

CHAPTER 1

Information About the Cisco TelePresence WebEx OneTouch Feature

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Overview

This section contains the following information about Cisco TelePresence with Cisco WebEx:

- [Cisco TelePresence Meeting Experience, page 1-1](#)
- [Cisco WebEx Meeting Experience, page 1-2](#)

Cisco TelePresence Meeting Experience

The Cisco WebEx bridging feature integrates the Cisco WebEx conferencing server with multipoint meetings on the Cisco TelePresence Multipoint Switch (CTMS). Cisco Telepresence callers connect to meetings using [One-Button-to-Push](#) (OBTP) technology. When the first Cisco TelePresence System (CTS) endpoint connects, the CTMS automatically connects with the Cisco WebEx conference and joins the two meetings. Upon connecting with Cisco WebEx, the Cisco Telepresence [Auto Collaborate](#) presentation screen shows a Welcome page. CTS-Manager is used to configure and manage the Cisco WebEx bridging feature in Cisco TelePresence meetings.

For data sharing, the last laptop that connects to the Video Graphics Array (VGA) connector in the Cisco TelePresence room is the active user who will share data. Video of the active speaker in the Cisco TelePresence system is streamed to the Cisco WebEx Web client. To see Cisco WebEx data sharing on a Cisco TelePresence endpoint, participants must do the following:

1. Log into the Cisco WebEx Web client on their laptops.
2. Be designated as presenter.
3. Start application or desktop sharing.

Cisco WebEx Meeting Experience

Remote participants join the Cisco WebEx meeting by logging in to the Cisco WebEx Meeting Center Web client and audio bridge. Data shared from the Cisco TelePresence endpoint is displayed automatically in the Cisco WebEx Meeting Center web client and Cisco WebEx participants can share their desktop or application with Cisco Telepresence endpoints. Cisco WebEx users see the live video of the actively speaking Cisco TelePresence participants in the Cisco WebEx Web client. Cisco WebEx users also see an integrated list of Cisco WebEx meeting participants and the participating Cisco TelePresence rooms.



Note

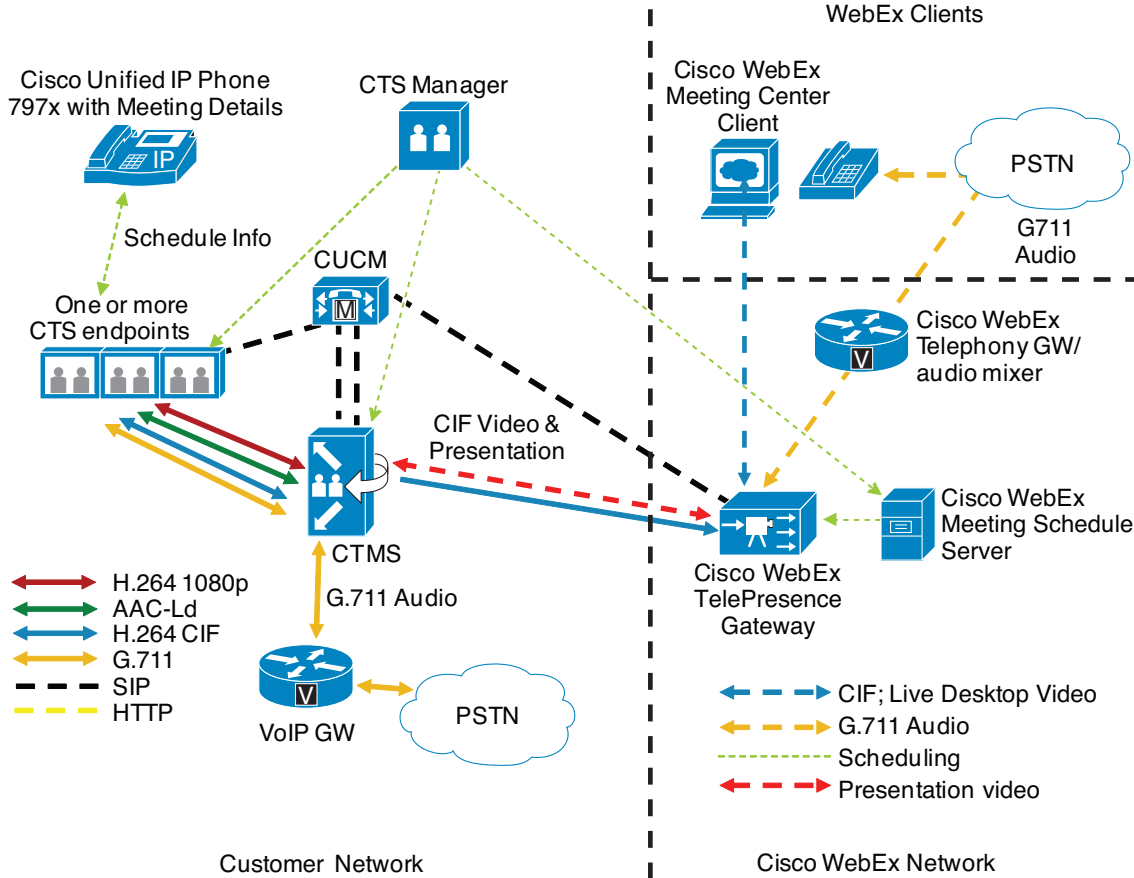
It is currently not possible to “pass the ball” directly from the presenter in the Cisco TelePresence room to the Cisco WebEx participant. In order to give presenter rights to a remote Cisco WebEx participant, the meeting host needs to pass the presenter rights by logging into Cisco WebEx Meeting Center and clicking the **Make Presenter** button. Alternately, a host can send a host key to the remote attendee to allow that person to present during the meeting. For more information about using Cisco WebEx meeting functions, log into your Cisco WebEx Meeting Center account and click on **Support > User Guides** in the left navigation pane.

