



Deployment guide for Hybrid Calendar

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New and changed information

This table covers new features or functionality and significant changes to existing content in the *Deployment Guide*.

For information about Calendar Connector software updates, see the [Calendar Connector Release Notes](#).

Date	Changes made
March 2023	Expanded mentions of Global Administrator to indicate that other administrator roles might have the appropriate privileges.
February 2023	Updated prerequisites with information on support of USGovDoD, USGovGCCHigh, China, and Germany instances.
July 27, 2022	Updated prerequisites.
May 16, 2022	https://ciscoenterprise.acrolinx.cloud/ <ul style="list-style-type: none"> • Modified title styles.
January 25, 2022	<ul style="list-style-type: none"> • Modified port access settings. • Updated maximum user participation. • Removed German instances of Office 365. • Clarified Google Calendar ACL. • Added a bulk CSV import procedure from Control Hub to set users' preferredWebExSite.
December 3, 2021	<ul style="list-style-type: none"> • Updated navigation in procedures to reflect changes in the left-hand navigation pane. • Modified content to reflect multi-tenant support for Office 365. • Added Add an additional tenant to Hybrid Calendar with Office 365, on page 8 and Modify a tenant of Hybrid Calendar with Office 365, on page 8



Overview of Hybrid Calendar

- [Hybrid Calendar features, on page xi](#)
- [Expressway-based Calendar Connector for Microsoft Exchange and Office 365: Architecture, on page xiii](#)
- [Office 365 and hybrid Exchange environments, on page xv](#)
- [Cloud-based Hybrid Calendar with Office 365: Scheduling flow, on page xvii](#)
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Hybrid Calendar features

With Hybrid Calendar, you can connect your on-premises Microsoft Exchange, Office 365 or Google's G Suite Calendar (Google Calendar) environment to Webex. This integration makes it easier to schedule and join meetings, especially when mobile; no plugins are required.

Hybrid Calendar has no Cisco call control dependency—you can use this service to extend features to Webex users, even if you use a third-party UC solution.

Simple meeting scheduling

To simplify scheduling, your Hybrid Calendar users have a couple of easy ways to add meeting details to a calendar invitation.

1. Type a keyword in the location field.

As an administrator, you can choose what the scheduling keywords **@webex** and **@meet** do:

- Create a space in Webex App and add join details for it (default for **@meet**)
- Use the scheduler's Webex Personal Room join details (default for **@webex**)
- Use your on-premises resource management and conference hosting environment with TelePresence Management Suite (available only as an option for)

@meet

- The TMS integration currently works with the cloud-based Hybrid Calendar for Office 365 or the cloud-based Hybrid Calendar for Google Calendar. It is not available for Microsoft Exchange or for hybrid Exchange and Office 365 deployments.

You can choose these keyword actions on the Hybrid Calendar settings page in Control Hub (<https://admin.webex.com>).

Power users can add ":space" or ":myroom" to either keyword to override the administrator default setting. For example, if you configured both @meet and @webex to create a space in Webex App, users can type @meet:myroom or @webex:myroom to schedule the meeting in their Personal Room instead. Note that ":space" is the actual modifier that users enter, and the Hybrid Calendar names the space using the subject line of the invitation (except in 1:1 meetings between two people, where the Hybrid Calendar reuses the existing 1:1 space).

2. Include a video address in the meeting body.

In addition to the scheduling keywords, the Hybrid Calendar can parse a SIP URI or other video address from the body of a calendar invitation, even if it's not a Webex standard meeting, Webex Personal Room meeting, or Webex team meeting address. When the address matches a supported format, the meeting appears in invitees' meetings lists and meeting notifications in the Webex App app. The meeting also appears in the list on any scheduled room or desk devices that are enabled for the Hybrid Calendar, and the devices show the green **Join** button (One Button To Push) just before the meeting starts.

Table 1: Supported video address format examples

Description	Examples
Standard SIP address	sip:jdoe@company.com sips:jdoe@company.com
Special-case URI—all numbers without sip: prefix	12345@company.com

Related Topics

[Schedule a Cisco Webex Meeting from Your Calendar](#)

Meetings list and join button

The meetings list in Webex App lets users see upcoming meetings for the next 4 weeks. Users see a **Join** button in the meetings list and a scheduled meeting notification 5 minutes before the meeting starts.

Users can add Webex room and desk devices and Webex Boards to a meeting to make conferencing resources available. If the device is enabled for the Hybrid Calendar, the green **Join** button appears on the device. (The **Join** button is also known as One Button to Push, and is also available to devices that are registered to Unified Communications Manager, and managed by TelePresence Management Suite.) Hybrid Calendar-enabled room and desk devices can also show meetings to which they've been invited in the meetings list.

Related Topics

[View Upcoming Meetings in Cisco Webex Teams](#)

[Join a Scheduled Meeting in Cisco Webex Teams](#)

Skype for business addresses

When adding Webex Meetings join details to an invitation, the Hybrid Calendar also includes a Skype for Business-specific video address.

Related Topics

[Start or Join a Webex Video Meeting Using Skype for Business](#)

Out-of-Office status

Your Hybrid Calendar users, on Microsoft Exchange, Office 365, or Google Calendar, can share their out-of-office status through Webex App. When a user sets an automatic reply, other Webex App users in their organization can see that they are out of the office:

- In @mentions directed at the out-of-office user.
- In the People space for that user.
- In search results for that user's name.
- In the expanded people roster for a space.

Changes to the status can take up to 20 minutes to update in Webex App.

Related Topics

[Show When You're Out of Office](#)

Organization-wide default language

With a global setting in Control Hub, you can determine the language that the Hybrid Calendar uses for all meeting join details in your organization. This setting is useful if you have a legal requirement to present information in one particular language, regardless of the language that meeting schedulers set for their own calendar, mailbox, or invitation.

If you **do not change the default** to a specific language for the organization, the Hybrid Calendar determines which language to use differently, depending on the calendar integration type:

Calendar integration type	Default if no specific language chosen
Office 365 (using the Microsoft Graph API through the cloud-based service)	"language":{"locale"} setting from the scheduler's mailbox settings
Google G Suite Calendar	locale setting from scheduler's calendar settings
Microsoft Exchange or Office 365 (using EWS through the Expressway-based Calendar Connector)	item.Culture property from the meeting invitation

Expressway-based Calendar Connector for Microsoft Exchange and Office 365: Architecture

For a detailed overview of Hybrid Services, including architectural and design information for the Expressway-based Calendar Connector, we recommend that you read the [Preferred Architecture for Cisco Webex Hybrid Services, Design Overview](#).

For more information on how the Calendar Connector integrates with Microsoft Exchange and Office 365, see the [Cisco Webex Hybrid Calendar Service with Microsoft Exchange Integration Reference](#).

Figure 1: Exchange (on-premises and cloud), Connector, and Webex Cloud Components for Hybrid Calendar Service

This diagram shows the components of Hybrid Calendar architecture and where the Expressway-based connectors integrate the on-premises components with the cloud.

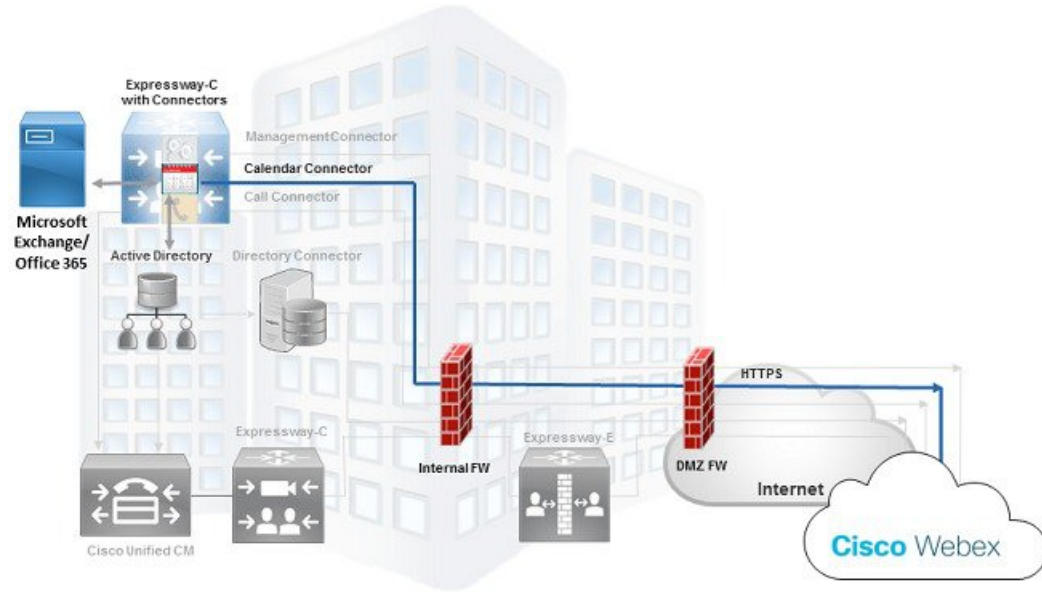


Figure 2: One Button to Push (OBTP) topology: Cloud-registered Webex Room and desk devices and Webex boards

The cloud activates OBTP on these devices when they are invited to meetings scheduled with a keyword or supported video address.

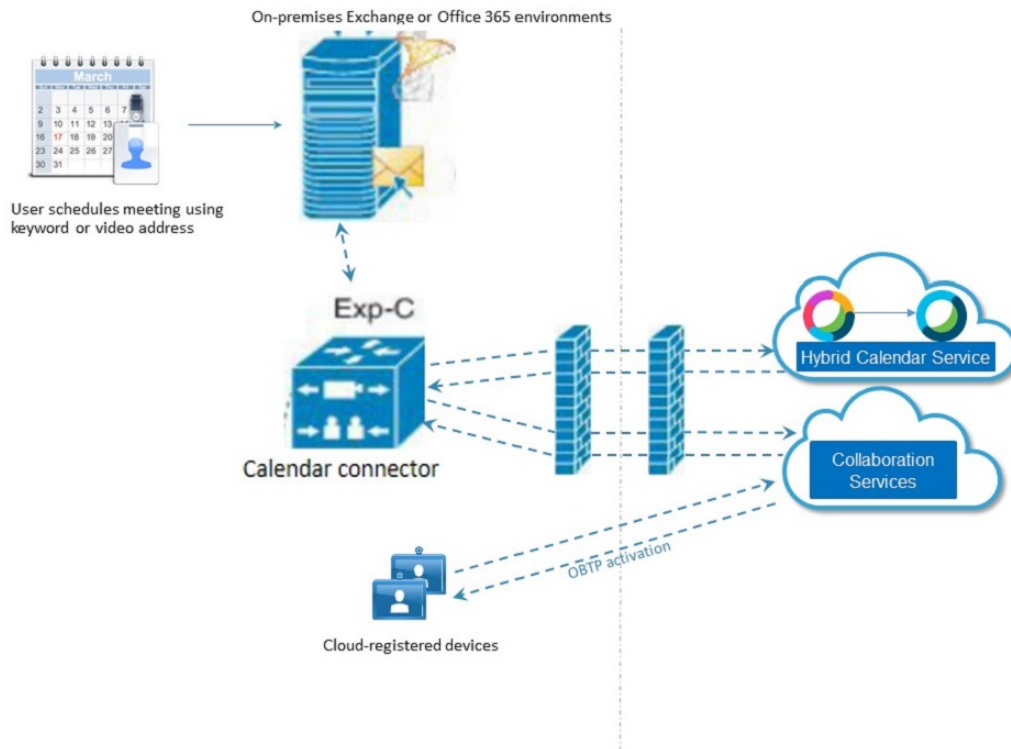
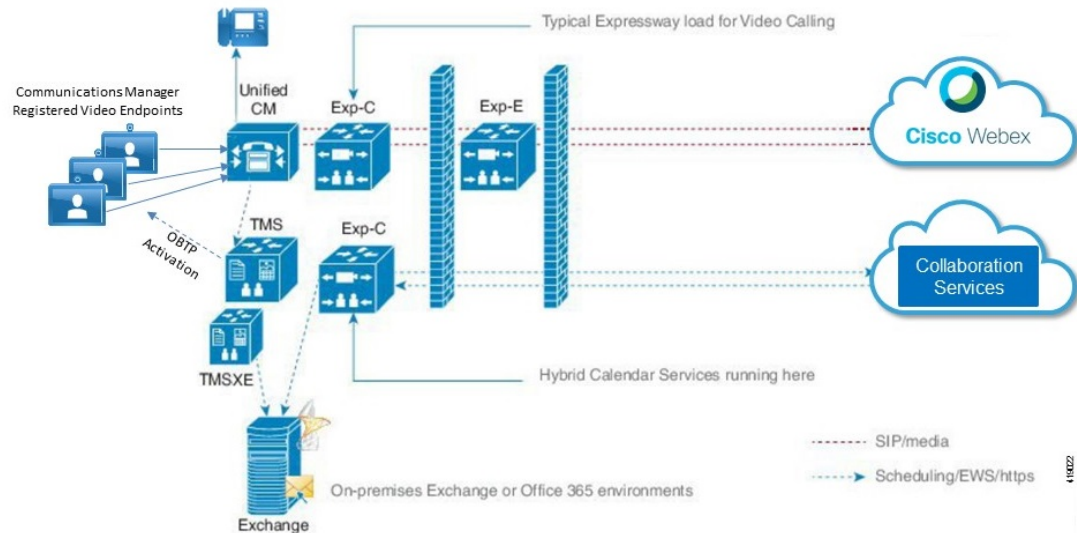


Figure 3: One Button to Push topology: Unified Communications Manager and TMS

This diagram shows Hybrid Calendar and Cisco TMS providing OBTP to Unified Communications Manager-registered video endpoints when they are invited to meetings scheduled with a keyword or supported video address.



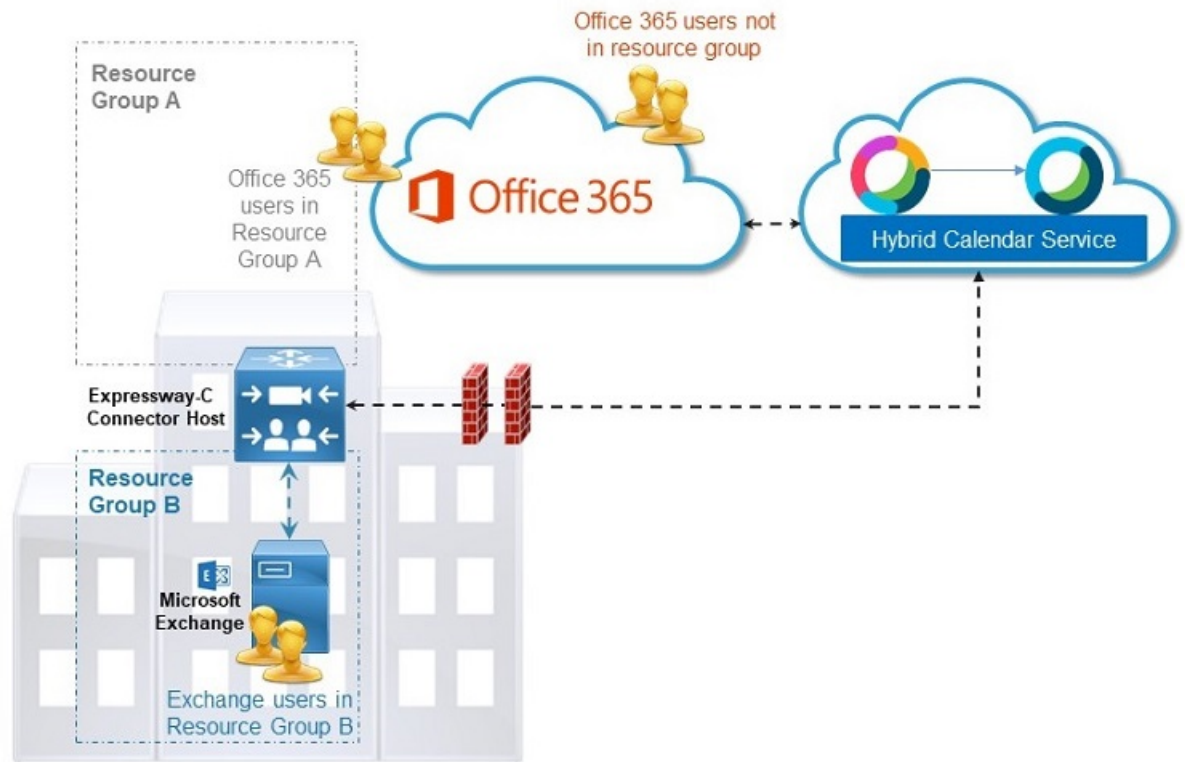
Office 365 and hybrid Exchange environments

Previously, to serve Office 365 users, you had to install the Calendar Connector on an on-premises Expressway. This on-premises deployment was required even if you didn't have a hybrid Exchange environment (on-premises Microsoft Exchange and an Office 365 tenant organization).

You can now choose to enable the cloud-based Hybrid Calendar for Office 365. With this service, hybrid Exchange environments have extra considerations:

- You can run the Expressway-based Calendar Connector and the cloud-based Office 365 service at the same time.
- Once you enable the cloud-based service, all Office 365 users who are not in any resource group automatically migrate to it.
- To test the migration on a subset of users, make sure that the rest of the Office 365 users are in a resource group. Then enable the cloud-based Office 365 service.

Figure 4: Hybrid Exchange environment with Hybrid Calendar



The Calendar Connector on the Expressway-C serves both Exchange users and Office 365 users, in Resource Group A and Resource Group B. The cloud-based service serves any Office 365 users who are not in a resource group.

Cloud-based Hybrid Calendar with Office 365: Scheduling flow

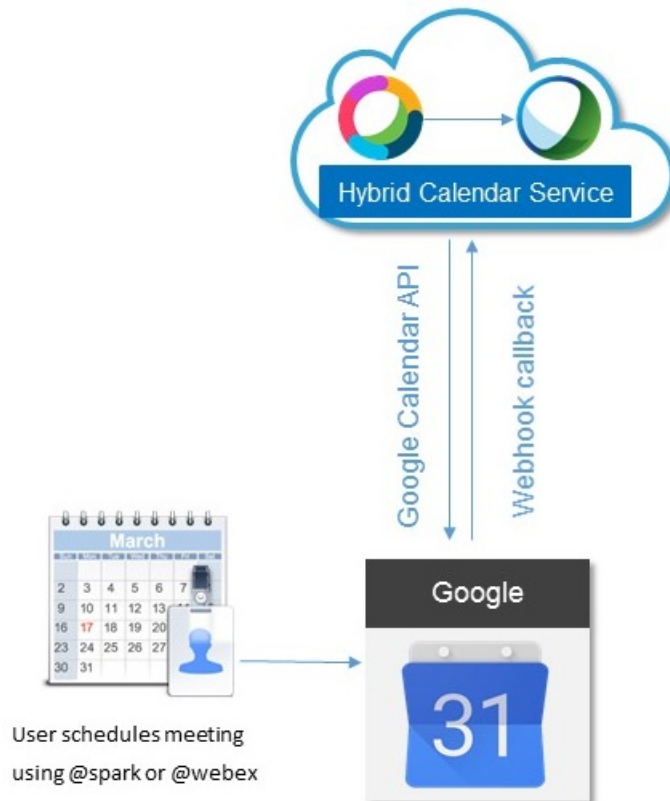


1. A user creates a meeting in the Office 365 calendar, putting a scheduling keyword or video address in the Location field.
2. Exchange Online sends a notification to the Hybrid Calendar.
3. The Hybrid Calendar requests and receives the encryption key, and then uses it to encrypt the meeting information.
4. The Hybrid Calendar validates meeting creation and recipients, and then creates a Webex team space, if applicable.
5. The Hybrid Calendar calls the API service and, if applicable, maps the meeting to the space.
6. The Hybrid Calendar retrieves the meeting join information, including the Webex Personal Room if applicable.
7. The Hybrid Calendar updates the meeting invite with the meeting join information and, if applicable, the space ID.
8. The invitees and the organizer get the updated meeting invitation.

For more information on how the cloud-based Hybrid Calendar integrates with Office 365, see the [Cisco Webex Hybrid Calendar Service with Office 365 Integration Reference](#).

Hybrid Calendar with Google Calendar: Scheduling flow

This diagram shows the components of Hybrid Calendar and Google Calendar architecture.



1. A user creates a meeting in Google Calendar, putting a scheduling keyword or video address in the location field.
2. Google sends a notification to the Hybrid Calendar.
3. The Hybrid Calendar requests and receives the encryption key, and then uses it to encrypt the meeting information.
4. The Hybrid Calendar validates meeting creation and recipients, and then creates a Webex team space, if applicable.
5. The Hybrid Calendar calls the API service and maps the meeting to the space.
6. The Hybrid Calendar retrieves the meeting join information, including the Personal Room if applicable.
7. The Hybrid Calendar updates the meeting invite with the meeting join information and, if applicable, the space ID.
8. The updated meeting information appears in Google Calendar.

For more information on how the Hybrid Calendar Service integrates with Google's G Suite Calendar, see the [Hybrid Calendar with Google Calendar integration reference](#).



PART I

Office 365 with cloud-based Hybrid Calendar

- [Prepare your environment, on page 1](#)
- [Deploy cloud-based Hybrid Calendar for Office 365, on page 5](#)
- [Deploy TMS integration with Office 365, on page 17](#)



CHAPTER 1

Prepare your environment

- [How the Hybrid Calendar accesses user calendars, on page 1](#)
- [Deploying alongside an existing Expressway-based Calendar Connector, on page 2](#)
- [Change processing timeframes, on page 2](#)
- [Requirements for Hybrid Calendar with Microsoft Office 365, on page 3](#)

How the Hybrid Calendar accesses user calendars

When you first set up the Hybrid Calendar, you need to grant it permission to access Office 365 on behalf of your users. Use an account that can authorize multi-tenant apps (like Global Administrator or Privileged Role Administrator) to grant the permission.

The Hybrid Calendar needs these permissions to do the following actions:

Permission	Usage
Read and write calendars in all mailboxes.	<ul style="list-style-type: none">• Update the meeting text with the join details.
Sign in and read user profile.	<ul style="list-style-type: none">• Required for the other permissions listed. Hybrid Calendar does not use it directly.
Read and write all user mailbox settings.	<ul style="list-style-type: none">• Determine the user's language for localization purposes.• Read out-of-office status.• Set out-of-office status (reserved for future use.)
Read domains.	<ul style="list-style-type: none">• Read domains

When the administrator grants permission for the Hybrid Calendar on behalf of the Office 365 tenant, Webex is notified. This permission enables the Hybrid Calendar to get access tokens from Azure Active Directory (Azure AD) using OAuth 2.0, to authenticate and access user calendars. The Webex cloud does not see or store the administrator login credentials at any point in the process. For more information, see <https://docs.microsoft.com/en-us/graph/auth-v2-service>.

The Hybrid Calendar uses the [Microsoft Graph API](#) to subscribe to changes in users' calendars, receive notifications for changes made in subscribed users' calendars, and update meeting invitations with scheduling

information when the meeting location field contains keywords such as @webex or @meet, or the meeting body contains a supported video address. The Hybrid Calendar accesses only the calendars of the users that you enable for Hybrid Calendar in the Control Hub.

Webex App follows industry-standard best practices to securely store the Private Key for the application. All meeting details that the service stores are encrypted using Webex App end-to-end encryption. This ensures that only those who are invited to the meeting can see the details. For more information on Webex App encryption, see the [Cisco Webex Security and Privacy white paper](#).

If needed, your Exchange administrator can revoke the Hybrid Calendar access to your Office 365 tenant user calendars from Enterprise Applications in the Azure AD management portal.

Deploying alongside an existing Expressway-based Calendar Connector

If you have already deployed the Expressway-based Calendar Connector to serve Microsoft Exchange users, Office 365 users or a hybrid of Microsoft Exchange and Office 365 users, you can add the cloud-based Hybrid Calendar with Office 365, running both at the same time. Once you enable the cloud-based service, any Office 365 users who are not a part of a resource group automatically migrate from your Calendar Connector to the new cloud-based service within 24 hours. (The Hybrid Calendar checks for Office 365 users to migrate from Calendar Connectors once a day.)

The Expressway-based Calendar Connector that you deploy with the Hybrid Calendar for Microsoft Exchange or Office 365 has a [capacity limit](#) of 1,000 Office 365 users, and requires on-premises equipment. The cloud-based service allows you to scale past the capacity limit.

- Both options (Calendar Connector and cloud-based service) can be enabled at the same time.
- All Office 365 users NOT in a resource group migrate to the cloud-based service automatically.
- To enable some users on the cloud service first for testing, put other users who must stay homed on the on-premises Connector into a resource group before turning on the cloud-based service.

Change processing timeframes

When you activate the Hybrid Calendar for Office 365 and enable users or move mailboxes, the service processes these changes periodically.

Table 2: Processing frequency for activations and changes

Administrator action	Processing behavior	Expected completion timeframe
Activation		
Enable the Hybrid Calendar for the organization.	Once the setup is successful, the Hybrid Calendar tries to subscribe to calendars of users that are listed in "Not activated" or "Error" states.	Depending on volume, immediate to minutes.

Administrator action	Processing behavior	Expected completion timeframe
Enable individual users (toggle on Calendar or bulk enable).	<p>Hybrid Calendar attempts to subscribe to the user's calendar.</p> <p>If the activation fails, the user is in "Error" state and the Hybrid Calendar retries in 60 minutes.</p> <p>If the activation fails multiple times, the Hybrid Calendar retries in 24 hours.</p>	<p>If everything goes well, immediately. Otherwise, up to 24 hours.</p> <p>If it takes longer than this, check the user account.</p>
Mailbox migration		
Move user mailbox from on-premises Exchange to Office 365.	<p>Once Office 365 has completed the mailbox migration, it takes up to 40 minutes for the Hybrid Calendar to put the user in "Error" state.</p> <p>As above, the Hybrid Calendar attempts to reprocess users in "Error" state every 60 minutes.</p>	<p>If everything goes well, up to 100 minutes. Otherwise, up to 24 hours.</p> <p>If it takes longer than this, check the user account.</p>
Move user mailbox from Office 365 to on-premises Exchange.	<p>Once a day, the Hybrid Calendar runs a watch refresh that detects missing mailboxes and puts them in "Error" state.</p> <p>Another cloud service then reassigns the user to an Expressway-based Calendar Connector.</p>	<p>Up to 24 hours to detect the change, plus a few minutes of reassignment time.</p>

Requirements for Hybrid Calendar with Microsoft Office 365

- A Microsoft 365 tenant with Exchange online accounts for users in the organization. During setup, you must sign in with an account that can authorize multi-tenant apps (like Global Administrator or Privileged Role Administrator) to grant the appropriate permission.

