is sent to WFM.
7. Select a number of weeks from the **Submit at least this number of weeks in advance** drop-down list and the **Submit a maximum of this number of weeks in advance** drop-down list.
    - **Submit at least this number of weeks in advance** determines when an agent is required to submit their availability.
    - **Submit a maximum of this number of weeks in advance** determines how far in advance an agent can submit their availability. If it is an **AdHoc** availability, the agent can only submit their availability for the weeks between the start and end weeks.
8. Enter **Tag(s)** to attach keywords to the form. You can use these tags to search for the form after it is saved to the form list.
9. In the **Hours of operation** section, select check boxes for any days that you want to include in the form. Then, select a time range for each day. The **Hours of operation** settings must fall within the open hours of the skills that you have in WFM.
10. Enter a **WFM publish day**, a **WFM publish time**, and then select a number of weeks for **WFM publish in advance** to configure when the data is sent to WFM.
11. Toggle the **Enabled** slider on to activate a process, where the system will automatically submit availability forms for agents who meet the required points. The scheduler must manually publish the availability form for agents who do not submit the required points. If you toggle the **Enabled** slider off, you must manually submit all availability through Agent Monitoring.
12. Click **Save**.

Configure validation

You can configure the amount of hours that an agent must make themselves available for.

1. On the **Validation** tab, select if you want to **Allow day(s) without availability**. This setting allows agents to enter no availability on some days. If the minimum hours is set to zero, this grants the agents a day off.
2. Select if you want **Min hours** or **Max hours** from the **Validate on** drop-down list. These options determine if the **Required points** calculation on the **Points** tab is based on the minimum or maximum hours. If you select **Min hours**, you can enter a number in the **Additional hours** field.

EXAMPLE If you want to allow agents to take a day off on any given day, ensure that the minimum hours is zero for all days and enter the maximum working hours. Then, you can define the minimum hours required for agents to work per week in the **Additional hours** field.

3. (Optional) Expand **Day/hour requirements** and select a **Type** to configure granular validation requirements per day, hour, and so on.
4. Select check boxes for any days that you want to include in the form and then select a time range for each day.
5. Click **Save**.

Configure points

You can use a point system to encourage agents to choose shift times that are not popular, for example, early or late hours. There are 96 intervals per day, each worth 5 points. Intervals must always be in 15 minute increments, and points must always be whole numbers.

1. On the **Points** tab, enter the number of points that you want to assign to each interval. The **Required points** field shows how many points you must configure and is calculated from the minimum or maximum hours that you entered on the **Validation** tab.

   NOTE You can only enable intervals that fall within the hours of operation.

2. (Optional) If you want to import points from a CSV file, click **Import**. If you want to export points to a CSV file, click **Export**. See this example file for details: Dynamic scheduling example file.
3. Click **Save**.

Configure messages

You can write a message for the agents and add it to the availability form.

1. On the **Messages** tab, toggle the **Enabled** slider on to activate the message option in the template.
2. In the **Subject** field, enter a subject.
3. In the **Message** field, enter a message that you want to appear for agents.
4. Click **Save**.

Add or remove agents

1. On the **Agents** tab, To add an agent to the availability form, click **Add agents**, select a team, and then click **Fetch agents**.
2. Select one or more agents, select a **Start week** and an **End week**, click **Add selected**, and then click **Save**.
3. To remove an agent from the availability form, select an agent, click **Remove selected agents**, and then click **Save**.

Agent monitoring

Schedulers can view how many agents have submitted availability, what the points distribution is, and if the agent's availability selection breaks any rules. Schedulers have the option to submit availability for agents who have not yet submitted their availability. Schedulers can also publish an agent's availability to WFM.

Publish an availability form

1. Click an availability form and then click an agent. You can also use the search box to find an availability form.
2. To submit an agent's availability to WFM, ensure that no rules are broken, select a date for publishing, and then click **Publish** to schedule the publishing process for that date.
3. To view any broken rules in the availability form, click the agent's name. Then, adjust the points until no rules are broken.
4. Select a **Start date** and **Recurring** or **AdHoc** for **Recurrence**.
5. Click **Save**.

Reporting

Click **Create new report** or click an existing report. You can also use the search box to find a report. To delete a report, click the trash can icon.

Configure general settings

1. On the **General** tab, enter a **Report name** and a **Report description**.
2. Select a **Start week** and an **End week**.

3. Select or clear the filter check boxes.
4. Click **Save**.

Apply filters

1. On the **Details** tab, select or clear the filter check boxes.
2. Click **Save**.

Add or remove agents

1. To add an agent to a report, click **Add agents**.
2. Select a team and then click **Fetch agents**.
3. Select one or more agents and then click **Add selected**.
4. Click **Save**.
5. To remove an agent from a report, select an agent, click **Remove selected agents**, and then click **Save**.

Add or remove availabilities

1. To add availability forms to the report, click **Add availabilities**, select an availability form, and click **Add selected**.
2. To remove an availability form from the report, select an availability form and click **Remove selected availabilities**.
3. Click **Save**.

Preview the report

1. On the **Preview** tab, select a date, and then click **Preview**.
2. In the search box, search for a report.
3. To export a report as a CSV file, click **Export**.

Agents

Availabilities

Submit your availability

1. On the **Availabilities** tab, click an availability form. In the search box, search for a report.

   > **NOTE** On the **Availabilities** tab, the **Next publish** date is the deadline for submission.

2. Select a **Start date**.

3. From the **Recurrence** drop-down list, select **AdHoc** or **Recurring**. For example, there might be a **Recurring** template that you use for the whole year and an **AdHoc** template that you use for a holiday week.

4. Ensure that you fix any broken rules that are highlighted in the **Requirements** section.

5. Click **Save**.

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