Understanding How Cisco WebEx Works with the Cisco TelePresence Applications

Figure 1-1 shows how the Cisco TelePresence WebEx OneTouch feature works with Cisco TelePresence applications. Go to the following sections for detailed information:

- [Cisco TelePresence Multipoint Switch Administration Role, page 1-3](#)
- [Cisco Unified Communications Manager Administration Role, page 1-8](#)
- [CTS-Manager Administration Role, page 1-8](#)
- [Cisco TelePresence System Endpoint Role, page 1-12](#)

Figure 1-1 Cisco TelePresence with Cisco WebEx Network Topology



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Cisco TelePresence Multipoint Switch Administration Role

Auxiliary and Common Intermediate Format (CIF) video media is tunneled over HTTPS between the CTMS and the Cisco WebEx conferencing servers. The connections are initiated and managed by the CTMS. The Cisco WebEx interface allows the CTMS to create meeting connections, add or remove Auxiliary and CIF video channels, and control which side (Cisco WebEx or Cisco TelePresence) is actively sharing.

The Cisco WebEx interface also contains a request function that causes the Cisco WebEx Telephony server to dial into the CTMS for the audio portion of the call. The request function provides all the details needed for the Cisco WebEx Telephony server to dial and connect to the correct meeting.

Cisco WebEx collaboration meetings start at 5 frames per second (FPS) so that the Cisco WebEx endpoints can successfully receive Auxiliary video transmissions.

Each meeting creates its own TCP connection and SSL tunnel to avoid Transmission Control Protocol (TCP) congestion and potential TCP windowing issues.

See the following sections for more information about the CTMS role in the Cisco TelePresence WebEx OneTouch meeting solution:

- [Communications Channels for Cisco WebEx Calls, page 1-4](#)
- [CTMS-to-Cisco WebEx Signaling, page 1-4](#)
- [CTMS-to-Cisco WebEx PSTN Handshake for Audio, page 1-5](#)
- [Cisco WebEx CTMS Features, page 1-6](#)
- [Configuring CTMS, page 1-7](#)

Communications Channels for Cisco WebEx Calls

There are two paths for communications (Audio + Control & video):