Note the following considerations for your Microsoft 365 tenant:

- The commercial version of Webex only supports the Worldwide instance of Office 365. (Webex doesn't support USGovDoD, USGovGCCHigh, China, and Germany instances.)
- Webex for Government supports the Worldwide instance of Office 365 through a tenant in GCC and the USGovGCCHigh instance. (Webex for Government doesn't support the USGovDoD, China, and Germany instances.)
- Office 365 includes Multi-Geo Capabilities that enable your tenants to store data in a chosen geography. But, Webex stores data according to its own data residency specifications based on the country designated for the customer organization. For more information, see <https://www.cisco.com/go/webex-teams-locality>.

- For @webex scheduling, any supported Webex Meetings release.
You must [enable the Personal Room feature for the Webex site and for the individual users](#).
- A Webex organization with a paid subscription.



Note We don't currently support deploying both Google Calendar and Office 365 with the cloud-based Hybrid Calendar in the same Webex organization.

- Users must have activated Webex accounts, with email addresses that are exact matches in Webex Meetings, Webex App, and Exchange online (the Primary Email Address).

Each Webex App user can only have one email address associated with only one Hybrid Calendar integration. In other words, the Hybrid Calendar will only process meetings from a single address for creating spaces, decorating meetings, showing the meetings list and join button, and sending the **Join** button to video devices.



CHAPTER 2

Deploy cloud-based Hybrid Calendar for Office 365

- [Hybrid Calendar with Office 365 deployment task flow, on page 5](#)
- [Prepare your Webex Meetings site, on page 6](#)
- [Enable and configure Hybrid Calendar with Microsoft 365, on page 7](#)
- [Add an additional tenant to Hybrid Calendar with Office 365, on page 8](#)
- [Modify a tenant of Hybrid Calendar with Office 365, on page 8](#)
- [Choose how Hybrid Calendar localizes meeting join details, on page 9](#)
- [Configure @webex and @meet keywords, on page 10](#)
- [Customize email templates, on page 10](#)
- [Enable Hybrid Calendar with Office 365 for users, on page 12](#)
- [Add Hybrid Calendar to workspaces with Webex room, desk, and board devices, on page 13](#)
- [Associate Webex personal rooms with Webex App, on page 14](#)
- [Test the Office 365 and Hybrid Calendar integration, on page 14](#)
- [Move a user from an Expressway-based connector, on page 15](#)

Hybrid Calendar with Office 365 deployment task flow

To deploy Hybrid Calendar with your Office 365 organization, perform the following tasks.

Before you begin

[Prepare your environment, on page 1](#)

Procedure

	Command or Action	Purpose
Step 1	Prepare your Webex Meetings site, on page 6	If you have a Webex Meetings site, make sure it's ready for integration with @webex.
Step 2	Enable and configure Hybrid Calendar with Microsoft 365, on page 7	Register your Office 365 environment to the Webex cloud with an initial tenant, authorize write permission, test the connection, and set the default Webex site.

	Command or Action	Purpose
Step 3	(Optional) Add an additional tenant to Hybrid Calendar with Office 365, on page 8	Add a tenant to the Webex cloud, authorize write permission, test the connection, and set the default Webex site.
Step 4	(Optional) Modify a tenant of Hybrid Calendar with Office 365, on page 8	Modify a tenant's configuration to the Webex cloud, to authorize read/write permissions, deactivate the Hybrid Calendar, and identify the Workspace organizer.
Step 5	(Optional) Choose how Hybrid Calendar localizes meeting join details, on page 9	To override how the Hybrid Calendar localizes meeting join details for your entire organization, set the Default Language setting in https://admin.webex.com .
Step 6	(Optional) Configure @webex and @meet keywords, on page 10	To change the action that the Hybrid Calendar takes when users enter @webex or @meet, set the Keywords settings in https://admin.webex.com .
Step 7	(Optional) Customize email templates, on page 10	Choose what the Hybrid Calendar adds to meeting invitations, including audio or video join details and a localized header and footer in any language that the service supports.
Step 8	Enable Hybrid Calendar with Office 365 for users, on page 12	
Step 9	(Optional) Add Hybrid Calendar to workspaces with Webex room, desk, and board devices, on page 13	If you want One Button to Push (OBTP) functionality to be provided to cloud-registered room and desk devices and Webex Boards, toggle on the calendar service for the devices, and configure the room mailbox email address.
Step 10	(Optional) Associate Webex personal rooms with Webex App, on page 14	For OBTP on Webex room and desk devices and Webex Boards, make sure that meeting schedulers have their Personal Rooms associated with their Webex App accounts.
Step 11	Test the Office 365 and Hybrid Calendar integration, on page 14	
Step 12	(Optional) Move a user from an Expressway-based connector, on page 15	

Prepare your Webex Meetings site

In order to provide full @webex functionality, the Hybrid Calendar needs access to user scheduling information from your Webex Meetings site.

If your Webex site is managed in Control Hub, you do not need do anything to make the information available. Otherwise, the preferred method for making this information available is to have an administrator [link the site to Webex Teams](#).

If you have not yet linked the sites, your users can [associate their Cisco Webex Personal Rooms with Cisco Webex Teams](#) themselves in the app.

Enable and configure Hybrid Calendar with Microsoft 365

Follow these steps to register your Microsoft 365 environment to the Webex cloud, add the initial tenant, test the connection, and set the default Webex site. The setup wizard in <https://admin.webex.com> guides you through the process.

Before you begin

- Use an account that can authorize multi-tenant apps (like Global Administrator or Privileged Role Administrator) to grant permission for the setup process.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** On the hybrid calendar card with the Microsoft 365 logo, click **Edit settings**.
- Step 4** On the Hybrid Calendar (Microsoft 365) page, click **Add tenant**.
- Step 5** Follow the steps to choose your Microsoft 365 instance and authorize Webex cloud access on the appropriate Microsoft 365 administrator account.
The browser should redirect you to <https://admin.webex.com> when you've finished the authorization steps. If it does not, try these steps again.
- Step 6** Follow the step to accept the read permissions requested for your tenant.
- Step 7** Chose from the following associated with testing the connection with Microsoft 365 and defining a workspace.
- Type an email address to test the connection with Microsoft 365 for the new tenant.
 - Check the box to indicate that your organization needs to be able to schedule meetings from Workspaces and enter the email address of the organizer for meetings scheduled from Workspaces.
- Step 8** Click **Test**.
- When the connection is successful the browser redirects you to the Services page on <https://admin.webex.com> when you've finished the test step. When a connection is not created, verify that the user name you are using has a license on the Microsoft account and try these steps again
- Step 9** Choose or type the Webex Meetings site to use for @webex scheduling. Save your changes.
- Step 10** If there are users with error status, click **User Status Report** to view the error details.
-

Add an additional tenant to Hybrid Calendar with Office 365

Use this procedure to add a new tenant to an existing Hybrid Calendar with Microsoft 365.

Before you begin

You should have added an organization with [Enable and configure Hybrid Calendar with Microsoft 365](#), on [page 7](#).

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
You can use the search function to narrow down the list of users.
- Step 3** On the hybrid calendar card with the Microsoft 365 logo, click **Edit settings**.
- Step 4** On the Hybrid Calendar (Microsoft 365) page, click **Add tenant**.
- Step 5** Follow the steps to choose your Microsoft 365 instance and authorize Webex cloud access on an appropriate Microsoft 365 administrator account.
- Step 6** Follow the step to accept the read permissions requested for your tenant.
- Step 7** Chose from the following associated with testing the connection with Microsoft 365 and defining a workspace.
- Type an email address to test the connection with Microsoft 365 for the new tenant.
 - Check the box to indicate that your organization needs to be able to schedule meetings from Workspaces and enter the email address of the organizer for meetings scheduled from Workspaces.
- Step 8** Click **Test**.
-

When the connection is successful the browser redirects you to the Services page on <https://admin.webex.com> when you've finished the test step. When a connection is not created, verify that the user name you are using has a license on the Microsoft account and try these steps again.

Related Topics

[Disable User Email Notifications](#)

[Steps to update users in bulk](#)

[Steps to update users in a directory synchronized organization](#)

Modify a tenant of Hybrid Calendar with Office 365

Use this procedure to modify a tenant for Webex App users for Hybrid Calendar with Microsoft 365.

Before you begin

Add a tenant to Hybrid Calendar.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** On the hybrid calendar card with the Microsoft 365 logo, click **Edit settings**.
- Step 4** On the Hybrid Calendar (Microsoft 365) page, on the default tenant domain of the tenant to configure. The Microsoft 365 integration panel displays in the right-hand panel.
- Step 5** To authorize the tenant, click **Authorize**.
- If you removed Control Hub authorization from your Microsoft 365 tenant, click **Authorize** to reset the read and write permissions. Also, if you've just switched from a single tenant to multiple tenants, the previous tenant appears as an "Unknown" domain. Reauthorize this tenant to reinitialize it so that it can have full functionality.
- Step 6** To deactivate Hybrid Calendar (Microsoft 365) from this tenant, click **Deactivate**.
- Step 7** To establish an organizer for meetings scheduled from Workspaces, enter the Microsoft 365 account email address.
-

Choose how Hybrid Calendar localizes meeting join details

In Control Hub, the Default Language setting controls the language of the join details that the Hybrid Calendar adds to invitations. If you leave the setting at its default, the service uses the language in the "language":{"locale"} setting from the scheduler's mailbox settings.

To override choosing languages based on meeting schedulers' settings, choose a specific language to use for join details for all meetings across your organization.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** On the hybrid calendar card with the Office 365 logo, click **Edit settings**.
The Hybrid Calendar (Microsoft 365) displays a list of tenants included in this organization.
- Step 4** Select the tenant to configure.
- Step 5** Click the **Settings** tab.
- Step 6** In the **Meeting Invitations** section, choose a language from the **Default Language** drop-down list, and click **Save**.
- After you save the change, the Hybrid Calendar uses the language you choose each time it adds join to details a meeting. It doesn't change the language for existing join details.
-

Configure @webex and @meet keywords

By default, when users add @webex to a meeting location, the calendar service updates the meeting with their Webex Personal Room details. When users add @meet, by default the service updates the meeting with Webex App space details. As an administrator, you can change these default actions for either keyword.

Regardless of how you set these actions, power users can add the modifier :space, :myroom or :onetime to specify the action for either keyword. For example, adding @webex:space causes the service to update the meeting with Webex App space details. As well, @webex:onetime creates a one-time Webex meeting.

Procedure

Step 1 Sign in to the customer view of <https://admin.webex.com/login>.

Step 2 In the left-hand navigation pane, under **Services** click **Hybrid**.

Step 3 From the Hybrid Calendar card for your calendar environment, click **Edit settings**.

Note If you have the Hybrid Calendar set up for multiple calendar environments, you can access the keywords settings from multiple pages in Control Hub, but the values that you set apply to all environments.

The Hybrid Calendar (Microsoft 365) displays a list of tenants included in this organization.

Step 4 Select the tenant to configure.

Step 5 Click the **Settings** tab.

Step 6 In the **Keywords** section, select the default action that you want for each keyword.

Step 7 Click **Save**.

Customize email templates

Choose which meeting join details Hybrid Calendar includes in meeting invitations.

Procedure

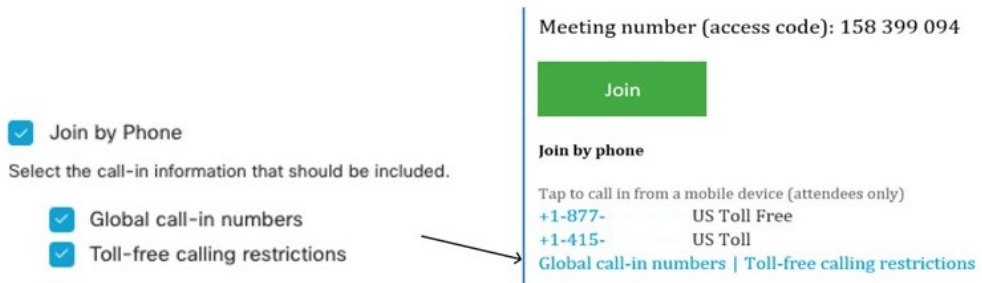
Step 1 Sign in to the customer view of <https://admin.webex.com/login>.

Step 2 In the left-hand navigation pane, under **Services** click **Meeting**.

Step 3 Locate the **Customize Meeting Join Details** section.

Step 4 Choose whether to show **Join by Phone** details.

When you include the dial-in details, you can also choose to add a link to global call-in numbers, a link to toll-free calling restrictions, or both.



Step 5 Show or hide details on joining from an application or video conferencing device.

When you include the video dialing details, you can also choose to include an IVR IP address, a Skype for Business join link, or both.



Step 6 Click **Add a Language** and then select the language from the drop-down menu to create a custom header and footer for any of the languages that the Hybrid Calendar supports. When you've got the header and footer text that you want, click **Save**.

The header and footer values have a maximum of 1024 characters each (including spaces).

Localized header and footer

To edit the header and footer in each language, select the language in the drop-down, edit the header & footer for that language in the textboxes, and then click save.

German ^

Header Text 0/1024

Enter header text here (1024 characters, plain text only, no HTML/scripts)

Footer Text 73/1024

Seien Sie gewarnt, dass die Aufzeichnung vom Veranstalter aktiviert wird.

Cancel Save

English (United States) v

French v

Add a Language

Use this language if nothing is defined for its header and footer.

French v

FL First1010 Last 1010 <usr_1010@calfusiontest.onmicrosoft.com>

Required: 0

Today at 11:31 AM

Wednesday, December 16, 2020 at 2:00 PM - 3:00 PM.

@webex

Accept Tentative Decline Propose New Time

Please respond.

- Do not delete or change any of the following text. -

Join meeting in my Webex Personal Room

Meeting number (access code): 171 610 652 3

Join

Join by phone

Tap to call in from a mobile device (attendees only)

14085452910 US Toll

Global call-in numbers

Join from a video conferencing system or application

Dial [usr_1010@sqdemo43.dmz.webex.com](tel:usr_1010@sqdemo43.dmz.webex.com)

Skype [usr_1010.sqdemo43@lync.webex.com](skype:usr_1010.sqdemo43@lync.webex.com)

Seien Sie gewarnt, dass die Aufzeichnung vom Veranstalter aktiviert wird.

Step 7

Once you've added a custom header and footer for a language, you can choose that language as a default for any other language that doesn't have a custom header and footer defined. Your default language choice saves automatically.

Enable Hybrid Calendar with Office 365 for users

Use this procedure to enable individual Webex App users for Hybrid Calendar with Office 365.

See the links below for ways to enable services for your Webex users in bulk or in a directory synchronized organization.

Any of these methods requires that users have signed in to the Webex App app to be fully activated. To enable @webex for users who have never signed in to the app, add and verify the users' domain using the [Manage your domains](#) process. (You must own a domain for it to be verifiable. You do not need to claim the domain.)

Before you begin

- Users must have licensed Exchange Online mailboxes.
- Users must have activated Webex accounts, with email addresses that are exact matches in Webex Meetings, Webex App, and Exchange online (the Primary Email Address).

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Management** click **Users** and then choose a specific user from the list.
- You can use the search function to narrow down the list of users.
- Step 3** Click the row to open an overview of the user.
- Step 4** In the Hybrid Services area, click **Calendar Service**.
- Step 5** Toggle on **Calendar**, ensure that **Microsoft Exchange/Office 365** is selected, and save your changes.
- After you activate the service, the user's calendar service status changes to Pending Activation and then to Activated. The length of time for this change depends on the number of users that you're enabling for the service.
- Users receive an email that indicates the feature is enabled. See the documentation below if you want to disable email notifications.

Related Topics

- [Disable User Email Notifications](#)
- [Steps to update users in bulk](#)
- [Steps to update users in a directory synchronized organization](#)

Add Hybrid Calendar to workspaces with Webex room, desk, and board devices

Before you begin

This task assumes that you've already created places for the Webex room, desk, or board devices. If you need to create the workspace, see [Add shared devices and services to a workspace](#).

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Management** click **Workspaces** and select the workspace to modify.
- Step 3** Go to **Calendar** and click **Add Calendar** so that people can use One Button to Push (OBTP) from their Webex devices.
- Step 4** Select calendar service from the drop-down menu.
- Step 5** Enter or paste the email address of the room mailbox. (For help locating this email address, see "Create and manage room mailboxes" on the Microsoft Docs web site.)
- This is the email address that will be used to schedule meetings.

Step 6 Click **Save**.

Associate Webex personal rooms with Webex App

To provide the join button to Webex room and desk devices and Webex Boards when scheduling Webex Personal Room meetings, users must have their Personal Room associated with their Webex App account. This can happen in one of the following ways:

- The users on your Webex site have been Webex App linked. (For site linking steps, see [Link Webex sites to Control Hub](#).)
- Users change their own preferred Webex site from the Webex App settings or preferences, see [Change your default meeting site](#)
- For a comprehensive approach, use the bulk CSV import process from Control Hub to set users' preferredWebExSite in the steps that follow.

Procedure

- Step 1** Sign in to the customer view in <https://admin.webex.com>.
- Step 2** In the left-hand navigation pane, under **Management** click **Users**.
- Step 3** Click **Manage Users**.
- Step 4** See <https://help.webex.com/en-US/article/e2okky/Modify-Users-in-Control-Hub-with-the-CSV-Template> for the detailed CSV import/export procedure.
- Step 5** Use a CSV editor to change the **preferredWebExSite** attribute for all or some users.
- Step 6** Import the CSV file.
-

Test the Office 365 and Hybrid Calendar integration


Use these steps to set up a test meeting and verify the Office 365 integration. Direct users to the documentation below for how to schedule meetings.

Procedure

- Step 1** Sign in to Outlook, Outlook Web Access, or <https://mail.office365.com> with one of the test Office 365 user accounts enabled for Hybrid Calendar.
- Step 2** Test the team space scheduling keyword (such as @webex:space or @meet):
- a) Create a new meeting, and then add the keyword to the **Location** field. To create a new Webex team space for the meeting, invite at least two other people.
 - b) To test One Button to Push on a video device, go to the Scheduling Assistant and click **Add room**, and choose the device you want to add.
 - c) Fill out other meeting information, as needed, and then click **Save**.

- d) Open <https://teams.webex.com>, and sign in with the test user account.
- e) Verify whether a new space was created (if you added two or more other invitees) and contains the calendar invite card. If you only invited one other invitee, the calendar invite card will appear in the conversation space between your test account and the invitee.
- f) Verify that the meeting invitation is updated with the details to join the meeting with Webex App.
- g) If you're testing One Button to Push on a video device, when the meeting is scheduled to begin, verify that the **Join** button appears on the device.

Step 3 To test out-of-office status, turn on automatic replies in Office 365. Within 20 minutes, you should see the test account's profile picture display an out-of-office overlay in Webex

Teams, like this: 

Note The display picture update is triggered when others see your presence in a space. If the test user does not interact with other active users, you may need to use another account to verify the update.

- Step 4** Test the Personal Room scheduling keyword (such as @webex):
- a) Create a new meeting, and then add the keyword to the **Location** field.
 - b) To test One Button to Push on a video device, go to the Scheduling Assistant and click **Add room**, and choose the device you want to add.
 - c) Fill out other meeting information, as needed, and then click **Save**.
 - d) Verify that the meeting invitation is updated with the details to join the meeting .
 - e) If you're testing One Button to Push on a video device, when the meeting is scheduled to begin, verify that the **Join** button appears on the device.

Related Topics

- [Schedule a Cisco Webex Meeting from Your Calendar](#)
- [Show When You're Out of Office](#)

Move a user from an Expressway-based connector

Hybrid Calendar automatically moves any Office 365 users who are not part of a resource group from your Expressway-based calendar connector to the cloud-based service. This process can take up to an hour, because the service checks for users to move once an hour. (If you're also moving the user's mailbox from Microsoft Exchange to Office 365, it can take up to 40 minutes longer.) If you want to have users activated faster, use the following procedure to toggle Hybrid Calendar for users, thereby forcing the activation within minutes.



Note You must remove Office 365 users from a resource group in order for them to move off of the Calendar Connector. This procedure also covers that process.

Procedure

- Step 1** If applicable, move the user mailbox from Microsoft Exchange to Office 365.
- Step 2** Sign in to the customer view of <https://admin.webex.com/login>.

Step 3 In the left-hand navigation pane, under **Management** click **Users**.

Step 4 To modify an individual user, do the following sub-steps:

- a) Search for the user in the list and click the row for that user.
- b) In the panel that opens on the right, click **Calendar Service**.
- c) From the Resource Group drop-down list, click **None**.
- d) Next to **Calendar**, toggle the service off.
- e) Wait a minute, and then toggle the service back on.

The user should be activated within a few minutes.

Step 5 To modify users in bulk, do the following sub-steps:

- a) Click **Manage Users**, and choose **CSV Add or Modify User**.
- b) Click **Export** to download the file.
- c) Edit the exported_users.csv file.
- d) For any users that you want to move, delete the value in the Hybrid Calendar Resource Group column.
- e) Save a first copy of the file in this state, for use later.
- f) To speed the move, set Hybrid Calendar (Exchange) to **FALSE**.
- g) Save a second copy of the file.
- h) Click **Import**, select the second file copy that you saved, and click **Open**.
- i) Choose **Add and remove services**, and click **Submit**.

If you also add new users in this process and don't suppress admin invite emails, new users receive activation emails.

- j) Wait several minutes, and then re-import the first copy of the file.

The users should be activated within a few minutes.



CHAPTER 3

Deploy TMS integration with Office 365

- [Overview of the TelePresence Management Suite integration, on page 17](#)
- [Scheduling flow with TMS, on page 19](#)
- [Requirements for TMS integration, on page 20](#)
- [Deployment task flow for the TMS integration, on page 21](#)
- [Complete prerequisites for TMS Integration, on page 22](#)
- [Configure the @meet keyword action, on page 22](#)
- [Configure Office 365 room mailboxes in TMS, on page 23](#)
- [Register Expressway-C connector host to the Webex cloud, on page 24](#)
- [Link the calendar connector to TMS, on page 26](#)
- [Add a meeting server to TMS, on page 26](#)
- [Test the Office 365 and TMS integration, on page 27](#)
- [Notable behavior for the TMS integration with Office 365, on page 29](#)
- [Troubleshoot the TMS integration, on page 29](#)
- [Enable and collect calendar connector logs, on page 30](#)

Overview of the TelePresence Management Suite integration

The TelePresence Management Suite (TMS) scheduling option allows the Hybrid Calendar to leverage your on-premises resource management and conference hosting environment for simplified meeting scheduling. This integration also extends the meeting join button to a wide range of video devices.

The integration currently works with the cloud-based Hybrid Calendar for Office 365 or the cloud-based Hybrid Calendar for Google Calendar. To deploy the integration, you first set up the cloud-based service. Then you install the calendar connector on your on-premises Expressway-C and configure the connector for the TMS scheduling option.



Note You can't deploy the TMS scheduling option if your Webex organization already has the calendar connector configured for the Hybrid Calendar. The TMS integration must be the only calendar connector in the organization.

To simplify meeting scheduling, users can type **@meet** in the location field of their calendar invitation. In Control Hub you can configure the action that the Hybrid Calendar takes for the **@meet** keyword:

You choose this option for @meet in Control Hub	How the connector schedules in response to @meet	How the connector handles the join button with the TMS integration
<p>TelePresence Management Suite</p> <p>Note Choose this option to deploy the TMS integration.</p>	<p>Schedules the meeting using TMS, and adds join details for a meeting hosted with on-premises conference bridge resources.</p> <p>This option provides unique, meeting-specific meeting IDs.</p>	<p>Just before the meeting starts, TMS provides the join button for invited video devices that are registered on-premises.</p> <p>Note The join button for on-premises endpoints currently only works with meetings scheduled with on-premises conference bridge resources. The integration currently does not provide the join button to on-premises endpoints for Webex Personal Room meetings.</p> <p>The join button is also available in Webex Teams and on cloud-registered Webex room and desk devices.</p>
<p>Webex App space (or @meet:space)</p> <p>Note This setting is the default. If you choose another option, users can type @meet:space to override that action with this one.</p>	<p>Creates a space in Webex App and adds join details for it.</p> <p>TMS is not required or used.</p>	<p>The join button is available in Webex Teams and on cloud-registered Webex room and desk devices.</p>
<p>Personal Room (or @meet:myroom)</p> <p>Note If you choose another option, users can type @meet:myroom to override that action with this one.</p>	<p>Schedules the meeting using the organizer's personal room join details.</p> <p>TMS is not required or used.</p>	<p>The join button is available in Webex App and on cloud-registered Webex room and desk devices.</p>

When you configure your video devices with room mailboxes in Office 365, users can invite the devices to meetings and the TMS ensures that the devices receive the join button. The join button is sent to these types of devices:

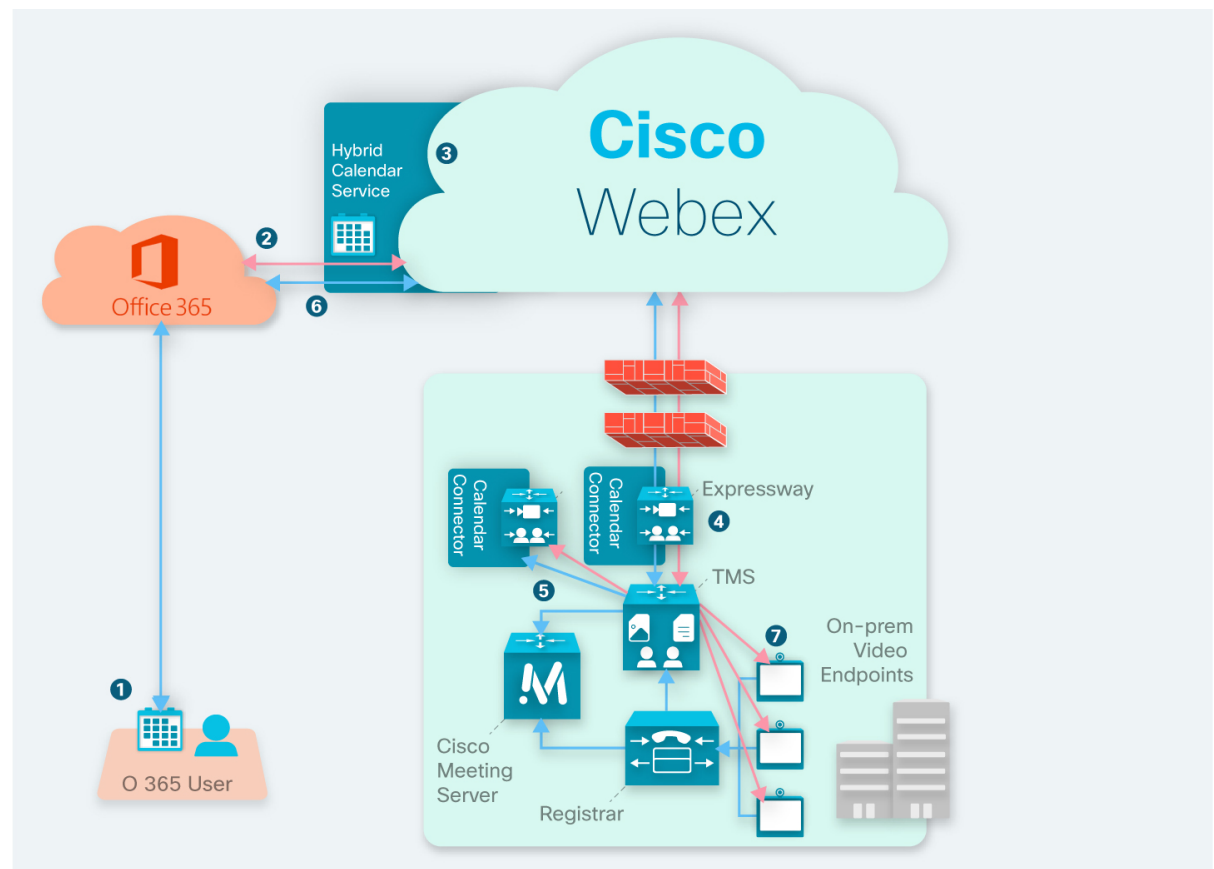
- Video devices that are registered to on-premises Unified Communications Manager.
- Video devices that are registered to on-premises VCS or Expressway.
- Cloud-registered Webex room and desk devices that are configured as places in Control Hub.

Scheduling flow with TMS

The following diagram illustrates how the Hybrid Calendar interacts with TMS and the calendar system to schedule a meeting hosted by on-premises conference bridge resources and provide the **Join** button.

This scheduling flow assumes that the administrator has set up the integration according to the steps in [Deployment task flow for the TMS integration, on page 21](#), including configuring **@meet** for the **TelePresence Management Suite** action and setting up room mailbox addresses for devices in Office 365 and then adding those addresses to TMS.

Figure 5: Hybrid Calendar scheduling flow with Office 365



1. The organizer creates a meeting in Office 365 and then adds **@meet** in the **Location** field. The organizer invites users and video devices from the Office 365 directory.
2. Office 365 sends a notification to the Hybrid Calendar .

3. The Hybrid Calendar requests and receives the encryption key, and then uses it to encrypt the meeting information.
4. The Hybrid Calendar validates meeting creation and recipients and the calendar connector sends details to TMS.
5. The TMS creates the meeting on the on-premises conference bridge and sends the join details back to the calendar connector.
6. The connector updates the meeting invitation with the join details that are provided by TMS, and the updated join details appear when invitees view the meeting in Office 365.
7. Just before the meeting time, the video devices that were invited to the meeting receive the Webex join details information from the TMS.

Requirements for TMS integration

This integration requires the following components:

- The cloud-based Hybrid Calendar with Office 365, deployed and configured
- Expressway (to serve as the connector host between your TMS and the Hybrid Calendar), installed and running
 - Download from software.cisco.com at no charge.
 - We recommend the latest release of Expressway for connector host purposes. See [Expressway connector host support for Hybrid Services](#) for information about Expressway version support.
 - We currently support either a single Expressway node or two nodes operating as single-node clusters, dedicated to hosting this integration. We recommend two hosts. If the active host goes down, after a couple of minutes, new meeting requests are sent to the other host.
The hosts must not be running any other hybrid service connectors. Also, the TMS integration hosts must be the only calendar connector hosts in your Webex App. organization.
 - We recommend a maximum of 10,000 scheduling users for this integration.
- TelePresence Management Suite (TMS) 15.9 or later, installed and running, with the following configuration in place:
 - A valid CA-signed server certificate must be installed. This integration does not support self-signed certificates.
 - Each endpoint to be booked must already be added to TMS and licensed for general TMS usage.
 - For each Expressway connector host that you deploy, TMS must have one or more option keys, depending on your deployment size. The integration uses the same option keys that are required to book endpoints with TMSXE, which are either of the following:
 - Small deployments—One TelePresence Management Suite Extension for Microsoft Exchange (TMSXE) option key for every 25 telepresence endpoints that are integrated with TMS (part number L-TMS-MSEX-25).
 - Larger deployments—One Application Integration Package option key (part number L-TMS-APPINT).

For example, if you deploy two connector hosts with 50 telepresence endpoints, you would need either four L-TMS-MSEX-25 option keys or two L-TMS-APPINT option keys for the integration on TMS.

If both types of option key are present, TMS only uses the Application Integration Package key.

If you already have TMSXE or Application Integration Package option keys:

- If you are not currently using the option key, you can use it with the Hybrid Calendar integration.
- If you are using the option key with TMSXE, contact your partner or sales team to request a second option key (or set of keys) for the Hybrid Calendar integration. If you plan to migrate from TMSXE within a short period of time, you can request a 90 day trial, and then reuse your original option key(s) once the migration to the Hybrid Calendar is complete.
- On-premises conference bridge resources must be configured (Meeting Server recommended).
- Users' time zones in TMS must match their time zones in the calendar system. For instructions on setting the time zone in TMS, see "User Administration" in the applicable [Cisco TelePresence Management Suite Administrator Guide](#).

Deployment task flow for the TMS integration

To add the TMS integration to your Hybrid Calendar with Office 365 deployment, perform the following tasks.

Procedure

	Command or Action	Purpose
Step 1	Complete prerequisites for TMS Integration, on page 22	
Step 2	Configure the @meet keyword action, on page 22	Allows users to schedule with the TMS integration.
Step 3	Configure Office 365 room mailboxes in TMS, on page 23	Maps video device systems in TMS to the email addresses of Office 365 room mailboxes, so that the Hybrid Calendar can recognize when users invite the devices to meetings and coordinate the join button with TMS.
Step 4	Register Expressway-C connector host to the Webex cloud, on page 24	Connects your Expressway to the Webex cloud. This creates a resource in https://admin.webex.com and downloads connector software on to the Expressway.
Step 5	Link the calendar connector to TMS, on page 26	Configures the details that the calendar connector needs to communicate with TMS and adds on-premises conference bridge telephony details to invitations, if applicable.

	Command or Action	Purpose
Step 6	Add a meeting server to TMS, on page 26	Enables the integration to schedule @meet meetings on-premises.
Step 7	Test the Office 365 and TMS integration, on page 27	Verifies the integration with TMS.

Complete prerequisites for TMS Integration

Procedure

-
- Step 1** If you haven't already done so, set up the Hybrid Calendar with Office 365, using the following chapters:
- a. [Prepare your environment, on page 1](#)
 - b. [Deploy cloud-based Hybrid Calendar for Office 365, on page 5](#)
- Step 2** Make sure you have met all of the [Requirements for TMS integration, on page 20](#).
- Step 3** Provide the following port access for the Expressway that will serve as your Calendar Connector host for the TMS integration:
- Port access for HTTPS or secure web sockets outbound from Expressway to *.rackcdn.com, *.ciscopark.com, *.wbx2.com, *.webex.com, *.webexcontent.com, and *.clouddrive.com: TCP port 443 (secure)
 - Port access for HTTPS outbound from Expressway to TMS: TCP port 443 (secure)
-

Configure the @meet keyword action

To provide the TMS integration functionality to users, configure @meet in Control Hub Using an organization administrator account.

Procedure

-
- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** From the Hybrid Calendar card for Exchange, click **Edit settings**.
- Step 4** In the **Keywords** section, for @meet, choose **Cisco TelePresence Management Suite**.
- Step 5** Click **Save**.
-

Configure Office 365 room mailboxes in TMS

Use this procedure to add the Office 365 room mailbox addresses of video devices one at a time in TMS. Alternatively, you can use Bulk Upload to configure multiple addresses. For instructions, see "Bulk Room Email Mapping for Endpoints" in the applicable [Cisco TelePresence Management Suite Administrator Guide](#).

Before you begin

- Each video system that users want to add to meetings must have a room mailbox in Office 365 in order for TMS to provide the join button. For help creating room mailboxes, see [Creating and managing resource mailboxes in Office 365](#).
- Gather the credentials of an organization domain account with Admin privileges to TMS.

Procedure

- Step 1** If you have not already done so, create the room mailboxes in Office 365.
- Step 2** From a web browser, sign in to TMS.
- Step 3** Go to **Systems > Navigator**.
- Step 4** Locate and click the video system to configure with the room mailbox address.
- Step 5** On the **Summary** tab, click **Edit Settings** and enter the room mailbox address in the Email Address field.

The screenshot shows the Cisco TelePresence Management Suite interface. The 'Navigator' pane on the left shows a tree view with 'Cisco Demo Room' selected. The main content area displays the configuration for 'Demo Room'. The 'Edit Settings' tab is active, and the 'Email Address' field is highlighted with a red box. The field contains the text 'office365demo@domain.com'.

Field	Value
Name	Cisco Demo Room
System Type	Cisco TelePresence SX20
System Usage Type	Meeting Room
System Connectivity	Reachable on LAN
Network Address	10.11.22.33
Manufacturer	TANDBERG
MAC Address	CA:DB:A4:64:C1
IP Zone	Bangalore
Time Zone	(GMT + 05:30) Calcutta, Chennai, M
Password	*****
Status	Idle
Your Access	Edit Settings, Read, Set Permissions, Manage Calls, Book
System Contact	[Dropdown]
Alert System Contact when Booked	No
Description	[Text Field]
Email Address	office365demo@domain.com
Software Version	TC7.3.11.c1479a9
Hardware Serial No.	FTT18240036
Last Settings Backup	Not Registered
Last Settings Restore	Not Registered
Maximum IP Bandwidth	6000
Max Number of Video Calls	1
Max Number of Audio Calls	2
Microphone	On
Volume	35
Autoanswer	On
E.164 Alias 1	101133
H.323 ID 1	101133
SIP URI 1	101133@domain.com
H.323 Call Setup Mode	Gatekeeper
SIP Mode	On

- Step 6** Click **Save**.
- Step 7** Repeat steps 4 through 6 for each video device.

Register Expressway-C connector host to the Webex cloud

Use this procedure to register an Expressway-C node to the cloud and download connector software onto the Expressway-C. (We currently support either a single Expressway node or two Expressway nodes operating as separate single-node clusters for this integration.)

The TMS integration uses Hybrid Calendar for Microsoft Exchange setup process, but ultimately you will link the Calendar Connector to TMS. Once you link to TMS, you must not link any connector in your Webex App organization to Microsoft Exchange.

Before you begin

- Make sure your Expressway-C is running on a version that's supported for hybrid services. See the *Supported Versions of Expressway for Cisco Webex Hybrid Services Connectors* documentation (<https://help.webex.com/article/ruyceab>) for more information about which versions are supported for new and existing registrations to the cloud.
- Sign out of any open connections to the Expressway-C interface that are open in other browser tabs.
- If your on-premises environment proxies the outbound traffic, you must first enter the details of the proxy server on **Applications > Hybrid Services > Connector Proxy** before you complete this procedure. Doing so is necessary for successful registration.

Procedure

-
- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** From the customer view in <https://admin.webex.com>, in the left-hand navigation pane under **Services** click **Hybrid**, and then choose one:
- If this is the first connector host you're registering, click **Set up** on the Hybrid Calendar for Microsoft Exchange card, and then click **Next**.
 - If you've already registered one connector host, click **View all** on the Hybrid Calendar for Microsoft Exchange card, and then click **Add Resource**.
- The Webex cloud rejects any attempt at registration from the Expressway web interface. You must first register your Expressway through Control Hub, because the Control Hub needs to hand out a token to the Expressway to establish trust between premises and cloud, and complete the secure registration.
- Note** Do not set up this integration if you already have an Expressway connector host for Microsoft Exchange or Office 365 registered for your organization.
- Step 3** Choose **Register a new Expressway with its Fully Qualified Domain Name (FQDN)**, enter your Expressway-C IP address or fully qualified domain name (FQDN) so that Webex creates a record of that Expressway-C and establishes trust, and then click **Next**. You can also enter a display name to identify the resource in Control Hub.
- Caution** To ensure a successful registration to the cloud, use only lowercase characters in the hostname that you set for the Expressway-C. Capitalization is not supported at this time.

Step 4 Click **Next**, and for new registrations, click the link to open your Expressway-C. You can then sign in to load the **Connector Management** window.

Step 5 Decide how you want to update the Expressway-C trust list:

A check box on the welcome page determines whether you will manually append the required CA certificates to the Expressway-C trust list, or whether you allow Webex to add those certificates for you.

Choose one of the following options:

- Check the box if you want Webex to add the required CA certificates to the Expressway-C trust list.

When you register, the root certificates for the authorities that signed the Webex cloud certificates are installed automatically on the Expressway-C. This means that the Expressway-C should automatically trust the certificates and be able to set up the secure connection.

Note If you change your mind, you can use the **Connector Management** window to remove the Webex cloud CA root certificates and manually install root certificates.

- Uncheck the box if you want to manually update the Expressway-C trust list. See the Expressway-C online help for the procedure.

Caution When you register, you will get certificate trust errors if the trust list does not currently have the correct CA certificates. See [Certificate Authorities for Hybrid Services, on page 78](#).

Step 6 Click **Register**. After you're redirected to Control Hub, read the on-screen text to confirm that Webex identified the correct Expressway-C.

Step 7 After you verify the information, click **Allow** to register the Expressway-C for Hybrid Services.

- Registration can take up to 5 minutes depending on the configuration of the Expressway and whether it's a first-time registration.
- After the Expressway-C registers successfully, the Hybrid Services window on the Expressway-C shows the connectors downloading and installing. The management connector automatically upgrades itself if there is a newer version available, and then installs any other connectors that you selected for the Expressway-C connector host.
- Each connector installs the interface pages that you need to configure and activate that connector.

This process can take a few minutes. When the connectors are installed, you can see new menu items on the **Applications > Hybrid Services** menu on your Expressway-C connector host.

Troubleshooting Tips

If registration fails and your on-premises environment proxies the outbound traffic, review the Before You Begin section of this procedure. If the registration process times out or fails (for example, you must fix certificate errors or enter proxy details), you can restart registration in Control Hub.

What to do next

Repeat the steps in this task to register the second Expressway connector host if applicable.

Link the calendar connector to TMS

Before you begin

The TMS must have a valid CA-signed server certificate installed. This integration does not support self-signed certificates.

Procedure

-
- Step 1** From the Expressway-C connector host, go to **Applications > Hybrid Services > Calendar Service > Cisco Conferencing Services Configuration**, and then click **New**.
- Step 2** Select **Type** as **TMS** under **Conferencing Services Type**.
- Step 3** Enter the username and password of the TMS administrator account that you want the calendar connector to use to connect to TMS.
- Note** Enter only the username, without the domain, in the username field.
- Step 4** Under **TMS Server Details**, enter the fully qualified domain name (FQDN) and domain in the respective fields.
- Note** Enter the NETBIOS domain name for the **TMS Domain Name** field.
- Step 5** Under **Telephony Invite Details**, enter the appropriate information for **Toll Identifier**, **Toll Number**, **Toll Free Identifier**, **Toll Free Number**, and **Global Call-in Numbers (URL)**.
- Step 6** Click **Save**.
TMS is listed under **Cisco Conferencing Services Configuration**.
- Step 7** Click **TMS** and click **Test Connection**.
The calendar connector tests the connection to the TMS environment. If the test returns an error message, correct any errors in the configuration and try the test again.
- Step 8** When you've confirmed the connection, go to **Applications > Hybrid Services > Connector Management** and click **Calendar Connector Service**.
- Step 9** Select **Enabled** from the **Active** drop-down list and click **Save**.
The calendar connector starts and the status changes to **Running**.
-

Add a meeting server to TMS

When you configure **@meet** to use the **TelePresence Management Suite** action, the TMS uses any bridge configured in the **Administrative Tools > Configuration > Conference Settings > Advanced**.

Procedure

To allow users to schedule meetings on a meeting server using the Hybrid Calendar integration with TMS, add the server using the steps in the meeting server section of the applicable [Cisco TelePresence Management Suite Administrator Guide](#).

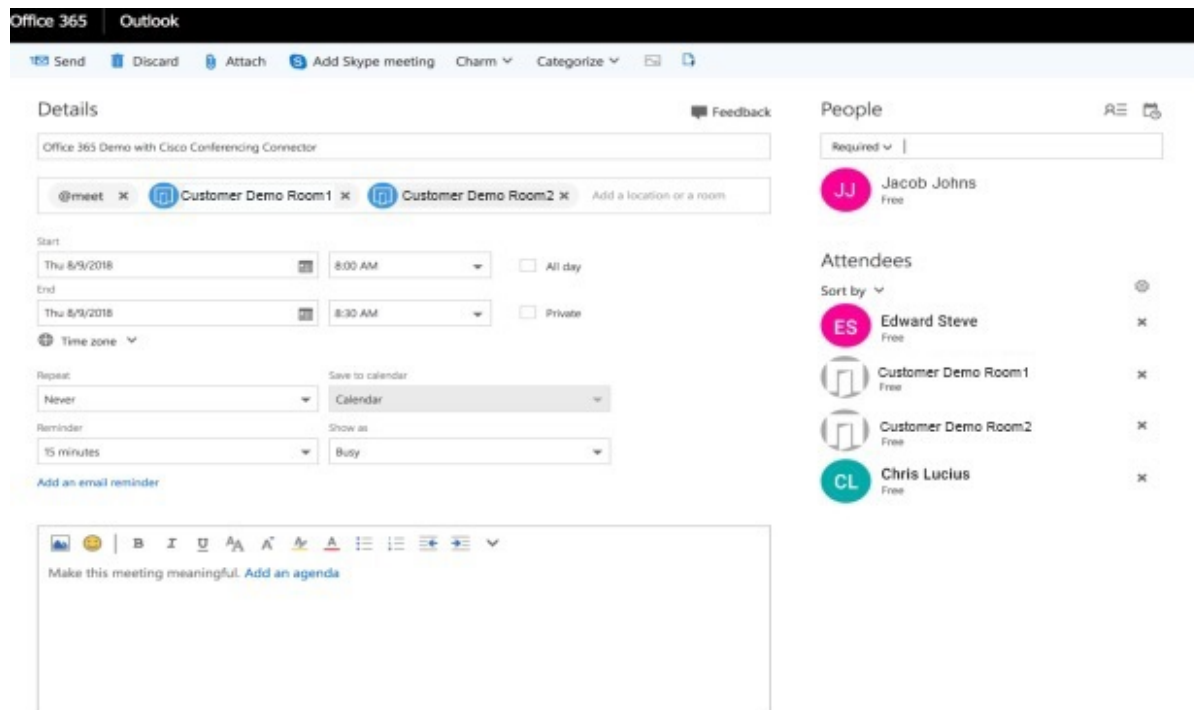
Test the Office 365 and TMS integration

Use these steps to schedule a test meeting and verify the integration.

Procedure

Step 1 Test meeting scheduling with @meet:

- In a web browser, sign in to <https://outlook.office365.com> with an Office 365 user account that is enabled for Hybrid Calendar.
- Click **New > Calendar event**.
- Enter an event title in the **Add a title for the event** text box.
- Enter **@meet** in the **Add a location or a room** text box.



- In the **People** tab, invite users and add rooms (or other video devices) for OBTP.
- Send the invitation.

The Hybrid Calendar updates the meeting with the join details.

0365 Demo with Conferencing Connector



Jacob Johns

Tue 8/14, 11:57 AM

Edward Steve, Chris Lucius ✕

Required: Jacob Johns; Edward Steve; Chris Lucius ✕



When: Thu 8/16/2018 3:00p - 3:30p

Where: @meet

This invitation was updated after this message was sent. [Open the update](#) or [open the item on the calendar](#).

Join Cisco Meeting by Browser

Join by video system or application

Dial [126017847@domain.com](tel:126017847@domain.com)

Meeting PIN: 1234

Join by Phone:

+1-800-301-09679 US Toll

+1-408-545-2910 US Toll Free

Meeting Number: 126017847

[Global Call-in numbers](#)

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Step 2 In a web browser, sign in to TMS and go to **Booking > List Conferences**.

ID	Title	Private	Date	Start Time (UTC-08:00)	End Time (UTC-08:00)	Owner	Type	External Service
12156	Office 365 Demo with Cisco Conferencing Connector	No	8/16/2018	3:00 AM	3:30 AM	A, B	One Button To Push	Calendar Connector

The test meeting and other meetings that are scheduled with @meet are listed in TMS with 'Calendar Connector' in the **External Service** column.

Note You cannot edit Calendar Connector meetings in TMS.

Notable behavior for the TMS integration with Office 365

This section lists limitations and notable behavior for the TMS integration with Office 365.

For currently open issues, see the "TMS Integration with Office 365" issues list in the Office 365 (Cloud-Based Service) section of the [Known Issues with Hybrid Calendar](#).

- Editing a meeting series during an active instance of the series results in the following behavior:
 - TMS updates all instances other than the in-progress instance.
 - The currently active instance becomes an exception in TMS.

This is the expected behavior, but differs from the behavior of Office 365, which updates the active instance as well.

- A meeting that is scheduled more than 5 months in the future may not get immediately processed by the cloud-based Hybrid Calendar for Microsoft Office 365. The service processes meetings that are 5-6 months in the future on a daily basis using a sliding window, so once the meeting's scheduled date falls within the window, it will get processed and the meeting scheduled in TMS.

This is a limitation of the cloud-based Hybrid Calendar for Microsoft Office 365 for all types of meetings.

Troubleshoot the TMS integration

Use these tips to check the status of the various components of the TMS integration with the Hybrid Calendar.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** Verify the number of users who are enabled for the Hybrid Calendar.

The screenshot shows the 'Hybrid Services' configuration page. It contains three main cards:

- On-Premises Resources:** Manage resources that are registered to the cloud and view related configuration. Includes a link for 'All Resources' and a 'View' button.
- Hybrid Calendar (Exchange):** Includes sections for 'Users' (with an 'Enable users' link), 'Resources' (with a 'View all' link), and 'Capacity used: 0%' with a progress bar. A 'Service' section has an 'Edit settings' link. A green dot indicates the service is 'Operational'.
- Hybrid Calendar (Office 365):** Includes a 'Users' section with a red box around '10 users enabled', a 'Service' section with an 'Edit settings' link, and a green dot indicating the service is 'Operational'.

- Step 4** Check the status of the connectors in Control Hub.
- In the left-hand navigation pane, under **Services** click **Hybrid**, and then click **All Resources** from the on-premises resources card.
 - From the resource card for the TMS integration, click the **Node** link below the resource FQDN or IP address.

< demo-expressway.domain.com Nodes Settings

Connectors	Status	Version
ccg-qa-exp-c1.tmsxe0365.com Platform Version: X8.11.1Alpha1 Serial: 07656963 Actions		
Management	● Running	8.10-1.0.321348
Calendar	● Running	8.10-1.0.5263

- Step 5** Compare the status above to the status of the connectors on the Expressway connector host.
- From Expressway, go to **Applications > Hybrid Services > Connector Management**.

Connector Management

Hybrid Services

This Expressway cluster is registered with the Cisco Collaboration Cloud.

[Cisco Collaboration Cloud certificate management](#) - you are currently allowing Cisco Collaboration Cloud to add required CA certificates to the Expressway trust list

<https://admin.webex.com> - view the status of your clusters and connectors

Connector management

Click a connector name below to view or modify the connector details.

Service	Status	Version	Active	Configuration
Management Connector	Running	8.10-1.0.321348	Enabled	
Calendar Connector	Running	8.10-1.0.5263	Enabled	Configure Microsoft Exchange Servers Configure Cisco Conferencing Services

Enable and collect calendar connector logs

Procedure

- From a web browser, go to **https://<Expressway connector host name or IP address>/setaccess**.
- In the **Access password** field, enter **qwertsys**.
- Click **Enable access**.
A new top-level Experimental menu appears to the right of the existing menu items.
- Navigate to **Experimental > Hybrid Services Log > Hybrid Services Log Levels**.
- Select **'hybridservices.c_cal'** and click **'Set to debug'**.
- To collect logs, navigate to **Experimental > Hybrid Services Log > Hybrid Services Log**.



PART II

Google Calendar with cloud-based Hybrid Calendar

- [Prepare Your Environment, on page 33](#)
- [Deploy cloud-based Hybrid Calendar with Google Calendar, on page 35](#)
- [Deploy the TMS integration with Google Calendar, on page 45](#)



CHAPTER 4

Prepare Your Environment

- [Requirements for Hybrid Calendar with Google Calendar](#), on page 33
- [Remove Google Hangouts information in meeting events](#), on page 34

Requirements for Hybrid Calendar with Google Calendar

- A Webex organization with one of the offers documented for the Hybrid Calendar in [License requirements for Hybrid Services](#).



Note We do not currently support deploying both Google Calendar and Office 365 with the cloud-based Hybrid Calendar in the same Webex organization.

- A Google G Suite organization (formerly Google Apps for Work) with Google accounts for all users in your Webex organization:



Note Each user in your Webex organization can only have one email address associated with only one Hybrid Calendar integration. In other words, the Hybrid Calendar will only process meetings from a single address for creating spaces, decorating meetings, showing the meetings list and join button, and sending the join button to video devices.

- For Webex Teams scheduling:
 - Each user's Google account email address must match their Webex App login address.
- For Cisco Webex Personal Room scheduling with a Webex Meetings site:
 - You must [enable the Personal Room feature for the Webex site and for the individual users](#).
 - The Google account email address should also match the user's Webex account address. If it does not, users must [associate their Webex Personal Room with Webex Teams in the app](#) in order to use @webex.
- To provide the meetings list and the join button on room resources:

- During setup, you need an administrator account which has permissions to manage access control lists on meeting room resources.

In addition, you must [verify the domain of the email address of this account](#).

- Webex room devices must have email addresses that match the Google room resource format, `@resource.calendar.google.com`.

If your room device email format uses a domain prefix, you must [verify the domain](#) in the prefix. For example, verify `company.com` (if you didn't already do so when verifying the domain of the account that manages access control lists) for devices that have email addresses such as:

```
company.com__3130313639353739333032@resource.calendar.google.com
```

Newer resource email addresses may not include a domain prefix, as in the following example:

```
c_0803348627605091471198@resource.calendar.google.com
```

Remove Google Hangouts information in meeting events

In your G Suite Calendar settings, consider removing the video calls that are automatically added to events. This step ensures that meeting events contain just Webex join links when your users send them out.



Note This step prevents Google Calendar from including video event details in the meeting invitation that would conflict with the join details that the Hybrid Calendar Service adds. Suppressing this information does not disable Google Hangouts for your organization.