1. HTTPS Tunnel from CTMS to Cisco WebEx:
 - Uses the URL from the configuration page.
 - The HTTPS Tunnel carries control messages, presentation, and CIF video.
 - The TCP connection is initiated from the CTMS to the Cisco WebEx site for firewall traversal. The Cisco Webex service will never try to open a TCP connection in the reverse direction.
2. Audio call back channel from PSTN:
 - One call per meeting. The call limit is the number of Cisco WebEx meetings that have been scheduled on the system. You can schedule a maximum of 24 meetings.
 - The CTMS sends the PSTN callback number to Cisco WebEx Telephony Server. This number must be routable through the Public Switched Telephone Network (PSTN). The callback number looks like an outside line to the enterprise, and is used for incoming calls from Cisco Webex to the CTMS.
 - Cisco WebEx dials back to the CTMS. The CTMS and Cisco WebEx negotiate the connection to the required meeting.

CTMS-to-Cisco WebEx Signaling

The following is expected behavior in CTMS signaling with Cisco WebEx during active meetings:

1. When the first CTS caller dials in, CTMS opens the HTTPS control tunnel and sends meeting details to Cisco WebEx, including the CTMS audio callback number.
2. Cisco WebEx validates the authentication key and meeting details.
3. Video is enabled:
 - a. The CTMS opens the CIF and presentation video channels over HTTPS.
 - b. CIF video is sent to the Cisco TelePresence Gateway for distribution to clients (if any).
 - c. The Cisco WebEx Welcome screen contains the meeting ID, host key, access number, and participant list.
 - d. During the meeting, the CTMS sends ongoing notifications to the Cisco TelePresence Gateway to update the roster list, and the active speaker list on the Cisco Webex clients and Cisco WebEx Welcome screen.



Note

The expected Bandwidth Utilization over the Tunnel per meeting is 300 Kpbs for CIF and up to 450 Kbps for presentation video.

CTMS-to-Cisco WebEx PSTN Handshake for Audio

The following is expected behavior in the CTMS audio handshake with Cisco WebEx and the PSTN:

1. The meeting starts with the first caller. CTMS opens a control channel to the Cisco TelePresence Gateway, which sends authentication information, the meeting ID, and the callback number.
2. Cisco WebEx dials the CTMS callback number that was configured on the Cisco WebEx configuration page in the CTMS.



Note The called number field in the INVITE must exactly match the number as it is configured on the CTMS configuration page.

3. The CTMS answers, validates the incoming number, and sends three pound signs (“###”) as greeting.
4. Cisco WebEx detects the “###” then sends the meeting ID and a “#” terminator.
5. The CTMS checks the meeting ID, then sends “****” (ACK).
6. The CTMS adds the call to the audio mixer for that meeting instance. The CTS caller then hears the incoming Cisco Webex audio.
7. Cisco WebEx adds its end of the call to the meeting and plays the Welcome audio prompt.
8. Audio connection is now established.

Cisco WebEx CTMS Features

Table 1-1 lists features that are supported on the CTMS.