Procedure

-
- Step 1** From <https://admin.google.com>, go to ☰ > **Apps** > **G Suite** > **Calendar**.
 - Step 2** Click **Sharing settings**.
 - Step 3** Under Video Calls, uncheck **Automatically add video calls to events created by a user**.
-



CHAPTER 5

Deploy cloud-based Hybrid Calendar with Google Calendar

- Hybrid Calendar with Google Calendar deployment task flow, on page 35
- Enable and configure Hybrid Calendar with Google Calendar, on page 36
- Localize meeting join details, on page 38
- Configure @webex and @meet keywords, on page 38
- Customize email templates, on page 39
- Enable the Hybrid Calendar with Google for users, on page 40
- Add Hybrid Calendar to workspaces with Webex Room, Desk, and Board Devices, on page 41
- Associate personal rooms with Webex App, on page 42
- Test the Google Calendar and Hybrid Calendar integration, on page 43

Hybrid Calendar with Google Calendar deployment task flow

To deploy Hybrid Calendar with your Google Calendar environment, perform the following tasks.

Before you begin

Prepare Your Environment, on page 33

Procedure

	Command or Action	Purpose
Step 1	Enable and configure Hybrid Calendar with Google Calendar, on page 36	Register your Google Calendar environment to the Webex cloud, test the connection, and set the default Webex site.
Step 2	(Optional) Localize meeting join details, on page 38	To override how the Hybrid Calendar localizes meeting join details for your entire organization, set the Default Language setting in https://admin.webex.com .
Step 3	(Optional) Configure @webex and @meet keywords, on page 38	To change the action that the Hybrid Calendar takes when users enter @webex or @meet, set

	Command or Action	Purpose
		the Keywords settings in https://admin.webex.com .
Step 4	(Optional) Customize email templates, on page 39	Choose what the Hybrid Calendar adds to meeting invitations, including audio or video join details and a localized header and footer in any language that the service supports.
Step 5	Enable the Hybrid Calendar with Google for users, on page 40	After successfully provisioning the service, you must explicitly activate users to allow the service to access their respective G suite calendars.
Step 6	(Optional) Add Hybrid Calendar to workspaces with Webex Room, Desk, and Board Devices, on page 41	If you want One Button to Push (OBTP) functionality to be provided to cloud-registered room and desk devices and Webex Boards, toggle on the calendar service for the devices, and configure the resource email address.
Step 7	(Optional) Associate personal rooms with Webex App, on page 42	For OBTP on Webex room and desk devices and Webex Boards, make sure that meeting schedulers have their Personal Rooms associated with their Webex App accounts.
Step 8	Test the Google Calendar and Hybrid Calendar integration, on page 43	

Enable and configure Hybrid Calendar with Google Calendar

Follow these steps to register your Google Calendar environment to the Webex cloud. The setup wizard in [Control Hub](#) guides you through the process.

Procedure

Step 1 Sign in to [Control Hub](#).

Step 2 Under **Services**, select **Hybrid > Hybrid Calendar (Google) > Set Up**.

- **Domain-wide Delegation:** Choose this option if you want to give Webex access to all rooms and calendars.
- **Workspaces Only:** Choose this option if you do not want to give domain-wide access, but still require Hybrid Calendar for Workspaces. In the steps below, you'll specify a Workspace Admin account that has **Make changes to events** access to all Google room resources.

Note This authorization expires every 180 days, per Google security policy. You must reauthorize this every 180 days by following steps a—c in the *Workspaces Only* section below and clicking **Reauthorize**.

If you selected **Domain-wide Delegation**, proceed to step 3.

If you selected **Workspaces Only**, proceed to step 4.

Step 3 For **Domain-wide Delegation**, complete the following steps.

- a) In a new browser tab, open your G Suite account dashboard.
- b) From the Google Admin console, go to **Security > Access and data control > API controls**.
- c) In the **Domain-wide delegation** section, click **MANAGE DOMAIN WIDE DELEGATION**.
- d) Click **Add New** to add an API client.
- e) Copy the value for **Client ID** to the clipboard from the Control Hub tab you have open, and paste it into the corresponding field in your G Suite settings tab.
- f) Copy the text for **Scope** to the clipboard from the Control Hub tab you have open, and paste it into the corresponding field in your G Suite settings tab.
- g) Click **Authorize**, then return to this page and click **Next**.
- h) Enter the address of a test email account that already has a G Suite license, then click **Next**. This is used to test the connection with Google Calendar.
- i) (Optional) To enable Hybrid Calendar for Workspaces, provide a Workspace Admin account that has either Google super admin rights, or **Make changes to events** privileges, for all Google rooms that will be enabled with Hybrid Calendar.
- j) (Optional) To enable **Room Scheduling from Workspaces**, configure a Room scheduling account. This account requires either Google super admin rights, or **Make changes to events** privileges, for all Google rooms that require in-room scheduling. You can reuse the Workspace Admin account from the previous step.
- k) After the set up completed prompt appears, click **Done**.
- l) From the Hybrid Calendar card, go to the Google Calendar **Settings**.
- m) Choose or type the default Webex Meetings site that you want to use for @webex scheduling, and save your changes.

The default site is used for @webex unless the user has a different site configured in their My Personal Room setting in the Webex App app (either because the user's [Webex site has been linked to Control Hub by an administrator](#), or because the user [configured the setting](#) with a different site).

Step 4 For **Workspaces Only**, complete the following steps.

- a) Click **Workspaces Only**, then click **Next**.
- b) Enter the Google account email address you want Hybrid Calendar to use to access Google room calendars. Make sure this account has either Google super admin rights, or **Make changes to events** privileges, for all Google rooms that will be enabled with Hybrid Calendar.
- c) To use this Workspace Admin account for in-room scheduling, select **Also use this account for in-room scheduling**.
- d) Click **Next**.
- e) When prompted to choose a Google account, choose the same account you entered in step c.
- f) Click **Finish**.

Once your authorization is complete, you can make changes to it. Click **Settings**, then in the **Authorization** section, click **Edit Authorization**.

Localize meeting join details

In Control Hub, the Default Language setting controls the language of the join details that the Hybrid Calendar adds to invitations. If you leave the setting at its default, the service uses the language from the locale setting from scheduler's calendar settings.

To override choosing languages based on meeting schedulers' settings, choose a specific language to use for join details for all meetings across your organization.

Procedure

-
- Step 1** Sign in to the customer view of <https://admin.webex.com>.
 - Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
 - Step 3** From the Hybrid Calendar card for Google, click **Edit settings**.
 - Step 4** In the **Meeting Invitations** section, choose a language from the **Default Language** drop-down list, and click **Save**.
- After you save the change, the Hybrid Calendar uses the language you choose each time it adds join to details a meeting. It doesn't change the language for existing join details.
-

Configure @webex and @meet keywords

By default, when users add @webex to a meeting location, the calendar service updates the meeting with their Webex Personal Room details. When users add @meet, by default the service updates the meeting with Webex App space details. As an administrator, you can change these default actions for either keyword.

Regardless of how you set these actions, power users can add the modifier :space, :myroom or :onetime to specify the action for either keyword. For example, adding @webex:space causes the service to update the meeting with Webex App space details. As well, @webex:onetime creates a one-time Webex meeting.

Procedure

-
- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
 - Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
 - Step 3** From the Hybrid Calendar card for your calendar environment, click **Edit settings**.
- Note** If you have the Hybrid Calendar set up for multiple calendar environments, you can access the keywords settings from multiple pages in Control Hub, but the values that you set apply to all environments.
- The Hybrid Calendar (Microsoft 365) displays a list of tenants included in this organization.
- Step 4** Select the tenant to configure.
 - Step 5** Click the **Settings** tab.
 - Step 6** In the **Keywords** section, select the default action that you want for each keyword.

Step 7 Click **Save**.

Customize email templates

Choose which meeting join details Hybrid Calendar includes in meeting invitations.

Procedure

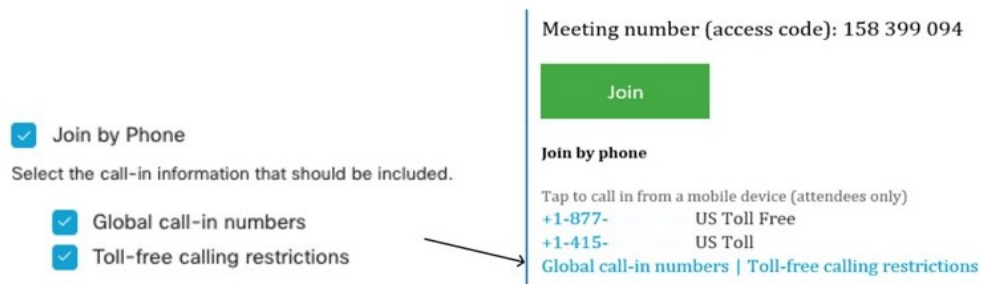
Step 1 Sign in to the customer view of <https://admin.webex.com/login>.

Step 2 In the left-hand navigation pane, under **Services** click **Meeting**.

Step 3 Locate the **Customize Meeting Join Details** section.

Step 4 Choose whether to show **Join by Phone** details.

When you include the dial-in details, you can also choose to add a link to global call-in numbers, a link to toll-free calling restrictions, or both.



Step 5 Show or hide details on joining from an application or video conferencing device.

When you include the video dialing details, you can also choose to include an IVR IP address, a Skype for Business join link, or both.



Step 6 Click **Add a Language** and then select the language from the drop-down menu to create a custom header and footer for any of the languages that the Hybrid Calendar supports. When you've got the header and footer text that you want, click **Save**.

The header and footer values have a maximum of 1024 characters each (including spaces).

Localized header and footer

To edit the header and footer in each language, select the language in the drop-down, edit the header & footer for that language in the textboxes, and then click save.

German ^

Header Text 0/1024

Enter header text here (1024 characters, plain text only, no HTML/scripts)

Footer Text 73/1024

Seien Sie gewarnt, dass die Aufzeichnung vom Veranstalter aktiviert wird.

Cancel Save

English (United States) v

French v

Add a Language

Use this language if nothing is defined for its header and footer.

French v

FL First1010 Last 1010 <usr_1010@calfusiontest.onmicrosoft.com>

Required: 0

Today at 11:31 AM

Wednesday, December 16, 2020 at 2:00 PM - 3:00 PM.

@webex

Accept Tentative Decline Propose New Time

Please respond.

- Do not delete or change any of the following text. -

Join meeting in my Webex Personal Room

Meeting number (access code): 171 610 652 3

Join

Join by phone

Tap to call in from a mobile device (attendees only)

14085452910 US Toll

Global call-in numbers

Join from a video conferencing system or application

Dial [usr_1010@sqdemo43.dmz.webex.com](tel:usr_1010@sqdemo43.dmz.webex.com)

Skype [usr_1010.sqdemo43@lync.webex.com](skype:usr_1010.sqdemo43@lync.webex.com)

Seien Sie gewarnt, dass die Aufzeichnung vom Veranstalter aktiviert wird.

Step 7

Once you've added a custom header and footer for a language, you can choose that language as a default for any other language that doesn't have a custom header and footer defined. Your default language choice saves automatically.

Enable the Hybrid Calendar with Google for users

Use this procedure to enable a small number of Webex App users for Hybrid Calendar with Google Calendar.

See [Ways to add and manage users in Control Hub](#) for other methods, such as using a bulk CSV template.

Any of these methods requires that users have signed in to the Webex App to be fully activated. To enable @webex for users who have never signed in to the app, add and verify the users' domain using the [Add, verify, and claim domains](#) process. (You must own a domain for it to be verifiable. You do not need to claim the domain.)

Before you begin

To successfully activate a user for calendar access, the following conditions must be met:

Successful validation is a requirement for using the Hybrid Calendar functionality. If the service can't validate a user, it puts the user in error state. The service enforces a policy to access only the calendars of successfully activated users for ongoing processing.

Procedure

- Step 1** Sign in to the customer view in <https://admin.webex.com>.
- Step 2** In the left-hand navigation pane, under **Management** click **Users** and then choose a specific user from the list.
- You can use the search function to narrow down the list of users.
- Step 3** Click the row to open an overview of the user.
- Step 4** Choose one and then save your changes:
- In a new environment, click **Calendar Service**, toggle on **Calendar**, and ensure that the Google Calendar is selected.
 - In an existing environment with Exchange, click **Calendar Service**, and under calendar type, ensure that the Google Calendar is selected.

After you activate the service, the Webex App user status changes from Pending Activation to Activated. The length of time for this change depends on the number of users that you're enabling for the service.

Users receive an email that indicates the feature is enabled. See the documentation below if you want to disable email notifications.

What to do next

Test the calendar features

[Schedule a Webex Meeting from Your Calendar.](#)

Related Topics

[Disable User Email Notifications](#)

Add Hybrid Calendar to workspaces with Webex Room, Desk, and Board Devices

This task assumes that you've already created places for the Webex room, desk, or board devices. If you need to create the workspace, see [Add shared devices and services to a workspace](#).

Before you begin

- Webex room devices must have email addresses that match the Google room resource format, *@resource.calendar.google.com*.

If your room device email format uses a domain prefix, you must [verify the domain](#) in the prefix. For example, verify *company.com* (if you didn't already do so when verifying the domain of the account that manages access control lists) for devices that have email addresses such as:

```
company.com__3130313639353739333032@resource.calendar.google.com
```

Newer resource email addresses may not include a domain prefix, as in the following example:

c_0803348627605091471198@resource.calendar.google.com

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
 - Step 2** In the left-hand navigation pane, under **Management** click **Workspaces**.
 - Step 3** Go to **Calendar** and click **Add Calendar** so that people can use One Button to Push (OBTP) from their Webex devices.
 - Step 4** Select calendar service from the drop-down menu.
 - Step 5** Enter or paste the Google resource email address from G Suite (Calendar > Resources).
This is the email address that will be used to schedule meetings.
 - Step 6** Click **Save**.
-

Associate personal rooms with Webex App

To provide the join button to Webex room and desk devices and Webex Boards when scheduling Webex Personal Room meetings, users must have their Personal Room associated with their Webex App account. This can happen in one of the following ways:

- The users on your Webex site have been Webex App linked. (For site linking steps, see [Link Webex sites to Control Hub](#).)
- Users change their own preferred Webex site from the Webex App settings or preferences, see [Change your default meeting site](#)
- For a comprehensive approach, use the bulk CSV import process from Control Hub to set users' preferredWebExSite in the steps that follow.

Procedure

- Step 1** Sign in to the customer view in <https://admin.webex.com>.
 - Step 2** In the left-hand navigation pane, under **Management** click **Users**.
 - Step 3** Click **Manage Users**.
 - Step 4** See <https://help.webex.com/en-US/article/e2okky/Modify-Users-in-Control-Hub-with-the-CSV-Template> for the detailed CSV import/export procedure.
 - Step 5** Use a CSV editor to change the **preferredWebExSite** attribute for all or some users.
 - Step 6** Import the CSV file.
-

Test the Google Calendar and Hybrid Calendar integration

Use these steps to set up a test meeting and verify the Google Calendar integration. Direct users to the documentation below for how to schedule meetings.

Procedure

- Step 1** Sign in to <https://calendar.google.com> with one of the test Google user accounts enabled for Hybrid Calendar.
- Step 2** Click **Create** to start an event, and then add a space scheduling keyword (such as `@webex:space` or `@meet`) to the **Where** field. Fill out other meeting information, as needed, and then click **Save**.
- Step 3** Open <https://teams.webex.com>, and sign in with the test user account.
- Step 4** Verify whether a new Webex space was created and contains the calendar invite card.
- Step 5** To test out-of-office status, in <https://calendar.google.com>, navigate to **Settings** and turn on **Vacation responder**.
Within 20 minutes, you should see the test account's profile picture display an out-of-office overlay in Webex Teams, like this:
- Note** The display picture update is triggered when others see your presence in a space. If the test user does not interact with other active users, you may need to use another account to verify the update.
- Step 6** To test the join button with a Webex room or desk device or Webex Board:
- In <https://calendar.google.com>, click **Create** to start an event, and then add a scheduling keyword (such as `@webex`) to the **Location** field.
 - Click **Rooms**, and choose the device you want to add.
 - Fill out other meeting information, as needed, and then click **Save**.
 - When the meeting is scheduled to begin, verify that the **Join** button appears on the device.

Related Topics

- [Schedule a Cisco Webex Meeting from Your Calendar](#)
- [Show When You're Out of Office](#)



CHAPTER 6

Deploy the TMS integration with Google Calendar

- [Overview of the TelePresence Management Suite integration, on page 45](#)
- [Scheduling flow with TMS, on page 47](#)
- [Requirements for the TMS integration, on page 48](#)
- [Deployment task flow for the TMS integration, on page 49](#)
- [Complete the prerequisites for the TMS integration, on page 50](#)
- [Configure the @meet Keyword Action, on page 50](#)
- [Configure Google room mailboxes in TMS, on page 51](#)
- [Register Expressway-C Connector host to Webex Cloud, on page 52](#)
- [Link the Calendar Connector to Cisco TMS, on page 54](#)
- [Add a meeting server to TMS, on page 55](#)
- [Test the Google Calendar and TMS integration, on page 55](#)
- [Notable behavior for the TMS integration with Google Calendar, on page 57](#)
- [Troubleshoot the TMS integration, on page 57](#)
- [Enable and collect calendar connector logs, on page 59](#)

Overview of the TelePresence Management Suite integration

The TelePresence Management Suite (TMS) scheduling option allows the Hybrid Calendar to leverage your on-premises resource management and conference hosting environment for simplified meeting scheduling. This integration also extends the meeting join button to a wide range of video devices.

The integration currently works with the cloud-based Hybrid Calendar for Office 365 or the cloud-based Hybrid Calendar for Google Calendar. To deploy the integration, you first set up the cloud-based service. Then you install the calendar connector on your on-premises Expressway-C and configure the connector for the TMS scheduling option.



Note You can't deploy the TMS scheduling option if your Webex organization already has the calendar connector configured for the Hybrid Calendar. The TMS integration must be the only calendar connector in the organization.

To simplify meeting scheduling, users can type @meet in the location field of their calendar invitation. In Control Hub you can configure the action that the Hybrid Calendar takes for the @meet keyword:

You choose this option for @meet in Control Hub	How the connector schedules in response to @meet	How the connector handles the join button with the TMS integration
<p>TelePresence Management Suite</p> <p>Note Choose this option to deploy the TMS integration.</p>	<p>Schedules the meeting using TMS, and adds join details for a meeting hosted with on-premises conference bridge resources.</p> <p>This option provides unique, meeting-specific meeting IDs.</p>	<p>Just before the meeting starts, TMS provides the join button for invited video devices that are registered on-premises.</p> <p>Note The join button for on-premises endpoints currently only works with meetings scheduled with on-premises conference bridge resources. The integration currently does not provide the join button to on-premises endpoints for Webex Personal Room meetings.</p> <p>The join button is also available in Webex Teams and on cloud-registered Webex room and desk devices.</p>
<p>Webex App space (or @meet:space)</p> <p>Note This setting is the default. If you choose another option, users can type @meet:space to override that action with this one.</p>	<p>Creates a space in Webex App and adds join details for it.</p> <p>TMS is not required or used.</p>	<p>The join button is available in Webex Teams and on cloud-registered Webex room and desk devices.</p>
<p>Personal Room (or @meet:myroom)</p> <p>Note If you choose another option, users can type @meet:myroom to override that action with this one.</p>	<p>Schedules the meeting using the organizer's personal room join details.</p> <p>TMS is not required or used.</p>	<p>The join button is available in Webex App and on cloud-registered Webex room and desk devices.</p>

When you configure your video devices with room mailboxes in Google Calendar, users can invite the devices to meetings and the Cisco TMS ensures that the devices receive the green **Join** button. OBTP is sent to these types of devices:

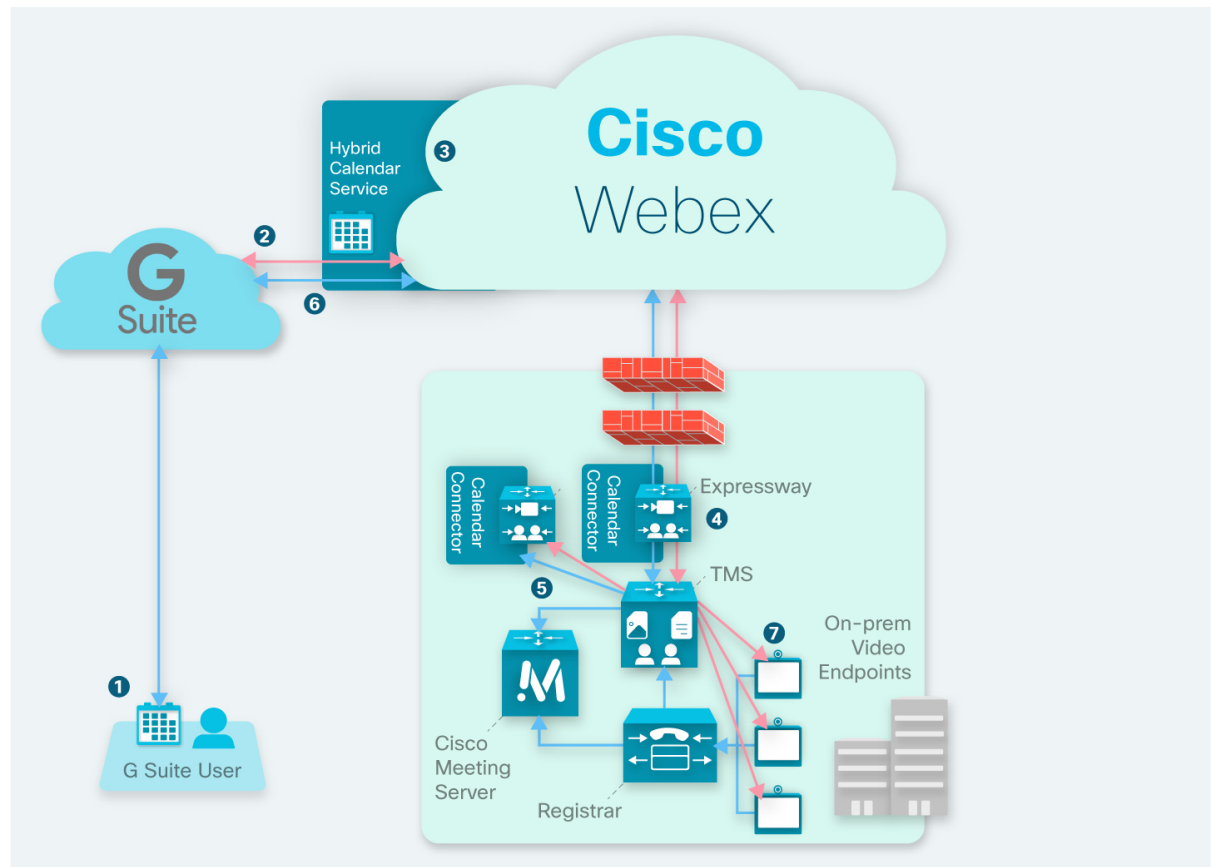
- Video devices that are registered to on-premises Unified Communications Manager.
- Video devices that are registered to on-premises VCS or Expressway.
- Cloud-registered Webex room and desk devices that are configured as places in Control Hub.

Scheduling flow with TMS

The following diagram illustrates how the Hybrid Calendar interacts with TMS and the calendar system to provide the **Join** button for a meeting that is hosted by on-premises conference bridge resources.

This scheduling flow assumes that the administrator has set up the integration according to the steps in [Deployment task flow for the TMS integration, on page 21](#), including configuring **@meet** for the **TelePresence Management Suite** action and setting up room mailbox addresses for devices in Google Calendar and then adding those addresses to TMS.

Figure 6: Hybrid Calendar scheduling flow with Google Calendar



1. The organizer creates a meeting in Google Calendar and then adds **@meet** in the **Location** field. The organizer invites users and video devices from the Google Calendar directory.

2. Google Calendar sends a notification to the Hybrid Calendar .
3. The Hybrid Calendar requests and receives the encryption key, and then uses it to encrypt the meeting information.
4. The Hybrid Calendar validates meeting creation and recipients and the calendar connector sends details to TMS.
5. The TMS creates the meeting on the on-premises conference bridge and sends the join details back to the Calendar Connector.
6. The connector updates the meeting invitation with the join details that are provided by TMS, and the updated join details appear when invitees view the meeting in Google Calendar.
7. Just before the meeting time, the video devices that were invited to the meeting receive OBTP information from the TMS.

Requirements for the TMS integration

This integration requires the following components:

- The cloud-based Hybrid Calendar with Google Calendar, deployed and configured
- Expressway (to serve as the connector host between your TMS and the Hybrid Calendar), installed and running
 - Download from software.cisco.com at no charge.
 - We recommend the latest release of Expressway for connector host purposes. See [Expressway connector host support for Hybrid Services](#) for information about Expressway version support.
 - We currently support either a single Expressway node or two nodes operating as single-node clusters, dedicated to hosting this integration. We recommend two hosts. If the active host goes down, after a couple of minutes, new meeting requests are sent to the other host.

The hosts must not be running any other hybrid service connectors. Also, the TMS integration hosts must be the only calendar connector hosts in your Webex App. organization.
- We recommend a maximum of 10,000 scheduling users for this integration.
- TelePresence Management Suite (TMS) 15.9 or later, installed and running, with the following configuration in place:
 - A valid CA-signed server certificate must be installed. This integration does not support self-signed certificates.
 - Each endpoint to be booked must already be added to TMS and licensed for general TMS usage.
 - For each Expressway connector host that you deploy, TMS must have one or more option keys, depending on your deployment size. The integration uses the same option keys that are required to book endpoints with TMSXE, which are either of the following:
 - Small deployments—One TelePresence Management Suite Extension for Microsoft Exchange (TMSXE) option key for every 25 telepresence endpoints that are integrated with TMS (part number L-TMS-MSEX-25).

- Larger deployments—One Application Integration Package option key (part number L-TMS-APPINT).

For example, if you deploy two connector hosts with 50 telepresence endpoints, you would need either four L-TMS-MSEX-25 option keys or two L-TMS-APPINT option keys for the integration on TMS.

If both types of option key are present, TMS only uses the Application Integration Package key.

If you already have TMSXE or Application Integration Package option keys:

- If you are not currently using the option key, you can use it with the Hybrid Calendar integration.
- If you are using the option key with TMSXE, contact your partner or sales team to request a second option key (or set of keys) for the Hybrid Calendar integration. If you plan to migrate from TMSXE within a short period of time, you can request a 90 day trial, and then reuse your original option key(s) once the migration to the Hybrid Calendar is complete.
- On-premises conference bridge resources must be configured (Meeting Server recommended).
- Users' time zones in TMS must match their time zones in the calendar system. For instructions on setting the time zone in TMS, see "User Administration" in the applicable [Cisco TelePresence Management Suite Administrator Guide](#).

Deployment task flow for the TMS integration

To add the TMS integration to your Hybrid Calendar with Google Calendar deployment, perform the following tasks.

Procedure

	Command or Action	Purpose
Step 1	Complete the prerequisites for the TMS integration, on page 50	
Step 2	Configure the @meet Keyword Action, on page 50	Allows users to schedule with the TMS integration.
Step 3	Configure Google room mailboxes in TMS, on page 51	Maps video device systems in TMS to their room mailbox email addresses in Google Calendar, so that the Hybrid Calendar can recognize when users invite the devices to meetings and coordinate OBTP with TMS.
Step 4	Register Expressway-C Connector host to Webex Cloud, on page 52	Connects your Expressway to the Webex cloud. This creates a resource in https://admin.webex.com and downloads connector software on to the Expressway.
Step 5	Link the Calendar Connector to Cisco TMS, on page 54	Configures the details that the Calendar Connector needs to communicate with TMS

	Command or Action	Purpose
		and adds on-premises conference bridge telephony details to invitations, if applicable.
Step 6	Add a meeting server to TMS, on page 55	Enables the integration to schedule @meet meetings on-premises.
Step 7	Test the Google Calendar and TMS integration, on page 55	Verifies the integration with TMS.

Complete the prerequisites for the TMS integration

Procedure

-
- Step 1** If you haven't already done so, set up Hybrid Calendar with Google Calendar, using the following chapters:
- a. [Prepare Your Environment, on page 33](#)
 - b. [Deploy cloud-based Hybrid Calendar with Google Calendar, on page 35](#)
- Step 2** Make sure you have met all of the [Requirements for the TMS integration, on page 48](#).
- Step 3** Provide the following port access for the Expressway that will serve as your Calendar Connector host for the TMS integration:
- Port access for HTTPS or secure web sockets outbound from Expressway to *.rackcdn.com, *.ciscopark.com, *.wbx2.com, *.webex.com, *.webexcontent.com, and *.clouddrive.com: TCP port 443 (secure)
 - Port access for HTTPS outbound from Expressway to TMS: TCP port 443 (secure)
-

Configure the @meet Keyword Action

To provide the TMS integration functionality to users, configure @meet in Control Hub Using an organization administrator account.

Procedure

-
- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** From the Hybrid Calendar card for Exchange, click **Edit settings**.
- Step 4** In the **Keywords** section, for @meet, choose **Cisco TelePresence Management Suite**.

Step 5 Click **Save**.

Configure Google room mailboxes in TMS

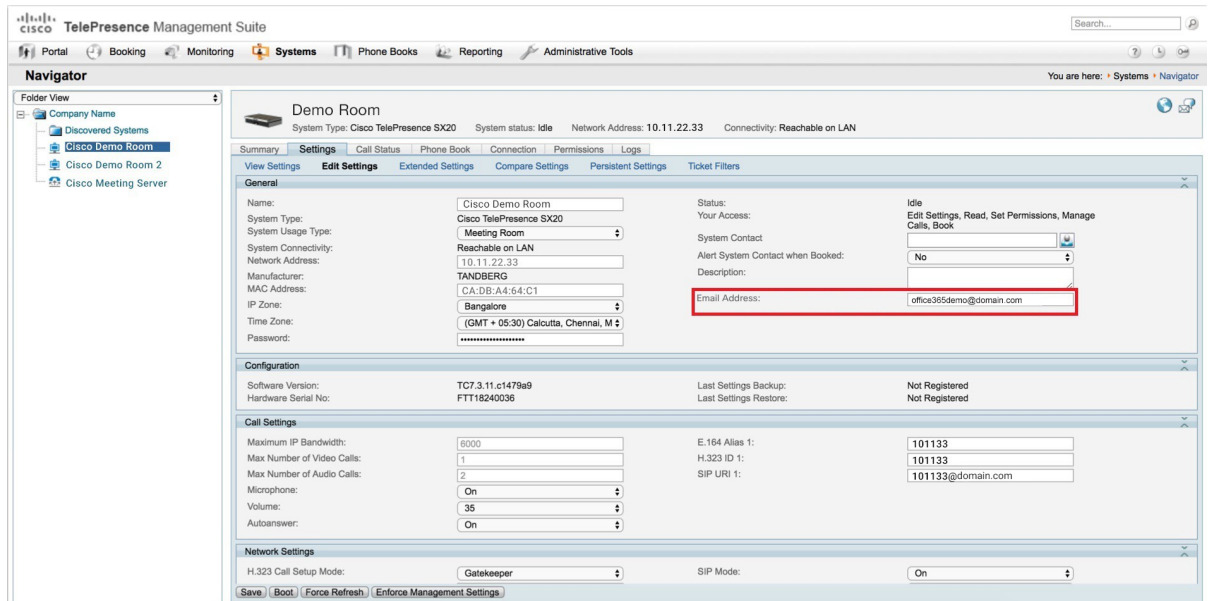
Use this procedure to add the Google Calendar room mailbox addresses of video devices one at a time in TMS. Alternatively, you can use Bulk Upload to configure multiple addresses. For instructions, see "Bulk Room Email Mapping for Endpoints" in the applicable [Cisco TelePresence Management Suite Administrator Guide](#).

Before you begin

- Each video system that users want to add to meetings must have a room mailbox in Google in order for TMS to provide OBTP. For help creating room mailboxes, see [Manage Calendar resources](#) for more information.
- Make sure that you have checked the **My organization uses calendar resources (such as conference devices)** check box in Control Hub, and entered the name of an authorized access control list administrator account. (From <https://admin.webex.com>, go to **Services**, find the hybrid calendar card, and then go to the Google **Settings**.)
- Gather the credentials of an organization domain account with Admin privileges to TMS.

Procedure

- Step 1** If you have not already done so, create the room mailboxes in the Google Admin console.
- Step 2** From a web browser, sign in to TMS.
- Step 3** Go to **Systems > Navigator**.
- Step 4** Locate and click the video system to configure with the room mailbox address.
- Step 5** On the **Summary** tab, click **Edit Settings** and enter the room mailbox address in the Email Address field.



Step 6 Click **Save**.

Step 7 Repeat steps 4 through 6 for each video device.

Register Expressway-C Connector host to Webex Cloud

Use this procedure to register an Expressway-C node to the cloud and download connector software onto the Expressway-C. (We currently support either a single Expressway node or two Expressway nodes operating as separate single-node clusters for this integration.)

The TMS integration uses Hybrid Calendar for Microsoft Exchange setup process, but ultimately you will link the Calendar Connector to TMS. Once you link to TMS, you must not link any connector in your Webex App organization to Microsoft Exchange.

Before you begin

- Make sure your Expressway-C is running on a version that's supported for hybrid services. See the *Supported Versions of Expressway for Cisco Webex Hybrid Services Connectors* documentation (<https://help.webex.com/article/ruyceab>) for more information about which versions are supported for new and existing registrations to the cloud.
- Sign out of any open connections to the Expressway-C interface that are open in other browser tabs.
- If your on-premises environment proxies the outbound traffic, you must first enter the details of the proxy server on **Applications > Hybrid Services > Connector Proxy** before you complete this procedure. Doing so is necessary for successful registration.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** From the customer view in <https://admin.webex.com>, in the left-hand navigation pane under **Services** click **Hybrid**, and then choose one:
- If this is the first connector host you're registering, click **Set up** on the Hybrid Calendar for Microsoft Exchange card, and then click **Next**.
 - If you've already registered one connector host, click **View all** on the Hybrid Calendar for Microsoft Exchange card, and then click **Add Resource**.
- The Webex cloud rejects any attempt at registration from the Expressway web interface. You must first register your Expressway through Control Hub, because the Control Hub needs to hand out a token to the Expressway to establish trust between premises and cloud, and complete the secure registration.
- Note** Do not set up this integration if you already have an Expressway connector host for Microsoft Exchange or Office 365 registered for your organization.
- Step 3** Choose **Register a new Expressway with its Fully Qualified Domain Name (FQDN)**, enter your Expressway-C IP address or fully qualified domain name (FQDN) so that Webex creates a record of that Expressway-C and establishes trust, and then click **Next**. You can also enter a display name to identify the resource in Control Hub.
- Caution** To ensure a successful registration to the cloud, use only lowercase characters in the hostname that you set for the Expressway-C. Capitalization is not supported at this time.
- Step 4** Click **Next**, and for new registrations, click the link to open your Expressway-C. You can then sign in to load the **Connector Management** window.
- Step 5** Decide how you want to update the Expressway-C trust list:
- A check box on the welcome page determines whether you will manually append the required CA certificates to the Expressway-C trust list, or whether you allow Webex to add those certificates for you.
- Choose one of the following options:
- Check the box if you want Webex to add the required CA certificates to the Expressway-C trust list.
- When you register, the root certificates for the authorities that signed the Webex cloud certificates are installed automatically on the Expressway-C. This means that the Expressway-C should automatically trust the certificates and be able to set up the secure connection.
- Note** If you change your mind, you can use the **Connector Management** window to remove the Webex cloud CA root certificates and manually install root certificates.
- Uncheck the box if you want to manually update the Expressway-C trust list. See the Expressway-C online help for the procedure.
- Caution** When you register, you will get certificate trust errors if the trust list does not currently have the correct CA certificates. See [Certificate Authorities for Hybrid Services, on page 78](#).
- Step 6** Click **Register**. After you're redirected to Control Hub, read the on-screen text to confirm that Webex identified the correct Expressway-C.
- Step 7** After you verify the information, click **Allow** to register the Expressway-C for Hybrid Services.

- Registration can take up to 5 minutes depending on the configuration of the Expressway and whether it's a first-time registration.
- After the Expressway-C registers successfully, the Hybrid Services window on the Expressway-C shows the connectors downloading and installing. The management connector automatically upgrades itself if there is a newer version available, and then installs any other connectors that you selected for the Expressway-C connector host.
- Each connector installs the interface pages that you need to configure and activate that connector.

This process can take a few minutes. When the connectors are installed, you can see new menu items on the **Applications > Hybrid Services** menu on your Expressway-C connector host.

Troubleshooting Tips

If registration fails and your on-premises environment proxies the outbound traffic, review the Before You Begin section of this procedure. If the registration process times out or fails (for example, you must fix certificate errors or enter proxy details), you can restart registration in Control Hub.

What to do next

Repeat the steps in this task to register the second Expressway connector host if applicable.

Link the Calendar Connector to Cisco TMS

Before you begin

The TMS must have a valid CA-signed server certificate installed. This integration does not support self-signed certificates.

Procedure

- Step 1** From the Expressway-C connector host, go to **Applications > Hybrid Services > Calendar Service > Cisco Conferencing Services Configuration**, and then click **New**.
- Step 2** Select **Type** as **TMS** under **Conferencing Services Type**.
- Step 3** Enter the username and password of the TMS administrator account that you want the calendar connector to use to connect to TMS.
- Note** Enter only the username, without the domain, in the username field.
- Step 4** Under **TMS Server Details**, enter the fully qualified domain name (FQDN) and domain in the respective fields.
- Note** Enter the NETBIOS domain name for the **TMS Domain Name** field.
- Step 5** Under **Telephony Invite Details**, enter the appropriate information for **Toll Identifier**, **Toll Number**, **Toll Free Identifier**, **Toll Free Number**, and **Global Call-in Numbers (URL)**.

- Step 6** Click **Save**.
TMS is listed under **Cisco Conferencing Services Configuration**.
- Step 7** Click **TMS** and click **Test Connection**.
The calendar connector tests the connection to the TMS environment. If the test returns an error message, correct any errors in the configuration and try the test again.
- Step 8** When you've confirmed the connection, go to **Applications > Hybrid Services > Connector Management** and click **Calendar Connector Service**.
- Step 9** Select **Enabled** from the **Active** drop-down list and click **Save**.
The calendar connector starts and the status changes to **Running**.
-

Add a meeting server to TMS

When you configure **@meet** to use the **TelePresence Management Suite** action, the TMS uses any bridge configured in the **Administrative Tools > Configuration > Conference Settings > Advanced**.

Procedure

To allow users to schedule meetings on a meeting server using the Hybrid Calendar integration with TMS, add the server using the steps in the meeting server section of the applicable [Cisco TelePresence Management Suite Administrator Guide](#).

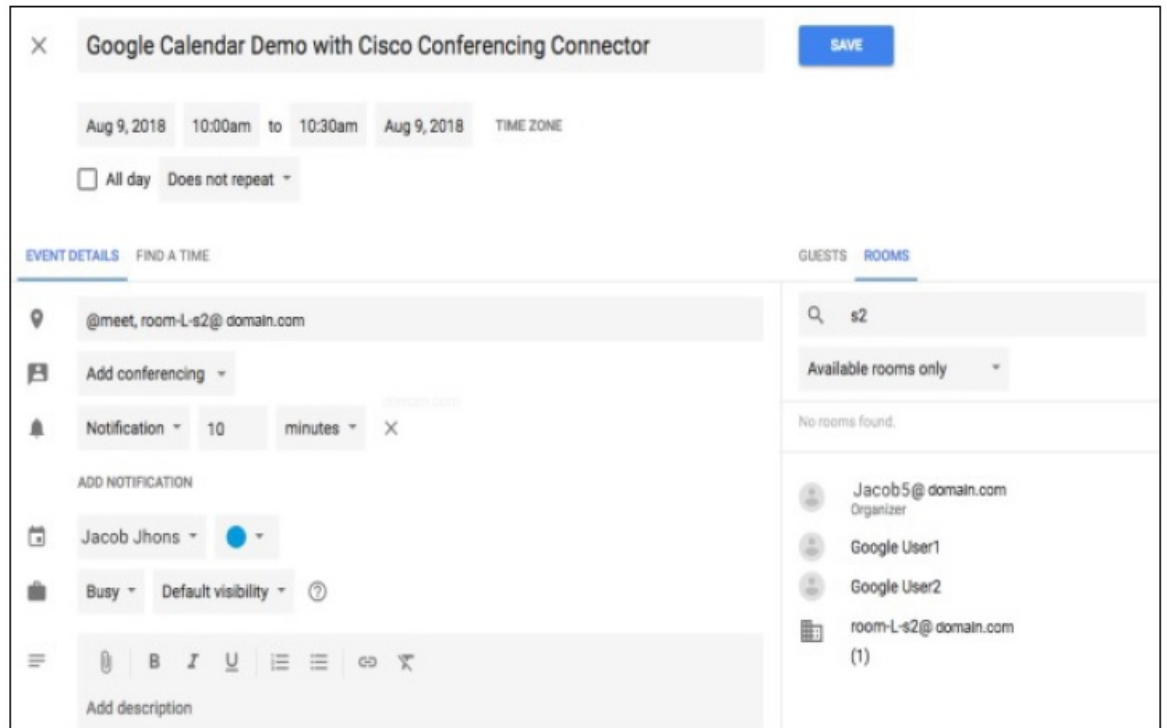
Test the Google Calendar and TMS integration

Use these steps to schedule a test meeting and verify the TMS integration.

Procedure

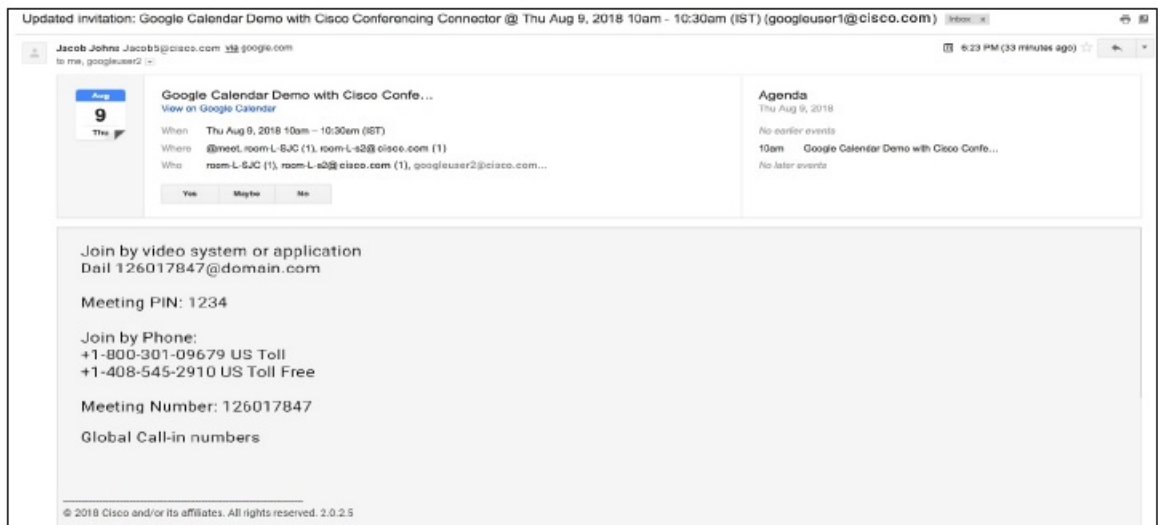
- Step 1** Test meeting scheduling with **@meet**:
- In a web browser, sign in to <https://calendar.google.com> with a Google Calendar user account that is enabled for Hybrid Calendar.
 - Double-click today's date to schedule the test meeting.
 - Enter an event title in the text box where **Add title** displays.
 - Enter **@meet** in the text box where **Add location** displays.

Note Enter only one keyword in this field. Grouping of keywords, for example **@meet @webex**, is not supported.

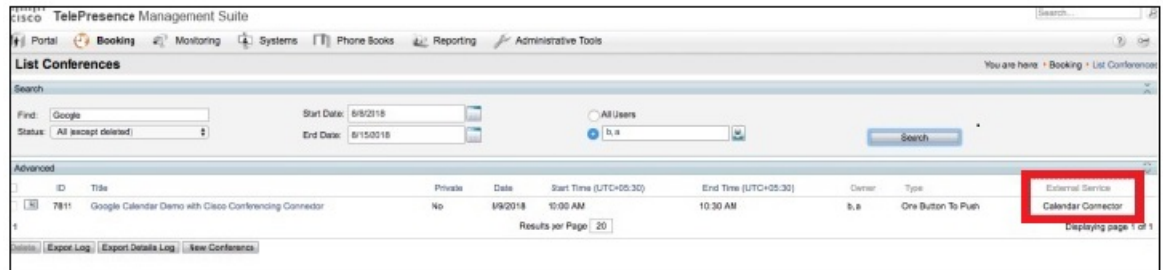


- e) In the **Guests** tab, invite users and add rooms (or other video devices) for OBTP.
- f) Send the invitation.

The Hybrid Calendar updates the meeting with the join details.



Step 2 In a web browser, sign in to TMS and go to **Booking > List Conferences**.



The test meeting and other meetings that are scheduled with @meet are listed in TMS with 'Calendar Connector' in the **External Service** column.

Note You cannot edit calendar connector meetings in TMS.

Notable behavior for the TMS integration with Google Calendar

This section lists limitations and notable behavior for the TMS integration with Google Calendar.

For currently open issues, see the "Cisco TMS Integration with Google Calendar" list in the Google Calendar (Cloud-Based Service) section of the [Known Issues with Hybrid Calendar](#).

- Editing a meeting series during an active instance of the series results in the following behavior:
 - TMS updates all instances other than the in-progress instance.
 - The currently active instance becomes an exception in TMS.

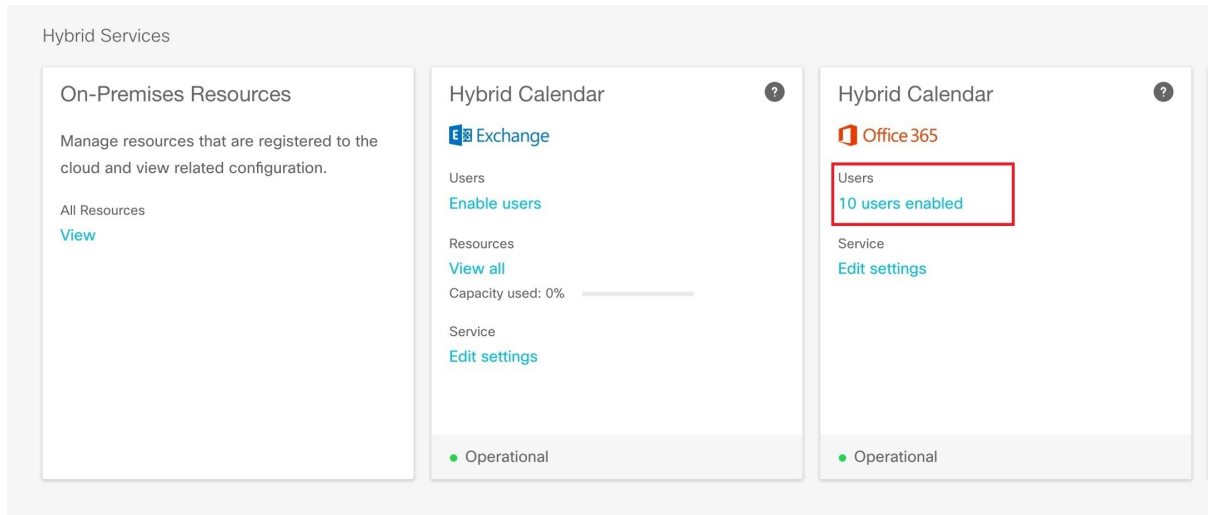
This is the expected behavior, but differs from the behavior of Google Calendar, which updates the active instance as well.

Troubleshoot the TMS integration

Use these tips to check the status of the various components of the TMS integration with the Hybrid Calendar.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** Verify the number of users who are enabled for the Hybrid Calendar.



Step 4 Check the status of the connectors in Control Hub.

- a) In the left-hand navigation pane, under **Services** click **Hybrid**, and then click **All Resources** from the on-premises resources card.
- b) From the resource card for the TMS integration, click the **Node** link below the resource FQDN or IP address.

< [demo-expressway.domain.com](#) [Nodes](#) [Settings](#)

Connectors	Status	Version	
ccg-qa-exp-c1.tmsxe0365.com		Platform Version: X8.11.1Alpha1 Serial: 07656963 Actions	
Management	● Running	8.10-1.0.321348	
Calendar	● Running	8.10-1.0.5263	

Step 5 Compare the status above to the status of the connectors on the Expressway connector host.

From Expressway, go to **Applications > Hybrid Services > Connector Management**.

Connector Management

Hybrid Services

This Expressway cluster is registered with the Cisco Collaboration Cloud.
[Cisco Collaboration Cloud certificate management](#) - you are currently allowing Cisco Collaboration Cloud to add required CA certificates to the Expressway trust list
<https://admin.webex.com> - view the status of your clusters and connectors

Connector management

Click a connector name below to view or modify the connector details.

Service	Status	Version	Active	Configuration
Management Connector	Running	8.10-1.0.321348	Enabled	
Calendar Connector	Running	8.10-1.0.5263	Enabled	Configure Microsoft Exchange Servers Configure Cisco Conferencing Services

Enable and collect calendar connector logs

Procedure

- Step 1** From a web browser, go to `https://<Expressway connector host name or IP address>/setaccess`.
- Step 2** In the **Access password** field, enter `qwertsys`.
- Step 3** Click **Enable access**.
A new top-level Experimental menu appears to the right of the existing menu items.
- Step 4** Navigate to **Experimental > Hybrid Services Log > Hybrid Services Log Levels**.
- Step 5** Select **'hybridservices.c_cal'** and click **'Set to debug'**.
- Step 6** To collect logs, navigate to **Experimental > Hybrid Services Log > Hybrid Services Log**.
-



PART **III**

Microsoft Exchange or Office 365 with Expressway calendar connector

- [Prepare your environment, on page 63](#)
- [Deploy Expressway calendar connector for Microsoft Exchange, on page 73](#)
- [Deploy Expressway calendar connector with Office 365, on page 89](#)



CHAPTER 7

Prepare your environment

- [Management connector, on page 63](#)
- [Calendar connector, on page 63](#)
- [Calendar connector or cloud-based for Office 365 Users, on page 64](#)
- [Requirements for Hybrid Calendar, on page 65](#)
- [Set Up an impersonation account for on-premises Microsoft Exchange, on page 65](#)
- [Set up an impersonation account for Office 365 , on page 67](#)
- [Complete the prerequisites for Hybrid Calendar, on page 68](#)
- [Complete the Expressway-C connector host prerequisites for Hybrid Services, on page 69](#)

Management connector

The management connector is included in the Expressway-C base. You use it to register an Expressway to the cloud and link the Expressway interface with Control Hub. The management connector plays an important role as the coordinator of all connectors running on the Expressway server or cluster: It provides you with a single point of control for connector activities. The management connector enables cloud-based management of the on-premises connectors, handles initial registration with the cloud, manages the connector software lifecycle, and provides status and alarms.

For an HTTPS connection to be established between the management connector and the cloud, you must update the trust list on the Expressway-C connector host with certificates that were signed by certificate authorities in use by the Webex cloud. You can allow the Webex cloud to upload CA certificates to the Expressway-C trust store. Or, in the case where security policies prevent the Webex cloud from uploading trusted certificate authority certificates on Expressway-C, you may upload them manually.

Calendar connector

The calendar connector is the on-premises component of the Hybrid Calendar. The connector runs on an Expressway-C host that you register to the Webex cloud.

The calendar connector acts like a broker between the cloud and your Microsoft Exchange (on-premises), Office 365 (cloud), or both (Hybrid Exchange deployment). The connector acts on behalf of users, similar to the way a client application would access a user's calendar information. The connector uses the impersonation role (which you can restrict to a subset of users) and uses Exchange Web Services to:

- Autodiscover where users are homed

- Listen for notifications on a user's calendar
- Retrieve information on a user's calendar items and Out-of-Office status
- Populate meeting invitations with details of Webex App spaces and Webex personal rooms.

The Hybrid Calendar is designed to minimize security concerns in a hybrid environment:

- The cloud cannot retrieve or access the Exchange credentials from the connector
- The cloud has no direct access to Exchange through the connector
- The connector does not access any user email or contacts
- The connector does not create search folders or other extra folders for the user
- The connector is not an Exchange Foreign connector
- The connector does not interact with the Exchange Hub transport server
- No AD schema extensions are required

In production Exchange, the calendar connector increases the CPU usage and load on the CAS and MBX servers. The impact on your Exchange environment depends on:

- Your Exchange deployment
- The number of configured users
- The number of meetings that the Hybrid Calendar updates per user per hour
- The size of calendars

We document a throttling policy designed to help manage the increased traffic.

Calendar connector or cloud-based for Office 365 Users

With the release of the cloud-based service for Office 365 users, you can now choose whether to deploy only the Expressway-based calendar connector, a combination of the calendar connector and the cloud-based service, or, if you have no Microsoft Exchange users, deploy only the cloud-based service.

The cloud-based service can scale beyond the 1000 user limit for Office 365 users and is simpler to deploy and maintain. It does not service Microsoft Exchange users. If you deploy it alongside the calendar connector, your Office 365 users automatically move to the cloud-based service (unless they are in resource groups).

The cloud-based service supports the TelePresence Management Suite (TMS) scheduling option. This integration allows the service to leverage your on-premises resource management and conference hosting environment for simplified meeting scheduling. The integration also extends the meeting join experience to a wide range of video devices. The cloud-based service links to the on-premises TMS by using the calendar connector. For this reason, you cannot deploy the TMS integration in the same organization with a calendar connector that is configured for Microsoft Exchange or Office 365.