Table 1-1 Cisco Cisco WebEx Features Supported on the CTMS

Feature	Description
<p>Meeting ID</p> <p>CTMS passes the Meeting ID to Cisco WebEx to link the meeting to CTS-Manager.</p>	<p>The conference is initiated to Cisco WebEx using the meeting ID as one of the parameters when the meeting launches.</p>
<p>G.711 and H.264 Video Support</p> <p>Video RTP media stream information is tunneled over HTTPS.</p>	<p>CTMS communicates G.711 audio and H.264 video to Cisco WebEx, and Cisco WebEx communicates in the same format.</p> <p>Note The audio connection to Cisco WebEx is established over the VoIP gateway. Audio media is not sent over the HTTPS tunnel.</p>
<p>CIF Video Support</p> <p>Common Intermediate Format (CIF) video information is sent to Cisco WebEx for the most active speaker in the meeting.</p>	<p>The CTMS sends CIF video from the most active speaker to Cisco WebEx at 30 FPS.</p>
<p>Connectivity to Cisco WebEx</p> <p>The CTMS uses VoIP for the Auxiliary video stream and the PSTN for the audio to ensure high quality for the voice portion of the conference.</p>	<p>To reduce latency for the audio portion of the call, audio is exchanged via the Cisco Unified CM PSTN trunk:</p> <ul style="list-style-type: none"> • Audio uses PSTN • Video uses the HTTPS tunnel
<p>Presentation Signaling Start/Stop</p> <p>The CTMS provides presentation start and quit functionality for Cisco WebEx.</p>	<p>The CTMS software communicates with the Cisco WebEx service to enable and control the sending and receiving of presentation video.</p>
<p>Statistics</p> <p>The CTMS maintains all Cisco WebEx connection statistics.</p>	<p>The CTMS maintains statistics on the conference state and send/receive data for the tunnel and audio traffic.</p>
<p>Error Indications</p> <p>The CTMS logs clear and concise errors at the administration level if issues arise with Cisco WebEx operations.</p>	<p>CTMS provides error messaging when it is not able to connect to the Cisco WebEx server. Error events are sent to the CTMS system log, and any audio call state issues are sent to the CTS phone meeting details page.</p>
<p>Roster Reporting - Join/Leave Function</p> <p>The CTMS signals a roster change for each CTS caller joining or departing a Cisco WebEx meeting.</p>	<p>The CTMS reports to Cisco WebEx when Cisco TelePresence rooms join and leave a Cisco WebEx meeting. The Cisco WebEx Web page contains a roster list of meeting participants, including the room identification of each CTS caller.</p> <p>This information is taken from the SIP header Remote Party ID field of the calling CTS endpoint. The origin of the room name field comes from the contents of the Cisco Unified CM “Alerting Name” field. If left blank by the Cisco Unified CM administrator, the name will not be available.</p> <p>Names are deleted and displayed as “unknown” as callers disconnect. As the active presenter changes, the Cisco WebEx service is notified which room is sending the presentation, so that it can be included on the Cisco WebEx roster.</p>

Table 1-1 Cisco Cisco WebEx Features Supported on the CTMS

Feature	Description
<p>Cisco WebEx Welcome Screen</p> <p>The CTMS displays the Cisco WebEx default screen when no presentation is active.</p>	<p>The CTMS defaults to Cisco WebEx “share active” and forwards any Cisco WebEx Welcome screen generated by the Cisco WebEx servers. The Cisco WebEx Welcome screen is displayed through Auto Collaborate in the Cisco TelePresence room.</p>
<p>Meeting Termination</p> <p>The CTMS passes notification to Cisco WebEx at the termination of call.</p>	<p>The CTMS notifies Cisco WebEx when any meeting is terminated, which causes the Cisco WebEx Tel. server to disconnect the audio call. The CTMS sends a BYE message with normal call clearing for the PSTN call leg.</p>
<p>Secure Meetings</p> <p>Support for encrypted and fully secure meetings.</p>	<p>CTS meetings are non-secure, but the SSL Auxiliary video connection is encrypted over the Internet.</p> <p>Note CTMS does not support secure meetings on the Cisco TelePresence side, because the system would require all Cisco TelePresence media to be decrypted and re-encrypted.</p>

Configuring CTMS

To configure Cisco WebEx on the CTMS, see [Chapter 3, “Configuring Cisco TelePresence WebEx OneTouch on the Cisco TelePresence Multipoint Switch.”](#)

Cisco Unified Communications Manager Administration Role

**Note**

Cisco Unified CM must be running firmware 7.x or a later release with the [MIDlets](#) application configured. MIDlets allows Cisco WebEx meeting details, including the Cisco WebEx access number, to be shown on the CTS Cisco Unified IP phone when a Cisco WebEx-enabled call is launched.

Cisco Unified CM controls the following functions in Cisco WebEx-enabled meetings:

1. Configuring the PSTN trunk to route audio calls from the PSTN to the CTMS.
2. Adding a route pattern to point to the PSTN trunk that was created.
3. Configuring the meeting room name so that the room name appears on the Cisco WebEx Participant list. See [Configuring the Room Name for the Cisco WebEx Participant List](#) in [Chapter 4](#), “[Configuring Cisco TelePresence WebEx OneTouch on Cisco Unified Communications Manager](#).”