Before you decide which service to deploy for your Office 365 users, read the [Prepare your environment, on page 1](#) chapter of the Office 365 with cloud-based Hybrid Calendar part of this guide, to understand the requirements for that option.

Requirements for Hybrid Calendar

Product	Release
Webex App	Hybrid Calendar is available with the offers documented in License Requirements for Webex Hybrid Services .
Expressway—download from software.cisco.com at no charge	We recommend the latest release of Expressway for connector host purposes. See Expressway Connector Host Support for Cisco Webex Hybrid Services for information about Expressway version support.
Microsoft Exchange	<ul style="list-style-type: none"> • 2013, 2016, 2019 • Microsoft 365
Webex Meetings—Use for @webex scheduling only; not required for scheduling meetings in Webex team spaces.	<p>Any supported Webex Meetings release</p> <p>You must enable the Personal Room feature for the Webex site and for the individual users.</p>

Each user's email address in the calendar system (Microsoft Exchange or Microsoft 365) must match their Webex App login address. To use @webex, the address should also match the user's Webex account address. If it does not, users must [associate their Webex Personal Room with Cisco Webex Teams in the app](#) in order to use @webex.

Each Webex App user can only have one email address associated with only one Hybrid Calendar integration. In other words, the Hybrid Calendar will only process meetings from a single address for creating spaces, decorating meetings, showing the meetings list and join button, and sending the **Join** button to video devices.

Set Up an impersonation account for on-premises Microsoft Exchange

The Microsoft Exchange impersonation account

([https://msdn.microsoft.com/en-us/library/office/dn722377\(v=exch.150\).aspx](https://msdn.microsoft.com/en-us/library/office/dn722377(v=exch.150).aspx)) is a key integration point for the Hybrid Calendar. The service uses the impersonation account for continuous authentication with Microsoft Active Directory domain controllers and Microsoft Exchange Client Access Servers.

To ensure that impersonation remains secure and continuously connected, we recommend an account maintenance strategy such as using two impersonation accounts. This can prevent exposure to password expiry, which could take the service offline. To periodically rotate between the accounts, you change the account in the Calendar Connector configuration. The example in the following table shows one possible account rotation scheme, though you may choose a different strategy to ensure security and connectivity based on your organization's requirements:

Date	Account A	Account B
	hybridcalendarA@example.com	hybridcalendarB@example.com
January 1	Set password	Set password

Date	Account A hybridcalendarA@example.com	Account B hybridcalendarB@example.com
January 8	Configure Calendar Connector with account A	—
March 1	—	Change password
March 8	—	Update Calendar Connector with account B
May 1	Change password	—
May 8	Update Calendar Connector with account A	—
July 1	—	Change password
July 8	—	Update Calendar Connector with account B
Repeat the password rotation and Calendar Connector update process with both accounts.		

Before you begin

- You must choose a mail-enabled account to use as the service account. (The account doesn't have to be an administrator, but it must have a mailbox.)
- Do not use an impersonation account that is used by other services such as Unity Connection, TMSXE, and so on.
- If you limited the set of users that are synchronized with Active Directory using LDAP filters, you may want to limit the impersonation by using a new or existing management scope in Exchange.
- For instructions and more detailed information from Microsoft on management scopes and impersonation, see the Microsoft Docs [ApplicationImpersonation role](#) article.

Procedure

Step 1 Sign in to a server on which Exchange Management Shell is installed. Sign in with one of the following accounts:

- An account that is a member of the Enterprise Admins group.
- An account that can grant permissions on Exchange objects in the configuration container.

Step 2 Run the following command in Exchange Management Shell:

```
new-ManagementRoleAssignment -Name:RoleName -Role:ApplicationImpersonation -User 'ServiceUserName'
```

where:

- **RoleName** is the name that you want to give the assignment, for example, **CalendarConnectorAcct**. The name that you enter for **RoleName** appears when you run **get-ManagementRoleAssignment**.
- **ServiceUserName** is the name of the account you selected, in domain\alias format.

Related Topics

[Exchange Impersonation Account](#), on page 112

Set up an impersonation account for Office 365

Give impersonation permissions to the service account that the Calendar Connector will use with Office 365.

Before you begin

- For a hybrid Exchange on-premises and Office 365 integration, you can use a simplified configuration with a single impersonation account if your deployment meets all of the following criteria:
 - You synchronize your on-premises Exchange accounts to the Office 365 cloud.
The impersonation account that you use must also be synchronized the Office 365 cloud, and the account's userPrincipalName must match one of its SMTP addresses.
 - You administer all users in the on-premises Active Directory, including users whose mailboxes have been migrated to the Office 365 cloud.
 - You synchronize passwords, or have a configured a federation so that users have a single password both on-premises and in the cloud.
 - Your Exchange is configured such that all autodiscovery requests reach the on-premises environment. (If a mailbox has been migrated, the response indicates the relocation and provides the cloud email address.)

In the simplified configuration, you use a single impersonation account to service all users. Because ApplicationImpersonation privileges that you assign on-premises do not automatically apply to mailboxes homed in the Office 365 cloud, you must still explicitly assign these privileges. To do so, follow this procedure and use the same service account that you used in [Set Up an impersonation account for on-premises Microsoft Exchange, on page 65](#). Later, you'll set up only one Microsoft Exchange configuration on the Expressway-C.

For a hybrid integration that does not meet these criteria, follow this procedure and use a different service account for impersonation than you used in [Set Up an impersonation account for on-premises Microsoft Exchange, on page 65](#). Later, you'll set up two Exchange configuration records on the Expressway-C: one for the Exchange on-premises integration, and one for the Office 365 integration.

- You must choose a mail-enabled account for this task. (The account doesn't have to be an administrator, but it must have a mailbox.)
- Do not use an impersonation account that is used by other services such as Unity Connection, TMSXE and so on.
- Ensure that the service account can authenticate with the authentication service or directory that is used in your deployment.

Procedure

- Step 1** Log in to the Office 365 Admin Center using the administrator account.
- Step 2** Under **Admin**, select **Exchange**.
- Step 3** Select **Permissions**.
- Step 4** Under **Admin Roles**, create a new role group and enter a descriptive name, such as **ImpersonationGroup**.
- Step 5** Under Roles, add a new role. Select **ApplicationImpersonation** role.
- Step 6** Add the role to the group, and then select **OK**.
- Step 7** Add the service account to be used for impersonation to the group.

Related Topics

[Exchange Impersonation Account](#), on page 112

Complete the prerequisites for Hybrid Calendar

Procedure

- Step 1** Allow time to configure the impersonation account. See [Exchange Impersonation Account](#) to understand the role of the account and for answers to common questions that are related to security.
- Step 2** Install or make sure you're running a supported calendar environment, as described in [Requirements for Hybrid Calendar, on page 65](#).
- Step 3** Ensure that users are listed in Active Directory and have a discoverable mailbox in the organization's Exchange server.
- Step 4** (Optional) Download the latest Directory Connector software from Control Hub (<https://admin.webex.com>) and use it to import user attributes from your Active Directory. For more information about how to use Directory Connector, see the [Deployment Guide for Cisco Directory Connector](#).
- Step 5** Provide the following port access:
 - Port access for HTTPS or secure web sockets outbound from Expressway to *.ciscopark.com, *.rackcdn.com, *.wbx2.com, *.webex.com, and *.webexcontent.com: TCP port 443 (secure)
 - Port access for EWS outbound from Expressway to Exchange: TCP port 443 (secure) or TCP port 80 (nonsecure)
 - Port access for LDAP outbound from Expressway to Active Directory: TCP port 636 (secure) or TCP port 389 (nonsecure)
 - Port access for Microsoft Global Catalog search: TCP port 3269 (for Global Catalog search secured by SSL) or TCP port 3268 (for unsecured Global Catalog search).
- Step 6** For @webex functionality, configure or use a Webex Meetings site. You must [enable the Personal Room feature for the site and for the individual users](#).
- Step 7** To make One Button to Push (OBTP) available for Unified CM-registered endpoints managed by TMS:
 - Set up TMS 15.0 and TMSXE 5.0 or higher with Microsoft Exchange integration. See the [Cisco Collaboration Meeting Rooms \(CMR\) Hybrid Configuration Guide \(TMS 15.0 - WebEx Meeting Center WBS30\)](#). TMS and XE require no additional configuration to support Hybrid Calendar.

- To make conference rooms schedulable in Microsoft Outlook/Exchange, configure them in XE as if you were using on-premises conferencing. To configure rooms in Exchange, use the [Cisco TelePresence Management Suite Extension for Microsoft Exchange Administration Guide](#).
- Understand the licensing requirements:
 - TMS and XE Licensing is the same as if using on-premises resources. You require enough licenses to cover the number of endpoints that will use OBTP. A TMS license is needed to manage the endpoint and to push the speed dial button on the touchpad at the time of the scheduled conference. A TMS-XE license is needed for the endpoint to be scheduled in Exchange.
- For Unified CM-registered endpoints, OBTP works with Hybrid Calendar and Productivity Tools plugin for meeting invitations:
 - Hybrid Calendar (scheduling keywords or supported video address) populates the user attribute "TMS:ExternalConferenceData" with the SIP URI for TMS to set the OBTP dial string.
 - Productivity Tools plugin populates the attribute "UCCapabilities" attribute with the SIP URI for TMS to set the OBTP dial string.
- If you plan to deploy a hybrid Exchange environment with Office 365, you must enable TNEF for remote domains in Exchange Online. Having TNEF disabled causes Exchange Online to strip the TMS:ExternalConferenceData and UCCapabilities attributes, breaking OBTP for Unified CM-registered endpoints. For more information on TNEF, see <https://docs.microsoft.com/en-us/exchange/mail-flow/content-conversion/tnef-conversion>.

If you have on-premises conferencing, you can add OBTP with Webex Meetings and run both at same time. We support OBTP functionality only; auto connect is not available.

Complete the Expressway-C connector host prerequisites for Hybrid Services

Use this checklist to prepare an Expressway-C for Hybrid Services, before you register it to the Webex cloud to host hybrid services connector software.

Before you begin

We recommend that the Expressway-C be dedicated to hosting connectors for Hybrid Services. You can use the Expressway-C connector host for other purposes, but that can change the supported number of users.

See [User Capacity Limits for Expressway-based Hybrid Services](#) so that you can plan your deployment accordingly.



Note As an administrator of hybrid services, you retain control over the software running on your on-premises equipment. You are responsible for all necessary security measures to protect your servers from physical and electronic attacks.

Procedure

- Step 1** Obtain full organization administrator rights before you register any Expressways, and use these credentials when you access the customer view in Control Hub (<https://admin.webex.com>).
- Step 2** Plan your connector capacity by referring to [User Capacity Limits for Expressway-based Hybrid Services](#).
- Step 3** Deploy the Expressway-C connector host in a cluster to account for redundancy. Follow the supported Expressway scalability recommendations:

- For Hybrid Calendar (Exchange or Office 365) on a dedicated Expressway-C:
 - calendar connector can be hosted on multiple Expressway-C clusters of up to 6 nodes each.
 - calendar connector can under-provision users. If a single node fails, the system has extra capacity for all users to fail over to the working node. If one of the nodes fails in the cluster, the discovery and assignment services move users to the working node in approximately 30 seconds.
 - The service catches up on any missed notifications if there is an outage.

Hybrid Calendar is highly available if Exchange and Expressways are deployed in a cluster. The same guidelines apply for the Expressway-C connector host clustering. For more information, see [User Capacity Limits for Expressway-Based Hybrid Services](#).

- Step 4** Follow these requirements for the Expressway-C connector host.
- Install the minimum supported Expressway software version. See the [version support statement](#) for more information.
 - Install the virtual Expressway OVA file according to the *Cisco Expressway Virtual Machine Installation Guide*, after which you can access the user interface by browsing to its IP address. You can find the document in [the list of Cisco Expressway Install and Upgrade Guides on cisco.com](#).
- Note** The serial number of a virtual Expressway is based on the virtual machine's MAC address. The serial number is used to validate Expressway licenses and to identify Expressways that are registered to the Webex cloud. **Do not change the MAC address of the Expressway virtual machine when using VMware tools, or you risk losing service.**
- You do not require a release key, or an Expressway series key, to use the virtual Expressway-C for Hybrid Services. You may see an alarm about the release key. You can acknowledge it to remove it from the interface.
 - Use the Expressway web interface in a supported browser. (See the [Cisco Expressway Administrator Guide](#).) The interface may or may not work in unsupported browsers. You must enable JavaScript and cookies to use the Expressway web interface.

- Step 5** If this is your first time running Expressway, you get a first-time setup wizard to help you configure it for Hybrid Services.

Select **Webex Hybrid Services**. This ensures that you will not require a release key.

- Step 6** Check that the following requirements are met for the Expressway-C connector host. You would normally do this during installation. See the *Cisco Expressway Basic Configuration Deployment Guide*, in [the list of Cisco Expressway Configuration Guides on cisco.com](#), for details.

- Basic IP configuration (**System > Network interfaces > IP**)
- System name (**System > Administration settings**)

- DNS settings (**System > DNS**)
- NTP settings (**System > Time**)
- New password for admin account (**Users > Administrator accounts**, click **Admin** user then **Change password** link)
- New password for root account (Log on to CLI as root and run the `passwd` command)

Note Expressway-C connector hosts do not support dual NIC deployments.

Step 7 Configure the Expressway-C as a "cluster of one":

- We recommend that you configure the Expressway as a primary peer before you register it, even if you do not currently intend to install an extra peer.

Caution When you change clustering settings on X8.11 and later, be aware that removing all peer addresses from the **System > Clustering** page signals to the Expressway that you want to remove it from the cluster. **This causes the Expressway to factory reset itself on its next restart.** If you want to remove all peers but keep configuration on the remaining Expressway, leave its address on the clustering page and make it the primary in a "cluster of one".

- Here are the minimum clustering settings required, but the [Cisco Expressway Cluster Creation and Maintenance Deployment Guide](#) has more detail:

- Enable H.323 protocol. On **Configuration > Protocols > H.323** page, set **H.323 Mode** to On.

H.323 mode is required for clustering, even if the Expressway does not process H.323 calls.

Note You may not see the **H.323** menu item if you used the Service Select wizard to configure the Expressway for Hybrid Services. You can work around this problem by signing in to the Expressway console and issuing the command `xconfig H323 Mode: "On"`.

- **System > Clustering > Cluster name** should be an FQDN.

Typically this FQDN is mapped by an SRV record in DNS that resolves to A/AAAA records for the cluster peers.

- **System > Clustering > Configuration primary** should be 1.

- **System > Clustering > TLS verification mode** should be Permissive, at least until you add a second peer.

Select Enforce if you want cluster peers to validate each others' certificates before allowing intercluster communications.

- **System > Clustering > Cluster IP version** should match the type of IP address of this Expressway-C.

- **System > Clustering > Peer 1 address** should be the IP address or FQDN of this Expressway

Each peer FQDN must match that Expressway's certificate if you are enforcing TLS verification.

Caution To ensure a successful registration to the cloud, use only lowercase characters in the hostname that you set for the Expressway-C. Capitalization is not supported at this time.

Step 8 If you have not already done so, open required ports on your firewall.

- All traffic between Expressway-C and the Webex cloud is HTTPS or secure web sockets.

- TCP port 443 must be open outbound from the Expressway-C. See <https://collaborationhelp.cisco.com/article/WBX000028782> for details of the cloud domains that are requested by the Expressway-C.

Step 9

Get the details of your HTTP proxy (address, port) if your organization uses one to access the internet. You'll also need a username and password for the proxy if it requires basic authentication. The Expressway cannot use other methods to authenticate with the proxy.

- We tested and verified Squid 3.1.19 on Ubuntu 12.04.5.
- We have not tested auth-based proxies.

Note If your organization uses a TLS proxy, the Expressway-C must trust the TLS proxy. The proxy's CA root certificate must be in the trust store of the Expressway. You can check if you need to add it at **Maintenance > Security > Trusted CA certificate**.

Note The details of the proxy, as configured on the primary Expressway in the connector host cluster, are shared throughout the Expressway cluster. You cannot configure different proxies for different nodes in the cluster.

Step 10

Review these points about certificate trust. You can choose the type of secure connection when you begin the main setup steps.

- Hybrid Services requires a secure connection between Expressway-C and Webex.

You can let Webex manage the root CA certificates for you. However, if you choose to manage them yourself, be aware of certificate authorities and trust chains; you must also be authorized to make changes to the Expressway-C trust list.

- Access to the Expressway CA trust list may also be required if you want to secure the connections between Expressway-C and Microsoft Exchange, or between Expressway-C and Microsoft® Active Directory®, when configuring the calendar connector.
-



CHAPTER 8

Deploy Expressway calendar connector for Microsoft Exchange

- [Hybrid Calendar with Exchange deployment task flow](#), on page 73
- [Configure a throttling policy for impersonation account](#), on page 75
- [Register Expressway-C connector hosts to Cloud](#), on page 76
- [Append the Exchange CA certificate to the Expressway trusted CA list](#), on page 78
- [Link the calendar connector to Microsoft Exchange](#), on page 79
- [Configure the Calendar Connector's Webex site settings](#), on page 81
- [Choose how Hybrid Calendar localizes meeting join details](#), on page 82
- [Configure @webex and @meet keywords](#), on page 83
- [Customize email templates](#), on page 83
- [Start the calendar connector](#), on page 85
- [Enable Hybrid Calendar for users](#), on page 86
- [Add Hybrid Calendar to workspaces with Webex room, desk, and board devices](#), on page 86
- [Associate user's Personal Rooms with Webex](#), on page 87
- [Test join button with room devices](#), on page 87

Hybrid Calendar with Exchange deployment task flow

To deploy Hybrid Calendar with your Microsoft Exchange environment, perform the following tasks.

Before you begin

[Prepare your environment](#), on page 63

Procedure

	Command or Action	Purpose
Step 1	Configure a throttling policy for impersonation account , on page 75	A custom throttling policy helps the calendar connector work smoothly.
Step 2	Register Expressway-C connector hosts to Cloud , on page 90	Add the Hybrid Calendar to your organization and connect your Expressway to the Webex cloud. This creates a resource in

	Command or Action	Purpose
		https://admin.webex.com and downloads connector software on to the Expressway.
Step 3	(Optional) Append the Exchange CA certificate to the Expressway trusted CA list, on page 78	If you want Microsoft Exchange Web Services (EWS) traffic to be encrypted, make sure the Expressway trust list contains the certificate of the CA that signed the Exchange Server certificate.
Step 4	Link the calendar connector to Microsoft Exchange, on page 79	Configure Exchange Servers for the calendar connector.
Step 5	(Optional) Configure the Calendar Connector's Webex site settings, on page 81	If you have a Webex Meetings site, configure the @Webex functionality.
Step 6	(Optional) Choose how Hybrid Calendar localizes meeting join details, on page 82	To override how the calendar connector localizes meeting join details for your entire organization, set the Default Language setting in https://admin.webex.com .
Step 7	(Optional) Configure @webex and @meet keywords, on page 83	To change the action that the calendar connector takes when users enter @webex or @meet, set the Keywords settings in https://admin.webex.com .
Step 8	(Optional) Customize email templates, on page 83	Choose what the Hybrid Calendar adds to meeting invitations, including audio or video join details and a localized header and footer in any language that the service supports.
Step 9	Start the calendar connector, on page 85	
Step 10	Enable Hybrid Calendar for users, on page 86	
Step 11	(Optional) Add Hybrid Calendar to workspaces with Webex room, desk, and board devices, on page 86	If you want One Button to Push (OBTP) functionality to be provided to room and desk devices and Webex Boards that are registered to the Webex cloud, toggle on the calendar service for the device, and configure the room mailbox email address.
Step 12	(Optional) Associate user's Personal Rooms with Webex, on page 87	For OBTP on Webex room and desk devices and Webex Boards, make sure that meeting schedulers have their Webex Personal Rooms associated with their Webex App accounts.
Step 13	Test join button with room devices, on page 87	If you configured OBTP in the previous steps, test it with a device.

Configure a throttling policy for impersonation account

A custom throttling policy helps the calendar connector work smoothly:

- The custom policy removes EWS limits from the impersonation account, to avoid issues such as maxconcurrency.
- The custom policy is tailored for an enterprise application. (The default policy is tailored for user load.)

Before you begin

[Set Up an impersonation account for on-premises Microsoft Exchange, on page 65](#)

This procedure is not required for Office 365.

Procedure

- Step 1** In Exchange Management Shell, create the policy.
- ```
New-ThrottlingPolicy -Name "CalendarConnectorPolicy" -EWSMaxConcurrency unlimited
-EWSMaxBurst unlimited -EWSRechargeRate unlimited -EWSCutOffBalance unlimited
-EWSMaxSubscriptions 5000
```
- Step 2** If the impersonation account does not have a mailbox, run the following command:
- ```
Enable-Mailbox "impersonation account" -Database "database name"
```
- Step 3** Apply the new policy to the impersonation account:
- ```
Set-ThrottlingPolicyAssociation -Identity "impersonation account" -ThrottlingPolicy
"CalendarConnectorPolicy"
```
- where
- **"impersonation account"** is the name of the impersonation account you're using as the service account for the calendar connector.
  - **CalendarConnectorPolicy** is the name of the policy that you created in Step 2.
- Step 4** Confirm that the mailbox is using the new policy:
- ```
Get-ThrottlingPolicyAssociation -Identity "impersonation account" | findstr  
"ThrottlingPolicy"
```
-

What to do next

[Register Expressway-C connector hosts to Cloud, on page 76](#)

Register Expressway-C connector hosts to Cloud

Hybrid Services use software connectors hosted on Expressway-C to securely connect Webex to your organization's environment. Use this procedure to register Expressway-C resources to the cloud.

After you complete the registration steps, the connector software is automatically deployed on your on-premises Expressway-C.

Before you begin

- Make sure your Expressway-C is running on a version that's supported for hybrid services. See the *Supported Versions of Expressway for Cisco Webex Hybrid Services Connectors* documentation (<https://help.webex.com/article/ruyceab>) for more information about which versions are supported for new and existing registrations to the cloud.
- Sign out of any open connections to the Expressway-C interface that are open in other browser tabs.
- If your on-premises environment proxies the outbound traffic, you must first enter the details of the proxy server on **Applications > Hybrid Services > Connector Proxy** before you complete this procedure. Doing so is necessary for successful registration.

Procedure

Step 1 Sign in to the customer view of <https://admin.webex.com/login>.

Step 2 In the left-hand navigation pane, under **Services** click **Hybrid** and then choose one:

- If this is the first connector host you're registering, click **Set up** on the card for the hybrid service you're deploying, and then click **Next**.
- If you've already registered one or more connector hosts, click **View all** on the card for the hybrid service you're deploying, and then click **Add Resource**.

The Webex cloud rejects any attempt at registration from the Expressway web interface. You must first register your Expressway through Control Hub, because the Control Hub needs to hand out a token to the Expressway to establish trust between premises and cloud, and complete the secure registration.

Step 3 Choose a method to register the Expressway-C:

- **New Expressways**—choose **Register a new Expressway with its Fully Qualified Domain Name (FQDN)**, enter your Expressway-C IP address or fully qualified domain name (FQDN) so that Webex creates a record of that Expressway-C and establishes trust, and then click **Next**. You can also enter a display name to identify the resource in Control Hub.

Caution To ensure a successful registration to the cloud, use only lowercase characters in the hostname that you set for the Expressway-C. Capitalization is not supported at this time.
- **Existing Expressways**—choose **Select an existing Expressway cluster to add resources to this service**, and then choose the node or cluster from the drop-down that you previously registered. You can use it to run more than one hybrid service.

Tip If you're registering a cluster, register the primary peer. You don't need to register any other peers, because they register automatically when the primary registers. If you start with one node set up as a primary, subsequent additions do not require a system reboot.

Step 4 Click **Next**, and for new registrations, click the link to open your Expressway-C. You can then sign in to load the **Connector Management** window.

Step 5 Decide how you want to update the Expressway-C trust list:

A check box on the welcome page determines whether you will manually append the required CA certificates to the Expressway-C trust list, or whether you allow Webex to add those certificates for you.

Choose one of the following options:

- Check the box if you want Webex to add the required CA certificates to the Expressway-C trust list.

When you register, the root certificates for the authorities that signed the Webex cloud certificates are installed automatically on the Expressway-C. This means that the Expressway-C should automatically trust the certificates and be able to set up the secure connection.

Note If you change your mind, you can use the **Connector Management** window to remove the Webex cloud CA root certificates and manually install root certificates.

- Uncheck the box if you want to manually update the Expressway-C trust list. See the Expressway-C online help for the procedure.

Caution When you register, you will get certificate trust errors if the trust list does not currently have the correct CA certificates. See [Certificate Authorities for Hybrid Services, on page 78](#).

Step 6 Click **Register**. After you're redirected to Control Hub, read the on-screen text to confirm that Webex identified the correct Expressway-C.

Step 7 After you verify the information, click **Allow** to register the Expressway-C for Hybrid Services.

- Registration can take up to 5 minutes depending on the configuration of the Expressway and whether it's a first-time registration.
- After the Expressway-C registers successfully, the Hybrid Services window on the Expressway-C shows the connectors downloading and installing. The management connector automatically upgrades itself if there is a newer version available, and then installs any other connectors that you selected for the Expressway-C connector host.
- Each connector installs the interface pages that you need to configure and activate that connector.

This process can take a few minutes. When the connectors are installed, you can see new menu items on the **Applications > Hybrid Services** menu on your Expressway-C connector host.

Troubleshooting Tips

If registration fails and your on-premises environment proxies the outbound traffic, review the Before You Begin section of this procedure. If the registration process times out or fails (for example, you must fix certificate errors or enter proxy details), you can restart registration in Control Hub.

Append the Exchange CA certificate to the Expressway trusted CA list

If you want to verify the certificates presented by the Exchange Server, then the Expressway trust list must contain the certificate of the CA that signed the Exchange Server certificate. The CA certificate may already be in the trust list; use this procedure on each Expressway cluster to check the list and append the certificate if necessary.

If you're using a custom domain, make sure that you add the CA certificate for the domain certificate issuer to the Expressways.

Before you begin

You must import certificates to each Expressway-C.

Procedure

-
- Step 1** On the Expressway-C connector host, go to **Maintenance > Security certificates > Trusted CA certificate**.
- Step 2** Review the CA certificates in the trust list to check if the correct CA certificate is already trusted.
- Step 3** To append any new CA certificates:
- Click **Browse** (or the equivalent in your browser) to locate and select the PEM file.
 - Click **Append CA certificate**.
- The newly appended CA certificate appears in the list of CA certificates.
- Step 4** To replace an existing CA certificate with an updated one, for a particular issuer and subject:
- Check the check box next to the Issuer details.
 - Click **Delete**.
 - Append the replacement certificate as described above.
-

Certificate Authorities for Hybrid Services

The table lists the Certificate Authorities that your on-premises or existing environment must trust when using Hybrid Services.