**Note**

The phone number that is entered in the Cisco Unified CM Administration interface must be configured in full, including the country code, and must exactly match the phone number that is entered in the CTMS administration Dial In Number field. See the [Defining a Route Pattern for Cisco WebEx](#) section in [Chapter 3](#), “[Configuring Cisco TelePresence WebEx OneTouch on the Cisco TelePresence Multipoint Switch](#).”

Configuring Cisco Unified CM

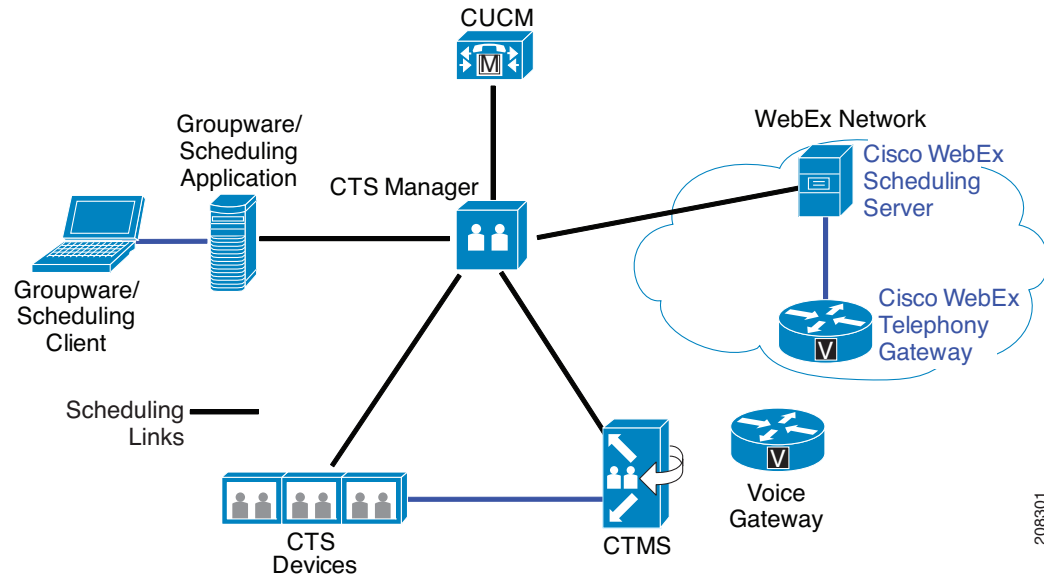
To configure the Cisco Unified CM for Cisco WebEx, see [Chapter 4](#), “[Configuring Cisco TelePresence WebEx OneTouch on Cisco Unified Communications Manager](#).”

CTS-Manager Administration Role

CTS-Manager supports Cisco TelePresence meeting scheduling with a single Cisco WebEx server. Both single and recurring meetings are supported. You also have the option to add Cisco Unified Video Conferencing (CUVC) to a Cisco WebEx meeting.

CTS-Manager manages the required Cisco WebEx resources for scheduled Cisco TelePresence meetings and integrates key enterprise calendaring applications like Microsoft Exchange and IBM Domino to coordinate Cisco TelePresence room schedule information. [Figure 1-2](#) shows the CTS-Manager Cisco WebEx scheduling topology.

Figure 1-2 CTS-Manager Cisco WebEx Scheduling Topology



CTS-Manager controls the following functions in Cisco WebEx-enabled meetings:

- During initialization (or after loss of connectivity), CTS-Manager sends a registration request to Cisco WebEx to retrieve the following configuration information:
 - Cisco WebEx host URL—The host URL provides access information for CTS-Manager to reach Cisco WebEx.
 - Cisco WebEx host name and password—A unique host name and password for your Cisco WebEx account.
 - Usable conference ID block.
 - Access numbers to be used for Cisco WebEx meeting participants in a Cisco Telepresence meeting.