If you opted to have Webex manage the required certificates, then you do not need to manually append CA certificates to the Expressway-C trust list.



Note The issuers used to sign the Webex host certificates may change in future, and the table below may then be inaccurate. If you are manually managing the CA certificates, you must append the CA certificates of the issuing authorities that signed the currently valid certificates for the hosts listed below (and remove expired/revoked CA certificates).

Cloud hosts signed by this CA	Issuing CA	Must be trusted by	For this purpose
CDN	O=Baltimore, OU=CyberTrust, CN=Baltimore CyberTrust Root	Expressway-C	To ensure Expressway downloads connectors from a trusted host
Common identity service	O=VeriSign, Inc., OU=Class 3 Public Primary Certification Authority	Windows Server 2003 or Windows Server 2008 hosting the Cisco directory connector Expressway-C	To synchronize users from your Active Directory with Webex and to authenticate Hybrid Services users
Webex App	O=The Go Daddy Group, Inc., OU=Go Daddy Class 2 Certification Authority	Expressway-C	

Related Topics

[Supported Certificate Authorities for Cisco Webex](#)

Link the calendar connector to Microsoft Exchange

The calendar connector installs automatically after you register your Expressway connector host for Hybrid Services. The connector does not start automatically, and requires some configuration to link to your calendar environment.

Procedure

Step 1 From the Expressway connector host, go to **Applications > Hybrid Services > Calendar Service > Microsoft Exchange Configuration**, and then click **New**.

Note Make sure you choose **Microsoft Exchange Configuration**, not **Cisco Conferencing Services Configuration**. You cannot configure the Calendar Connector for Microsoft Exchange or Office 365 in the same organization with the conferencing services (integration with Cisco TelePresence Management Suite).

Step 2 Enter the credentials of the service account that you want the calendar connector to use to connect to Exchange.

The service account queries calendars on behalf of your users, using the impersonation role. You can use these formats:

- **username@domain.com**—The userPrincipalName. Typically, this value matches the user's primary email address, but the properties are separate. userPrincipalName consists of the User Logon Name (not always the same as sAMAccountName) and the UPN suffix, which is based on the Active Directory domain (not always the same as the NetBIOS domain).

Note Use this format whenever possible.

If you used the simplified configuration with a single impersonation account to prepare a hybrid Exchange on-premises and Office 365 integration, you **must** use this format. Also, make sure that the impersonation account that you use is synchronized to the Office 365 cloud, and that its userPrincipalName matches one of the account's SMTP addresses.

- **DOMAIN\username**—DOMAIN is the NetBIOS domain (the pre-Windows 2000 domain); "username" is the sAMAccountName (the legacy username or pre-Windows 2000 username).

If you're unsure about what to use for these formats, use [Active Directory Users and Computers](#) on a Windows machine to view the Account tab of the Properties pane for the user in question. The correct values to use are displayed as:

- User logon name for the first format.
- User logon name (pre-Windows 2000) for the second format.

Step 3 Enter a unique **Display Name** for this Exchange Server.

Step 4 For the **Type**, select **Exchange On-Premises** for Exchange 2013, 2016, or 2019. (Select this type even if you are preparing a hybrid Exchange on-premises and Office 365 integration.)

Step 5 For **Need Proxy for Connection?**, select **Yes** if https access goes through a web proxy to your Exchange environment.

Step 6 For **Enable this Exchange server?**, select **Yes**.

You can select **No** for debugging purposes, but users will not be subscribed to this Exchange.

Step 7 Check a value for the **Authentication Type**:

- For added security, we recommend **NTLM** for on-premises Exchange servers.
- For Hybrid Exchange (on-premises and Office 365) deployments, check both **NTLM** and **Basic** authentication types. If one method fails, then the other method is used.

Step 8 Leave **TLS Verify Mode** as the default value (**On**) so that this Expressway-C verifies the certificate that the Exchange Server presents.

You may need to update the trust stores on both servers to ensure that each one trusts the CA that signed the other's certificate.

Step 9 Under **Discovery**, select **Use Autodiscover** to enable autodiscovery. The calendar connector queries to find one or more Exchange servers.

Note You **must** use autodiscovery for deployments of Microsoft Exchange 2013 and later.

Use **Provide Exchange Address directly** only for troubleshooting or testing purposes. This option does not use autodiscovery. If you select it, enter the IPv4 address, IPv6, or FQDN of the Exchange server.

Step 10 Configure the extra fields that are related to autodiscovery.

a) Choose whether to **Enable SCP record lookup**.

If you set this field to **Yes**, the first autodiscover step that the calendar connector takes is an Active Directory Service Connection Point (SCP) record lookup to get a list of autodiscover URLs. The calendar connector uses the **Active Directory domain**, **Active Directory site**, **Query mode**, and **LDAP TLS Verify Mode** and fields only if you enable this step. These fields provide the information necessary to

find and query an LDAP server in Active Directory. Even if this step fails, autodiscovery may succeed at a later step.

- b) Enter the **Active Directory domain** to query for the SCP record.
- c) (Optional) Enter the **Active Directory site** that is geographically closest to the calendar connector, to optimize the query response time.
- d) Select a **Query mode** to control which directory access protocol that calendar connector uses to query Active Directory.

If you select **ldaps** (secure LDAP), the Domain Controller must authenticate itself by presenting a server certificate to this Expressway-C.

- e) Enable **LDAP TLS Verify Mode** if you want the Expressway-C to validate the certificate that the Domain Controller presents. This option checks the server name against the CN or SANs in the received certificate, and also checks that the issuing authority is in the local trusted CA list.
- f) Enter an **Email Address** so that calendar connector can test the autodiscover process (other than SCP record lookup, which uses the **Active Directory domain** instead).

Use the email address of a user that you will enable for the Hybrid Calendar Service, as it appears in Control Hub.

If the test fails, then your settings are not saved. If you omit the email address, then your settings are saved without verifying the autodiscover process (other than SCP record lookup, if enabled).

- g) (Optional) To manually configure any Autodiscover redirect URLs that the Calendar Connector should trust, click **Configure Trust List**.

Once you click **Add**, the Calendar Connector automatically populates any missing Autodiscover redirect URLs that it finds while contacting the Autodiscover service. URLs from unauthenticated sources are placed in pending state, and blocked unless you choose to allow them. If you skip this step now, you can still manually add URLs later, or explicitly accept or deny the pending URLs.

Step 11 Click **Add** to store the Exchange Server configuration on the Expressway connector host.

The calendar connector tests the connection to the Exchange environment, and notifies you if there are pending Autodiscover redirect URLs to review.

Step 12 (Optional) If your organization has multiple user email domains, we recommend that you test the autodiscover configuration with a user address from each email domain to ensure that the process works for all of them. To test another address, change the value of the **Email Address** field to a different address, and then click **Save**.

What to do next

[Configure the Calendar Connector's Webex site settings, on page 81](#)

Configure the Calendar Connector's Webex site settings

After you configure the Exchange settings, configure the details for your Webex Meetings sites. If you have more than one Webex site, do these steps for each site, and set the default to the site with the most users. Users who are not on the default site, or who want to use a different site, must [set up their Personal Room in the Webex app](#).

Before you begin

- For the @webex functionality to work for users, verify the following:
 - You have at least one Webex Meetings site, with the [Personal Room feature enabled for the site and for the individual users](#).
 - The email address in each user's Webex account matches the user's Exchange email address and Webex App login address. If it does not, users must [set up their Personal Room in the Webex app](#).
- Gather the Webex user account email address of a valid user on your site. The calendar connector uses this account to access the Webex Personal Room details for users who schedule meetings with @webex.

Procedure

Step 1 From the Expressway-C connector host, go to **Applications > Hybrid Services > Calendar Service > Cisco Conferencing Services Configuration**, and then click **New**.

Step 2 Select **Type** as **Webex** under **Conferencing Services Type**.

Step 3 Enter the **Fully Qualified Site Name** for this Webex Meetings site.

Example:

If your site is accessed as example-co.webex.com, you'd enter example-co.webex.com.

Step 4 Enter a valid Webex user account email address, leave the password field blank, and then click **Test Connection** to validate the site information that you entered. If testing the connection fails, you can save the configuration with both the user name and password fields blank.

Step 5 Indicate whether or not this site is the default.

The default site is used for @webex unless the user has a different site configured in their My Personal Room setting in the Webex App app (either because the user's [Webex site has been linked to Control Hub by an administrator](#), or because the user [configured the setting](#) with a different site).

Step 6 Click **Save** to save the configuration.

Choose how Hybrid Calendar localizes meeting join details

In Control Hub, the Default Language setting controls the language of the join details that the Hybrid Calendar adds to invitations. If you leave the setting at its default, the service uses the language from the **item.Culture** property of each meeting invitation. (Typically, the scheduler's operating system controls the value of **item.Culture**.)

To override choosing languages on a meeting-by-meeting basis from **item.Culture**, choose a specific language to use for join details for all meetings across your organization.

Procedure

Step 1 Sign in to the customer view of <https://admin.webex.com/login>.

- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** From the Hybrid Calendar card for Exchange, click **Edit settings**.
- Step 4** In the **Meeting Invitations** section, choose a language from the **Default Language** drop-down list, and click **Save**.
- After you save the change, the Hybrid Calendar uses the language you choose each time it adds join to details a meeting. It doesn't change the language for existing join details.
-

Configure @webex and @meet keywords

By default, when users add @webex to a meeting location, the calendar service updates the meeting with their Webex Personal Room details. When users add @meet, by default the service updates the meeting with Webex App space details. As an administrator, you can change these default actions for either keyword.

Regardless of how you set these actions, power users can add the modifier **:space**, **:myroom** or **:onetime** to specify the action for either keyword. For example, adding @webex:space causes the service to update the meeting with Webex App space details. As well, @webex:onetime creates a one-time Webex meeting.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** From the Hybrid Calendar card for your calendar environment, click **Edit settings**.
- Note** If you have the Hybrid Calendar set up for multiple calendar environments, you can access the keywords settings from multiple pages in Control Hub, but the values that you set apply to all environments.

The Hybrid Calendar (Microsoft 365) displays a list of tenants included in this organization.

- Step 4** Select the tenant to configure.
- Step 5** Click the **Settings** tab.
- Step 6** In the **Keywords** section, select the default action that you want for each keyword.
- Step 7** Click **Save**.
-

Customize email templates

Choose which meeting join details Hybrid Calendar includes in meeting invitations.

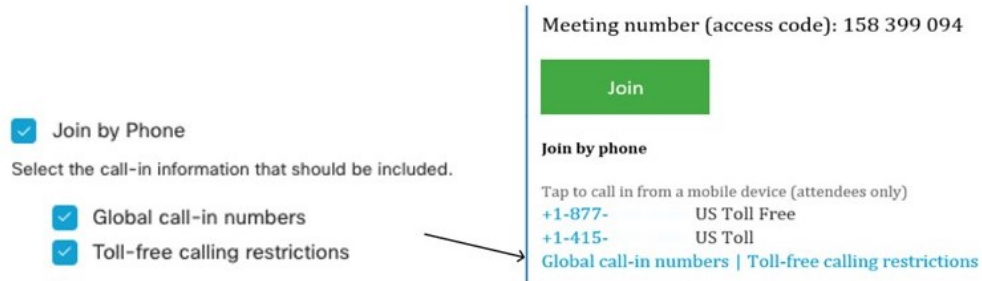
Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Meeting**.

Step 3 Locate the **Customize Meeting Join Details** section.

Step 4 Choose whether to show **Join by Phone** details.

When you include the dial-in details, you can also choose to add a link to global call-in numbers, a link to toll-free calling restrictions, or both.



Step 5 Show or hide details on joining from an application or video conferencing device.

When you include the video dialing details, you can also choose to include an IVR IP address, a Skype for Business join link, or both.



Step 6 Click **Add a Language** and then select the language from the drop-down menu to create a custom header and footer for any of the languages that the Hybrid Calendar supports. When you've got the header and footer text that you want, click **Save**.

The header and footer values have a maximum of 1024 characters each (including spaces).

Localized header and footer

To edit the header and footer in each language, select the language in the drop-down, edit the header & footer for that language in the textboxes, and then click save.


German ^

Header Text 0/1024

Enter header text here (1024 characters, plain text only, no HTML/scripts)

Footer Text 73/1024

Seien Sie gewarnt, dass die Aufzeichnung vom Veranstalter aktiviert wird.

 Cancel Save

English (United States) ^

French ^

Add a Language


Use this language if nothing is defined for its header and footer.

French ^

FL o First1010 Last 1010 <usr_1010@calfusiontest.onmicrosoft.com>

Required: o

Today at 11:31 AM

 Wednesday, December 16, 2020 at 2:00 PM - 3:00 PM.

@webex

✓ Accept ? Tentative ✗ Decline 🕒 Propose New Time

Please respond.

- Do not delete or change any of the following text. -

Join meeting in my Webex Personal Room

Meeting number (access code): 171 610 652 3

Join

Join by phone

Tap to call in from a mobile device (attendees only)

14085452910 US Toll

[Global call-in numbers](#)

Join from a video conferencing system or application

Dial [usr_1010@sqdemo43.dmz.webex.com](tel:usr_1010@sqdemo43.dmz.webex.com)

Skype [usr_1010.sqdemo43@lync.webex.com](skype:usr_1010.sqdemo43@lync.webex.com)

Seien Sie gewarnt, dass die Aufzeichnung vom Veranstalter aktiviert wird.

- Step 7** Once you've added a custom header and footer for a language, you can choose that language as a default for any other language that doesn't have a custom header and footer defined. Your default language choice saves automatically.

Start the calendar connector

You can do this task before you configure the calendar connector links to your Exchange environment and Webex environment, but all tests will fail until the calendar connector is **Running** and you may need to restart the connector after configuration.

Procedure

- Step 1** From Expressway, go to **Applications > Hybrid Services > Connector Management**.
- The **Connector management** section of the page has a list of connectors and the status of each. The **Management Connector** is **Running** and the **Calendar Connector** is **Not enabled**.
- Step 2** Click **Calendar Connector**.
- Step 3** Select **Enabled** from the **Active** drop-down list.
- Step 4** Click **Save**.
- The calendar connector starts and the status changes to **Running**.

What to do next

[Enable Hybrid Calendar for users, on page 86](#)

Enable Hybrid Calendar for users

Use this procedure to enable a small number of Webex users for Hybrid Calendar with Microsoft Exchange or Office 365.

See [Ways to add and manage users in Control Hub](#) for other methods, such as using a bulk CSV template or Active Directory synchronization through Cisco directory connector.

Any of these methods requires that users have signed in to the Webex App to be fully activated. To enable @webex for users who have never signed in to the app, add and verify the users' domain using the [Add, verify, and claim domains](#) process. (You must own a domain for it to be verifiable. You do not need to claim the domain.)

Before you begin

By default, users receive email notifications regarding the Hybrid Calendar, including a welcome email after you enable them. For steps to toggle off these **User Email Notifications**, see the [Configure notifications for Hybrid Services](#) help article.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Management** click **Users**.
- Step 3** Choose a specific user from the list, or use the search to narrow the list, and then click the row to open an overview of the user.
- Step 4** Click **Edit**, and then ensure that the user is assigned at least one paid service under **Licensed Collaboration Services**. Make necessary changes, and then click **Save**.
- Step 5** Click **Calendar Service**, toggle on **Calendar**, choose **Microsoft Exchange**, and then save your changes.

After you activate the service, the user status changes from Pending Activation to Activated. The length of time for this change depends on the number of users that you're enabling for the service.

If email notifications are enabled, users receive a message indicating that the feature is enabled.

Add Hybrid Calendar to workspaces with Webex room, desk, and board devices

Before you begin

This task assumes that you've already created places for the Webex room, desk, or board devices. If you need to create the workspace, see [Add shared devices and services to a workspace](#).

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Management** click **Workspaces** and select the workspace to modify.
- Step 3** Go to **Calendar** and click **Add Calendar** so that people can use One Button to Push (OBTP) from their Webex devices.
- Step 4** Select calendar service from the drop-down menu.
- Step 5** Enter or paste the email address of the room mailbox. (For help locating this email address, see "Create and manage room mailboxes" on the Microsoft Docs web site.)
- This is the email address that will be used to schedule meetings.
- Step 6** Click **Save**.
-

Associate user's Personal Rooms with Webex

To provide the join button to Webex room and desk devices and Webex Boards when scheduling Webex Personal Room meetings, users must have their Personal Room associated with their Webex App account. This can happen in one of the following ways:

- The users on your Webex site have been Webex App linked. (For site linking steps, see [Link Webex sites to Control Hub](#).)
- Users change their own preferred Webex site from the Webex App settings or preferences, see [Change your default meeting site](#)
- For a comprehensive approach, use the bulk CSV import process from Control Hub to set users' preferredWebExSite in the steps that follow.

Procedure

- Step 1** Sign in to the customer view in <https://admin.webex.com>.
- Step 2** In the left-hand navigation pane, under **Management** click **Users**.
- Step 3** Click **Manage Users**.
- Step 4** See <https://help.webex.com/en-US/article/e2okky/Modify-Users-in-Control-Hub-with-the-CSV-Template> for the detailed CSV import/export procedure.
- Step 5** Use a CSV editor to change the **preferredWebExSite** attribute for all or some users.
- Step 6** Import the CSV file.
-

Test join button with room devices

Use these steps to set up a test meeting and verify OBTP on a registered device.

Procedure

Step 1

To test a Webex team meeting in Exchange or Office 365:

- a) In Outlook, Outlook Web Access, or <https://mail.office365.com>, create a new meeting, and then add a keyword such as **@webex : space** or **@meet** to the **Location** field.
- b) Go to the Scheduling Assistant and click **Add room**, and choose the device you want to add.
- c) Fill out other meeting information as needed, and send the invitation.
- d) When the meeting is scheduled to begin, verify that the **Join** button appears on the device.

Step 2

To test a Personal Room meeting in Exchange or Office 365:

- a) In Outlook, Outlook Web Access, or <https://mail.office365.com>, create a new meeting, and then add **@webex** (or the scheduler's Personal Room URL) to the **Location** field.
 - b) Go to the Scheduling Assistant and click **Add room**, and choose the device you want to add.
 - c) Fill out other meeting information as needed, and send the invitation.
 - d) When the meeting is scheduled to begin, verify that the **Join** button appears on the device.
-

What to do next

Introduce the calendar features to your users

Follow these articles to help users learn about the Hybrid Calendar scheduling and out of office features:

- [Schedule a Cisco Webex Meeting from Your Calendar](#)
- [Show When You're Out of Office](#)



CHAPTER 9

Deploy Expressway calendar connector with Office 365

- Hybrid Calendar with Office 365 deployment task flow, on page 89
- Register Expressway-C connector hosts to Cloud, on page 90
- Append the Exchange CA certificate to the Expressway trusted CA list, on page 92
- Link Calendar Connector to Office 365, on page 94
- Configure the Calendar Connector's Webex site settings, on page 95
- Choose How the Hybrid Calendar Service Localizes Meeting Join Details, on page 96
- Configure @webex and @meet Keywords, on page 97
- Customize Email Templates, on page 97
- Start the calendar connector, on page 99
- Enable Hybrid Calendar for users, on page 100
- Add the Hybrid Calendar Service to Workspaces with Webex Room, Desk, and Board Devices, on page 100

Hybrid Calendar with Office 365 deployment task flow

To deploy Hybrid Calendar with your Office 365 environment, perform the following tasks.

Before you begin

Prepare your environment, on page 63

Procedure

	Command or Action	Purpose
Step 1	Register Expressway-C connector hosts to Cloud, on page 90	Add the Hybrid Calendar to your organization and connect your Expressway to the Webex cloud. This creates a resource in https://admin.webex.com and downloads connector software on to the Expressway.
Step 2	(Optional) Append the Exchange CA certificate to the Expressway trusted CA list, on page 92	If you want Microsoft Exchange Web Services (EWS) traffic to be encrypted, make sure the Expressway trust list contains the certificate

	Command or Action	Purpose
		of the CA that signed the Exchange Server certificate.
Step 3	Link Calendar Connector to Office 365, on page 94	Configure Exchange Servers for the calendar connector.
Step 4	(Optional) Configure the Calendar Connector's Webex site settings, on page 81	If you have a Webex Meetings site, configure the @Webex functionality.
Step 5	(Optional) Choose How the Hybrid Calendar Service Localizes Meeting Join Details, on page 96	To override how the calendar connector localizes meeting join details for your entire organization, set the Default Language setting in https://admin.webex.com .
Step 6	(Optional) Configure @webex and @meet Keywords, on page 97	To change the action that the calendar connector takes when users enter @webex or @meet, set the Keywords settings in https://admin.webex.com .
Step 7	(Optional) Customize Email Templates, on page 97	Choose what the Hybrid Calendar adds to meeting invitations, including audio or video join details and a localized header and footer in any language that the service supports.
Step 8	Start the calendar connector, on page 85	
Step 9	Enable Hybrid Calendar for users, on page 86	
Step 10	(Optional) Add the Hybrid Calendar Service to Workspaces with Webex Room, Desk, and Board Devices, on page 100	If you want One Button to Push (OBTP) functionality to be provided to Webex room and desk devices and Webex Boards that are registered to the Webex cloud, configure places for the devices.
Step 11	(Optional) Associate user's Personal Rooms with Webex, on page 87	For OBTP on Webex room and desk devices and Webex Boards, make sure that meeting schedulers have their Personal Rooms associated with their Webex App accounts.
Step 12	Test join button with room devices, on page 87	If you configured OBTP in the previous step, test it with a device.

Register Expressway-C connector hosts to Cloud

Hybrid Services use software connectors hosted on Expressway-C to securely connect Webex to your organization's environment. Use this procedure to register Expressway-C resources to the cloud.

After you complete the registration steps, the connector software is automatically deployed on your on-premises Expressway-C.

Before you begin

- Make sure your Expressway-C is running on a version that's supported for hybrid services. See the *Supported Versions of Expressway for Cisco Webex Hybrid Services Connectors* documentation (<https://help.webex.com/article/ruyceab>) for more information about which versions are supported for new and existing registrations to the cloud.
- Sign out of any open connections to the Expressway-C interface that are open in other browser tabs.
- If your on-premises environment proxies the outbound traffic, you must first enter the details of the proxy server on **Applications > Hybrid Services > Connector Proxy** before you complete this procedure. Doing so is necessary for successful registration.

Procedure

-
- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid** and then choose one:
- If this is the first connector host you're registering, click **Set up** on the card for the hybrid service you're deploying, and then click **Next**.
 - If you've already registered one or more connector hosts, click **View all** on the card for the hybrid service you're deploying, and then click **Add Resource**.
- The Webex cloud rejects any attempt at registration from the Expressway web interface. You must first register your Expressway through Control Hub, because the Control Hub needs to hand out a token to the Expressway to establish trust between premises and cloud, and complete the secure registration.
- Step 3** Choose a method to register the Expressway-C:
- **New Expressways**—choose **Register a new Expressway with its Fully Qualified Domain Name (FQDN)**, enter your Expressway-C IP address or fully qualified domain name (FQDN) so that Webex creates a record of that Expressway-C and establishes trust, and then click **Next**. You can also enter a display name to identify the resource in Control Hub.
- Caution** To ensure a successful registration to the cloud, use only lowercase characters in the hostname that you set for the Expressway-C. Capitalization is not supported at this time.
- **Existing Expressways**—choose **Select an existing Expressway cluster to add resources to this service**, and then choose the node or cluster from the drop-down that you previously registered. You can use it to run more than one hybrid service.
- Tip** If you're registering a cluster, register the primary peer. You don't need to register any other peers, because they register automatically when the primary registers. If you start with one node set up as a primary, subsequent additions do not require a system reboot.
- Step 4** Click **Next**, and for new registrations, click the link to open your Expressway-C. You can then sign in to load the **Connector Management** window.
- Step 5** Decide how you want to update the Expressway-C trust list:
- A check box on the welcome page determines whether you will manually append the required CA certificates to the Expressway-C trust list, or whether you allow Webex to add those certificates for you.
- Choose one of the following options:

- Check the box if you want Webex to add the required CA certificates to the Expressway-C trust list.

When you register, the root certificates for the authorities that signed the Webex cloud certificates are installed automatically on the Expressway-C. This means that the Expressway-C should automatically trust the certificates and be able to set up the secure connection.

Note If you change your mind, you can use the **Connector Management** window to remove the Webex cloud CA root certificates and manually install root certificates.

- Uncheck the box if you want to manually update the Expressway-C trust list. See the Expressway-C online help for the procedure.

Caution When you register, you will get certificate trust errors if the trust list does not currently have the correct CA certificates. See [Certificate Authorities for Hybrid Services, on page 78](#).

Step 6 Click **Register**. After you're redirected to Control Hub, read the on-screen text to confirm that Webex identified the correct Expressway-C.

Step 7 After you verify the information, click **Allow** to register the Expressway-C for Hybrid Services.

- Registration can take up to 5 minutes depending on the configuration of the Expressway and whether it's a first-time registration.
- After the Expressway-C registers successfully, the Hybrid Services window on the Expressway-C shows the connectors downloading and installing. The management connector automatically upgrades itself if there is a newer version available, and then installs any other connectors that you selected for the Expressway-C connector host.
- Each connector installs the interface pages that you need to configure and activate that connector.

This process can take a few minutes. When the connectors are installed, you can see new menu items on the **Applications > Hybrid Services** menu on your Expressway-C connector host.

Troubleshooting Tips

If registration fails and your on-premises environment proxies the outbound traffic, review the Before You Begin section of this procedure. If the registration process times out or fails (for example, you must fix certificate errors or enter proxy details), you can restart registration in Control Hub.

Append the Exchange CA certificate to the Expressway trusted CA list

If you want to verify the certificates presented by the Exchange Server, then the Expressway trust list must contain the certificate of the CA that signed the Exchange Server certificate. The CA certificate may already be in the trust list; use this procedure on each Expressway cluster to check the list and append the certificate if necessary.

If you're using a custom domain, make sure that you add the CA certificate for the domain certificate issuer to the Expressways.

Before you begin

You must import certificates to each Expressway-C.

Procedure

-
- Step 1** On the Expressway-C connector host, go to **Maintenance > Security certificates > Trusted CA certificate**.
- Step 2** Review the CA certificates in the trust list to check if the correct CA certificate is already trusted.
- Step 3** To append any new CA certificates:
- Click **Browse** (or the equivalent in your browser) to locate and select the PEM file.
 - Click **Append CA certificate**.
- The newly appended CA certificate appears in the list of CA certificates.
- Step 4** To replace an existing CA certificate with an updated one, for a particular issuer and subject:
- Check the check box next to the Issuer details.
 - Click **Delete**.
 - Append the replacement certificate as described above.
-

Certificate Authorities for Hybrid Services in an Office 365 Environment

The table lists the Certificate Authorities that your existing environment must trust when using Hybrid Services.

If you opted to have Webex manage the required certificates, then you do not need to manually append CA certificates to the Expressway-C trust list.



Note The issuers used to sign the Webex host certificates may change in future, and the table below may then be inaccurate. If you are manually managing the CA certificates, you must append the CA certificates of the issuing authorities that signed the currently valid certificates for the hosts listed below (and remove expired/revoked CA certificates).

Cloud hosts signed by this CA	Issuing CA	Must be trusted by	For this purpose
CDN	O=Baltimore, OU=CyberTrust, CN=Baltimore CyberTrust Root	Expressway-C	To ensure Expressway downloads connectors from a trusted host
Common Identity (CI) service	O=VeriSign, Inc., OU=Class 3 Public Primary Certification Authority	Windows Server 2003 or Windows Server 2008 hosting the Cisco directory connector Expressway-C	To synchronize users from your Active Directory with Webex and to authenticate Hybrid Services users

Cloud hosts signed by this CA	Issuing CA	Must be trusted by	For this purpose
Webex App	O=The Go Daddy Group, Inc., OU=Go Daddy Class 2 Certification Authority	Expressway-C	
Office 365 cloud	O=Baltimore, OU=CyberTrust, CN=Baltimore CyberTrust Root	Expressway-C	Office 365 support
Office 365 cloud	O=DigiCert Inc, OU=www.digicert.com, CN=DigiCert Global Root CA, C=US	Expressway-C	Office 365 support

Related Topics

[Supported Certificate Authorities for Cisco Spark](#)

Link Calendar Connector to Office 365

The calendar connector installs automatically after you register your Expressway for Hybrid Services. The connector does not start automatically, and requires some configuration to link to your calendar environment.

Procedure

Step 1 From the Expressway-C connector host, go to **Applications > Hybrid Services > Calendar Service > Microsoft Exchange Configuration**, and then click **New**.

Note Make sure you choose **Microsoft Exchange Configuration**, not **Cisco Conferencing Services Configuration**. You cannot configure the Calendar Connector for Microsoft Exchange or Office 365 in the same organization with the conferencing services (integration with Cisco TelePresence Management Suite).

Step 2 Enter the credentials of the service account that you want the calendar connector to use to connect to Exchange. The service account queries calendars on behalf of your users, using the impersonation role. You can use these formats:

- **username@domain.com**—The userPrincipalName. Typically, this value matches the user's primary email address, but the properties are separate. userPrincipalName consists of the User Logon Name (not always the same as sAMAccountName) and the UPN suffix, which is based on the Active Directory domain (not always the same as the NetBIOS domain).
- **DOMAIN\username**—DOMAIN is the NetBIOS domain (the pre-Windows 2000 domain); "username" is the sAMAccountName (the legacy username or pre-Windows 2000 username).

If you're unsure about what to use for these formats, use [Active Directory Users and Computers](#) on a Windows machine to view the Account tab of the Properties pane for the user in question. The correct values to use are displayed as:

- User logon name for the first format.
- User logon name (pre-Windows 2000) for the second format.

- Step 3** Enter a unique **Display Name** for this Exchange Server.
- Step 4** For the **Type**, select **Office365**.
- Step 5** For **Need Proxy for Connection?**, select **Yes** if https access goes through a web proxy to your Exchange environment.
- Step 6** For **Enable this Exchange server?**, select **Yes**.
You can select **No** for debugging purposes, but users will not be subscribed to this Exchange.
- Step 7** Check **Basic** for the **Authentication Type**.
For Hybrid Exchange (on-premises and Office 365) deployments, you can check both **NTLM** and **Basic** authentication types. If one method fails, then the other method is used.
- Step 8** Leave **TLS Verify Mode** as the default value **On** so that this Expressway-C verifies the certificate presented by the Exchange Server.
You may need to update the trust stores on both servers to ensure that each one trusts the CA that signed the other's certificate.
- Step 9** Enter an **Email Address** so that calendar connector can test the connection and check that the directory query worked.
Use the email address of a user that you will enable for the Hybrid Calendar Service, as it appears in Control Hub.
If the test fails, then your settings are not saved. If you omit the mailbox name, then your settings are saved without verifying connectivity.
- Step 10** To manually configure any Autodiscover redirect URLs that the Calendar Connector should trust, click **Configure Trust List**.
Once you click **Add**, the Calendar Connector automatically populates any missing Autodiscover redirect URLs that it finds while contacting the Autodiscover service. URLs from unauthenticated sources are placed in pending state, and blocked unless you choose to allow them. If you skip this step now, you can still manually add URLs later, or explicitly accept or deny the pending URLs.
- Step 11** Click **Add** to store the Exchange Server configuration on the Expressway-C.
The calendar connector tests the connection to the Exchange environment.
-

Configure the Calendar Connector's Webex site settings

After you configure the Exchange settings, configure the details for your Webex Meetings sites. If you have more than one Webex site, do these steps for each site, and set the default to the site with the most users. Users

who are not on the default site, or who want to use a different site, must [set up their Personal Room in the Webex app](#).

Before you begin

- For the @webex functionality to work for users, verify the following:
 - You have at least one Webex Meetings site, with the [Personal Room feature enabled for the site and for the individual users](#).
 - The email address in each user's Webex account matches the user's Exchange email address and Webex App login address. If it does not, users must [set up their Personal Room in the Webex app](#).
- Gather the Webex user account email address of a valid user on your site. The calendar connector uses this account to access the Webex Personal Room details for users who schedule meetings with @webex.

Procedure

-
- Step 1** From the Expressway-C connector host, go to **Applications > Hybrid Services > Calendar Service > Cisco Conferencing Services Configuration**, and then click **New**.
- Step 2** Select **Type** as **Webex** under **Conferencing Services Type**.
- Step 3** Enter the **Fully Qualified Site Name** for this Webex Meetings site.
- Example:**
If your site is accessed as example-co.webex.com, you'd enter example-co.webex.com.
- Step 4** Enter a valid Webex user account email address, leave the password field blank, and then click **Test Connection** to validate the site information that you entered. If testing the connection fails, you can save the configuration with both the user name and password fields blank.
- Step 5** Indicate whether or not this site is the default.
- The default site is used for @webex unless the user has a different site configured in their My Personal Room setting in the Webex App app (either because the user's [Webex site has been linked to Control Hub by an administrator](#), or because the user [configured the setting](#) with a different site).
- Step 6** Click **Save** to save the configuration.
-

Choose How the Hybrid Calendar Service Localizes Meeting Join Details

In Control Hub, the Default Language setting controls the language of the join details that the Hybrid Calendar adds to invitations. If you leave the setting at its default, the service uses the language from the **item.Culture** property of each meeting invitation. (Typically, the scheduler's operating system controls the value of **item.Culture**.)

To override choosing languages on a meeting-by-meeting basis from **item.Culture**, choose a specific language to use for join details for all meetings across your organization.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** From the Hybrid Calendar card for Exchange, click **Edit settings**.
- Step 4** In the **Meeting Invitations** section, choose a language from the **Default Language** drop-down list, and click **Save**.
- After you save the change, the Hybrid Calendar uses the language you choose each time it adds join to details a meeting. It doesn't change the language for existing join details.
-

Configure @webex and @meet Keywords

By default, when users add @webex to a meeting location, the calendar service updates the meeting with their Webex Personal Room details. When users add @meet, by default the service updates the meeting with Webex App space details. As an administrator, you can change these default actions for either keyword.

Regardless of how you set these actions, power users can add the modifier **:space**, **:myroom** or **:onetime** to specify the action for either keyword. For example, adding @webex:space causes the service to update the meeting with Webex App space details. As well, @webex: onetime creates a one-time Webex meeting.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Services** click **Hybrid**.
- Step 3** From the Hybrid Calendar card for your calendar environment, click **Edit settings**.
- Note** If you have the Hybrid Calendar set up for multiple calendar environments, you can access the keywords settings from multiple pages in Control Hub, but the values that you set apply to all environments.
- The Hybrid Calendar (Microsoft 365) displays a list of tenants included in this organization.
- Step 4** Select the tenant to configure.
- Step 5** Click the **Settings** tab.
- Step 6** In the **Keywords** section, select the default action that you want for each keyword.
- Step 7** Click **Save**.
-

Customize Email Templates

Choose which meeting join details Hybrid Calendar includes in meeting invitations.

Procedure

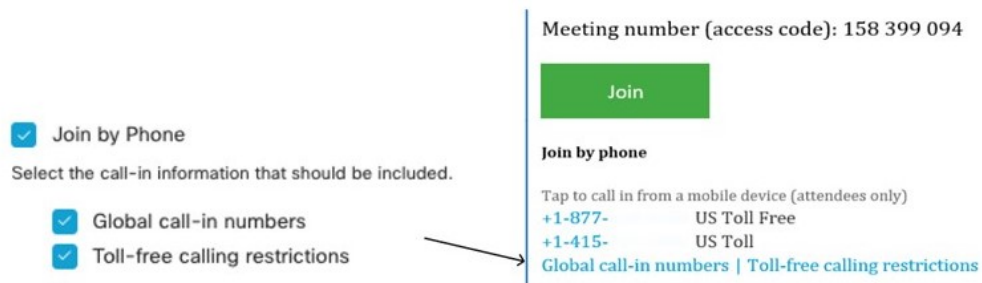
Step 1 Sign in to the customer view of <https://admin.webex.com/login>.

Step 2 In the left-hand navigation pane, under **Services** click **Meeting**.

Step 3 Locate the **Customize Meeting Join Details** section.

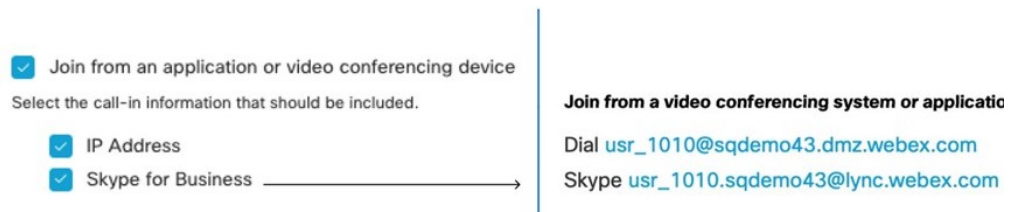
Step 4 Choose whether to show **Join by Phone** details.

When you include the dial-in details, you can also choose to add a link to global call-in numbers, a link to toll-free calling restrictions, or both.



Step 5 Show or hide details on joining from an application or video conferencing device.

When you include the video dialing details, you can also choose to include an IVR IP address, a Skype for Business join link, or both.



Step 6 Click **Add a Language** and then select the language from the drop-down menu to create a custom header and footer for any of the languages that the Hybrid Calendar supports. When you've got the header and footer text that you want, click **Save**.

The header and footer values have a maximum of 1024 characters each (including spaces).

Localized header and footer

To edit the header and footer in each language, select the language in the drop-down, edit the header & footer for that language in the textboxes, and then click save.

German ^

Header Text 0/1024
Enter header text here (1024 characters, plain text only, no HTML/scripts)

Footer Text 73/1024
Seien Sie gewarnt, dass die Aufzeichnung vom Veranstalter aktiviert wird.

Cancel Save

English (United States) v

French v

[Add a Language](#)

Use this language if nothing is defined for its header and footer.

French v

FL o First1010 Last 1010 <usr_1010@calfusiontest.onmicrosoft.com>
Required: o
Today at 11:31 AM
Wednesday, December 16, 2020 at 2:00 PM - 3:00 PM.
@webex

Accept Tentative Decline Propose New Time

Please respond.

- Do not delete or change any of the following text. -

Join meeting in my Webex Personal Room

Meeting number (access code): 171 610 652 3

Join

Join by phone
Tap to call in from a mobile device (attendees only)
14085452910 US Toll
[Global call-in numbers](#)

Join from a video conferencing system or application
Dial [usr_1010@sqdemo43.dmz.webex.com](tel:usr_1010@sqdemo43.dmz.webex.com)
Skype [usr_1010.sqdemo43@lync.webex.com](skype:usr_1010.sqdemo43@lync.webex.com)

Seien Sie gewarnt, dass die Aufzeichnung vom Veranstalter aktiviert wird.

- Step 7** Once you've added a custom header and footer for a language, you can choose that language as a default for any other language that doesn't have a custom header and footer defined. Your default language choice saves automatically.

Start the calendar connector

You can do this task before you configure the calendar connector links to your Exchange environment and Webex environment, but all tests will fail until the calendar connector is **Running** and you may need to restart the connector after configuration.

Procedure

- Step 1** From Expressway, go to **Applications > Hybrid Services > Connector Management**.
- The **Connector management** section of the page has a list of connectors and the status of each. The **Management Connector** is **Running** and the **Calendar Connector** is **Not enabled**.
- Step 2** Click **Calendar Connector**.
- Step 3** Select **Enabled** from the **Active** drop-down list.
- Step 4** Click **Save**.
The calendar connector starts and the status changes to **Running**.

What to do next

[Enable Hybrid Calendar for users, on page 86](#)

Enable Hybrid Calendar for users

Use this procedure to enable a small number of Webex users for Hybrid Calendar with Microsoft Exchange or Office 365.

See [Ways to add and manage users in Control Hub](#) for other methods, such as using a bulk CSV template or Active Directory synchronization through Cisco directory connector.

Any of these methods requires that users have signed in to the Webex App to be fully activated. To enable @webex for users who have never signed in to the app, add and verify the users' domain using the [Add, verify, and claim domains](#) process. (You must own a domain for it to be verifiable. You do not need to claim the domain.)

Before you begin

By default, users receive email notifications regarding the Hybrid Calendar, including a welcome email after you enable them. For steps to toggle off these **User Email Notifications**, see the [Configure notifications for Hybrid Services](#) help article.

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Management** click **Users**.
- Step 3** Choose a specific user from the list, or use the search to narrow the list, and then click the row to open an overview of the user.
- Step 4** Click **Edit**, and then ensure that the user is assigned at least one paid service under **Licensed Collaboration Services**. Make necessary changes, and then click **Save**.
- Step 5** Click **Calendar Service**, toggle on **Calendar**, choose **Microsoft Exchange**, and then save your changes.

After you activate the service, the user status changes from Pending Activation to Activated. The length of time for this change depends on the number of users that you're enabling for the service.

If email notifications are enabled, users receive a message indicating that the feature is enabled.

Add the Hybrid Calendar Service to Workspaces with Webex Room, Desk, and Board Devices

Before you begin

This task assumes that you've already created places for the Webex room, desk, or board devices. If you need to create the workspace, see [Add shared devices and services to a workspace](#).

Procedure

- Step 1** Sign in to the customer view of <https://admin.webex.com/login>.
- Step 2** In the left-hand navigation pane, under **Management** click **Workspaces** and select the workspace to modify.
- Step 3** Go to **Calendar** and click **Add Calendar** so that people can use One Button to Push (OBTP) from their Webex devices.
- Step 4** Select calendar service from the drop-down menu.
- Step 5** Enter or paste the email address of the room mailbox. (For help locating this email address, see "Create and manage room mailboxes" on the Microsoft Docs web site.)
- This is the email address that will be used to schedule meetings.
- Step 6** Click **Save**.
-



PART **IV**

Hybrid Exchange and Office 365 Deployments

- [Deploy Hybrid Calendar for a Hybrid Exchange environment, on page 105](#)



CHAPTER 10

Deploy Hybrid Calendar for a Hybrid Exchange environment

- [Deploy Expressway calendar connector for a Hybrid Exchange environment, on page 105](#)

Deploy Expressway calendar connector for a Hybrid Exchange environment

This chapter describes setting up the Calendar Connector on Expressway to handle both Office 365 and Microsoft Exchange in a Hybrid Exchange deployment. With the release of the cloud-based service for Office 365 users, you can now choose whether to deploy only the Expressway-based Calendar Connector, as described in this section, or a combination of the Calendar Connector and the cloud-based service.

The cloud-based service can scale beyond the 1000 user limit for Office 365 users and is simpler to deploy and maintain. It does not service Microsoft Exchange users. If you deploy it alongside the calendar connector, your Office 365 users automatically move to the cloud-based service (unless they are in resource groups).

Before you decide which service to deploy for your Office 365 users, read the [Prepare your environment, on page 1](#) chapter of the Office 365 with cloud-based Hybrid Calendar part of this guide, to understand the requirements for that option.

Before you begin

1. [Prepare your environment, on page 63](#).
2. If your deployment meets all of the following criteria, you can use a simplified Exchange configuration, by following all of the steps in [Deploy Expressway calendar connector for Microsoft Exchange, on page 73](#), instead of this procedure.
 - Your Expressway-C connects to both the on-premises Exchange environment and the Office 365 cloud through the same proxy method (either neither connects through a proxy, or both do).
 - Your deployment met all of the conditions for using a simplified configuration with a single impersonation account (in [Set up an impersonation account for Office 365 , on page 67](#)).

If your deployment does not meet these criteria, follow all of the steps in this procedure to set up two separate Exchange configurations on the Expressway-C -- one for the on-premises mailboxes, and one for the Office 365 mailboxes.

Procedure

- Step 1** [Deploy Expressway calendar connector for Microsoft Exchange, on page 73](#) by adding an Exchange configuration to Expressway.
- You must enable and configure auto discovery when you add the configuration—Select **Use Active Directory** to enable auto discovery. We do not support manually entered Exchange addresses in Exchange hybrid environments.
 - For the authentication type, you should check both **NTLM** and **Basic** authentication types. If one method fails, then the other method is used.
- Step 2** Enable Hybrid Calendar for users who have mailboxes in on-premises Exchange.
- Step 3** Start calendar connector and ensure that the activated users are subscribed.
- Step 4** As a test, in a meeting invitation in Outlook, OWA, or your calendar client, add a space scheduling keyword (such as `@webex:space` or `@meet`) to the Location field; verify that this step creates a Webex App space for an activated user.
- Step 5** Stop the calendar connector. Do not proceed until you see that it fully stopped.
- Step 6** [Deploy Expressway calendar connector with Office 365, on page 89](#) by adding a new Exchange configuration to Expressway, for Office 365.
- For the authentication type, you should check both **NTLM** and **Basic** authentication types. If one method fails, then the other method is used.
- Step 7** Enable Hybrid Calendar for users who have mailboxes in Office 365.
- Step 8** Start calendar connector and ensure that activated users in both on-premises and Office 365 are subscribed.
- Step 9** As a test, in an Outlook invitation, add a space scheduling keyword to the Location field; verify that this step creates a Webex App space for both on-premises Exchange and Office 365 users.

Users with either on-premises Exchange or Office 365 mailboxes can now schedule meetings using the scheduling keywords.

Related Topics

[Schedule a Webex meeting from your calendar](#)



APPENDIX **A**

Troubleshoot Hybrid Calendar

- [Diagnostic tools on Expressway-C connector host, on page 107](#)
- [Check connector health on Expressway-C, on page 108](#)
- [Roll back to the previous version of a connector, on page 108](#)
- [Troubleshoot the Join button, on page 109](#)

Diagnostic tools on Expressway-C connector host

Use these diagnostic tools to investigate a problem with Hybrid Services connectors that are installed on the Expressway-C.

- Access the Webex Hybrid Services log levels and enable debug mode if instructed to do so by support. Go to **Maintenance > Diagnostics > Hybrid Services Log Levels**.
- Check the event log for errors and warnings. Go to **Status > Logs > Event Log**.
- Check for related alarms on **Status > Alarms**. Alarms that are related to Hybrid Services are tagged [Hybrid Services] and have IDs in the 60000–69999 range. You can also see these alarms in Control Hub (<https://admin.webex.com>).
- Run diagnostic logging while you recreate the issue, and take a tcpdump during that period. Go to **Maintenance > Diagnostics > Diagnostic logging** and read the online help for more details.
- Take a system snapshot to provide to support for diagnosis. Go to **Maintenance > Diagnostics > System snapshot**.
- Configure syslog if you have remote logging servers. Go to **Maintenance > Logging**.
- Configure incident reporting so that any Expressway failures are automatically reported to us. Go to **Maintenance > Diagnostics > Incident reporting > Configuration**.

For more details, read the [Cisco Expressway Serviceability Guide](#), or search the help on the Expressway.

Related Topics

[Send Hybrid Service Expressway Connector Logs to the Cloud](#)

Check connector health on Expressway-C

When you're having a problem with Hybrid Services, you can check the status of the connectors and restart any stopped connectors.

Before you begin

If a connector is stopped, you can [open a ticket with support](#) and send a log first before you restart the connector.

Procedure

Step 1 On the Expressway-C, go to **Applications > Hybrid Services > Connector Management** to check the status of your connectors.

The **Connector Management** section shows all the installed connectors, their version numbers and their status.

Step 2 If a connector is **Stopped**, click the name of that connector.
You'll see a more detailed status page with a **Restart** button.

Step 3 Click **Restart**.

What to do next

If the restart generates an alarm, or if the connector stops again, try the following:

- Follow the guidance on the alarm. You can also see these alarms in Control Hub (<https://admin.webex.com>).
- From the customer view in <https://admin.webex.com>, click your username, and then click **Feedback** to open a ticket and send logs.
- Use the diagnostic tools to look for problem signatures.
- Roll back to the previous version of the connector (try this if the problem started after a connector upgrade).

Related Topics

[Send Expressway Connector Logs](#)

[Contact Support](#)

Roll back to the previous version of a connector

Under normal conditions, your Expressway-C upgrades your connectors automatically after you choose to upgrade in Control Hub or set a scheduled upgrade time. You can roll back to the previous version of a connector if something goes wrong with an upgraded connector.

Procedure

- Step 1** On the Expressway-C, go to **Applications > Hybrid Services > Connector Management** to check the health status of your connectors.
- The **Connector Management** section shows all the installed connectors, their version numbers, and their status.
- Step 2** Click the name of the connector.
- A more detailed status page shows the currently installed version and the version that you can roll back to. The page also shows any versions that you previously rejected (by rolling back from them).
- Step 3** Click **Roll back** to reject the currently installed version, and replace it with the **Target version**.
- The page displays the formerly installed version number in the **Rejected version** field, which means that the will not allow that version to install itself in future.
- If you click **Back to connector list**, you can see the previous version is now running. An alarm is raised because you rejected an upgrade. You can safely ignore that alarm; it appears because of your choice, and it is lowered when a newer version is installed.
- When a newer version is available on Webex, the automatic upgrade resumes.
- Step 4** To reverse your decision and accept the **Rejected version**, click **Allow this upgrade**.
-

Troubleshoot the Join button

No Join button on premises-registered devices

Problem In a hybrid Exchange environment, the Join button does not appear on any premises-registered device.

Possible Cause In hybrid Exchange environments, disabling TNEF for remote domains causes Exchange Online to strip the TMS:ExternalConferenceData and UCCcapabilities user attributes for the meeting. This breaks OBTP for Unified CM-registered endpoints. Without these attributes, Cisco TMSXE cannot update the meeting in Cisco TMS, and Cisco TMS cannot set the OBTP dial string for the meeting.

Solution To fix this condition, verify that TNEF is allowed for remote domains. For instructions, see <https://docs.microsoft.com/en-us/exchange/mail-flow/content-conversion/tnef-conversion>.

No Join button on a specific device

Problem A device does not show the join button when meetings are about to start.

Possible Cause The device does not automatically accept meeting invitations.

Solution Check the resource calendar for the device, and see if it has accepted the meeting invitation. If not, configure the device's resource mailbox to automatically accept meeting requests.



APPENDIX **B**

Important items for Hybrid Services deployments

- [Important items for Hybrid Services deployments, on page 111](#)
- [Supported certificate authorities , on page 111](#)
- [Exchange Impersonation Account, on page 112](#)

Important items for Hybrid Services deployments

This section provides added context about key configuration items that relate to Hybrid Services.

These points are crucial if you want to successfully deploy Hybrid Calling for Webex devices. We've highlighted these items in particular for the following reasons:

- We want to explain them, so that you understand their role in a hybrid deployment and feel reassured.
- They are mandatory prerequisites that ensure a secure deployment between our cloud and your on-premises environment.
- They should be treated as pre-day zero activities: they can take a bit longer to complete than typical configuration in a user interface, so allow a timeframe to get these items sorted.
- After these items are addressed in your environment, the rest of your Hybrid Services configuration will go smoothly.

Supported certificate authorities

The Webex Device Connector must communicate with Webex in order for Hybrid Calling to work.

Webex Device Connector is deployed in the internal network, and the way it communicates with the cloud is through an outbound HTTPS connection—the same type that is used for any browser that connects to a web server.

Communication to the Webex cloud uses TLS. Webex Device Connector is the TLS client, and the Webex cloud is the TLS server. As such, Webex Device Connector checks the server certificate.

The certificate authority signs a server certificate using its own private key. Anyone with the public key can decode that signature and prove that the same certificate authority signed that certificate.

If Webex Device Connector has to validate the certificate provided by the cloud, it must use the public key of the certificate authority that signed that certificate to decode the signature. A public key is contained in the

certificate of the certificate authority. To establish trust with the certificate authorities used by the cloud, the list of certificates of these trusted certificate authorities must be in the Webex Device Connector trust store.

When communicating with devices, the tool uses trusted certificates that you provide. Currently the way to do that is by placing them in `[home folder]/.devicestool/certs`.

A list of certificate authority certificates is also required for the Expressway-E in the traversal pair. Expressway-E communicates with the Webex cloud using SIP with TLS, enforced by mutual authentication. Expressway-E trusts calls coming from and going to the cloud, only if the CN or SAN of the certificate presented by the cloud during TLS connection setup matches the subject name configured for the DNS zone on Expressway ("callservice.webex.com"). The certificate authority releases a certificate only after an identity check. The ownership of the callservice.webex.com domain must be proved to get a certificate signed. Because we (Cisco) own that domain, the DNS name "callservice.webex.com" is direct proof that the remote peer is truly Webex.

Related Topics

[Supported certificate authorities for Webex](#)

Exchange Impersonation Account

calendar connector integrates Webex with Microsoft Exchange 2013, 2016, 2019 or Office 365 through an impersonation account. The application impersonation management role in Exchange enables applications to impersonate users in an organization to perform tasks on behalf of the user. The application impersonation role must be configured in Exchange and is used in the calendar connector as part of the Exchange configuration on the Expressway-C interface.

[The Exchange impersonation account is Microsoft's recommended method for this task.](#) Expressway-C administrators don't need to know the password, because the value can be entered in the Expressway-C interface by an Exchange administrator. The password isn't clearly shown, even if the Expressway-C administrator has root access to the Expressway-C box. The password is stored encrypted using the same credential encryption mechanism as other passwords on the Expressway-C.

For additional security, follow the steps in [Deploy Expressway calendar connector for Microsoft Exchange, on page 73](#) to enable TLS in order to secure EWS connections on the wire.