Note

Any updates to scheduled Cisco Telepresence meetings are automatically updated on the Cisco WebEx server.

See the following sections for more information about CTS-Manager roles:

- [Initializing Cisco WebEx on the CTS-Manager, page 1-10](#)
- [Registering CTS-Manager to Cisco WebEx, page 1-10](#)
- [Initiating the Conference Push, page 1-11](#)
- [CTS-Manager Scheduling and Call Launch, page 1-11](#)
- [Configuring CTS-Manager, page 1-11](#)

Initializing Cisco WebEx on the CTS-Manager

During initialization, the Cisco WebEx server is configured on CTS-Manager and CTS-Manager registers with the Cisco WebEx server. CTS-Manager initiates the request. You need the following to authenticate each device:

- Hostname or IP address
- Username
- Password

The username and password combination are the same for both applications during initialization. Every request that is passed between CTS-Manager and the Cisco WebEx server are authenticated using these credentials. CTS-Manager supports secure communication (SSL) and Cisco WebEx sends and receives Simple Object Access Protocol (SOAP) messages over SSL.

Registering CTS-Manager to Cisco WebEx

CTS-Manager sends a register request to Cisco WebEx. In response to the registration request, the Cisco WebEx server sends its configuration information, which is saved in the CTS-Manager database. This heartbeat mechanism is maintained between CTS-Manager and Cisco WebEx to ensure that scheduled conferences are communicated to the Cisco WebEx server on a periodic basis.

[Table 1-2](#) contains a list of configuration parameters that are expected to be received by CTS-Manager in response to the registration request.

Table 1-2 Registration Request Configuration Parameters

Parameter	Description
SiteID	Identifies a prefix number which is exclusively assigned to Cisco Telepresence deployments that are integrated with the Cisco WebEx meeting solution. This is required to avoid meeting identifier conflicts with non-Cisco TelePresence meetings. The meeting ID for each scheduled meeting is generated by CTS-Manager randomly and each unique meeting ID is maintained in a given time slot. CTS-Manager follows the bounds of the ConferenceID range that was received during registration.
ConferenceID List	A meeting identifier used to uniquely identify a Cisco WebEx meeting; used in combination with the SiteID.
Access Number List	Leave the default value.
Web Service URL for the Cisco WebEx server	Used to track access points to the Cisco WebEx server. If there is a change in the URL, the Cisco WebEx server is required to trigger registration with CTS-Manager to retrieve updated information via the registration request. A trigger registration request has to be sent by the Cisco WebEx server if any of the following changes: <ul style="list-style-type: none"> • SiteID, ConferenceID, or access number list. • When the system is restarted. • While regaining connection with CTS-Manager if connection is lost.
Location information	Leave default value.
Description	Optional.
Capability information	Measures support for future compatibility.
Software Version	All Cisco applications must be using software release 1.7.0.

Initiating the Conference Push

CTS-Manager sends a list of conferences up to 14 days in advance to the Cisco WebEx server if the conference is scheduled to include Cisco WebEx participants. Conferences can be single occurrences or repeat meeting instances, and each meeting is uniquely identified by a MeetingIdentifier. [Table 1-3](#) lists key conference attributes.

Table 1-3 Conference Push Details

Conference Detail	Description
MeetingIdentifier	Unique identifier consisting of the SiteID and the ConferenceID
Start Time	Calculated in Coordinated Universal Time (UTC).
End Time	
Subject	Optional.
Conference list	<p>A conference list is sent to Cisco WebEx in the following circumstances:</p> <ul style="list-style-type: none"> Newly created meetings or meeting updates which fall within the “N” day window. In all cases, a full list worth “N” days is sent. Incremental meeting information is not sent to the Cisco WebEx server to avoid synchronization issues. Daily updates. This operation is used to synchronize information from external network devices, specifically addressing loss of network connectivity and software upgrades on external devices. <p>Note The Cisco WebEx server stores the conference list to handle system restart and software upgrades independently.</p>

CTS-Manager Scheduling and Call Launch

CTS-Manager provides a control link with the Cisco WebEx meeting scheduler. This interface allows CTS-Manager to place new meetings on the Cisco WebEx calendar, and to obtain Cisco WebEx meeting information that is distributed to meeting participants. CTS-Manager then pushes Cisco WebEx meeting details to the CTMS Conference Manager.

Configuring CTS-Manager

To configure CTS-Manager for Cisco WebEx, see [Chapter 5, “Configuring Cisco TelePresence WebEx OneTouch on Cisco TelePresence Manager.”](#)

Cisco TelePresence System Endpoint Role

The following sections contain information about how the CTS endpoint functions in the Cisco WebEx meeting solution:

- [How the Cisco TelePresence System Enables Cisco WebEx](#), page 1-12
- [CTS Endpoint Meeting Participation](#), page 1-13
- [Cisco WebEx User Options on the Cisco TelePresence System and CTS Cisco Unified IP Phone](#), page 1-13

How the Cisco TelePresence System Enables Cisco WebEx

This section contains information about the major CTS configuration components that enable the Cisco TelePresence WebEx OneTouch feature to function on the CTS endpoint:

- [CIF Video Encoder](#), page 1-12
- [Auxiliary Video Decoder](#), page 1-12
- [Audio Encoder/Decoder](#), page 1-12
- [Presentation Display Details for Multiple CTS Presenters](#), page 1-12

CIF Video Encoder

For Cisco WebEx meetings, the CTS endpoints encode and transmit CIF video at 300 Kpbs. The video of the most active CTS caller appears on the Cisco WebEx client.

Auxiliary Video Decoder

The CTS Auxiliary Video Decoder in CTS displays presentation video from Cisco WebEx. Shared presentation video from a Cisco WebEx client application is displayed at a frame rate of 1-2 frames per second.

Audio Encoder/Decoder

The Cisco WebEx solution uses the CTS G.711 interoperability stream to allow presentation audio in the G.711 mixer input. This enables Cisco Webex callers to see a CTS presentation and hear the Cisco Telepresence audio simultaneously. Cisco WebEx callers can hear the live audio when other CTS participants are speaking, including presentation audio.

**Note**

The output mix from the CTS to the CTMS includes all microphone sources and the Auxiliary audio input. CTMS receives Auxiliary audio automatically.

Presentation Display Details for Multiple CTS Presenters

Presentation streams come from the active presenter's CTS endpoint; the last Auxiliary cable that plugged into the meeting becomes the presenter. As cables are unplugged, replacement presenter selection follows the sequence of cable connections.

**Tip**

For best results, close the Cisco WebEx application before connecting your presentation cable to your laptop to present.

CTS Endpoint Meeting Participation

CTS endpoints can initiate a presentation at any point by plugging the VGA Auxiliary cable into the CTS endpoint presenter's laptop, which automatically switches from the Cisco WebEx presenter to the CTS endpoint presenter.

The Participant list, a roster of conference room names, is pushed down to the CTMS from CTS-Manager at scheduling time. As CTS endpoints join the Cisco WebEx-enabled meeting, the associated conference room name(s) appear on the Cisco WebEx roster.

**Note**

The room name text is obtained from the **Room Name** field that is configured in the Cisco Unified CM administration Product Specific Configuration Layout field. See the [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#) for more information.

A Participant list also appears on the CTS Cisco Unified IP phone, which shows the Cisco WebEx connection as a single gateway entry rather than showing every Cisco WebEx participant.

See the [Cisco TelePresence System User Guide](#) for more information about the CTS Cisco Unified IP phone interface.

Cisco WebEx User Options on the Cisco TelePresence System and CTS Cisco Unified IP Phone

[Table 1-4](#) lists features that are supported on the CTS and the CTS Cisco Unified IP phone.

Table 1-4 Cisco WebEx Features Supported on the CTS

Feature	Description
<p>Cisco WebEx Welcome screen</p> <p>The Cisco WebEx Welcome screen provides meeting details and the participant list, which is also visible through the Cisco WebEx interface.</p>	<p>The Cisco WebEx Welcome screen appears on the CTS main display when no one in the meeting is presenting and meeting participant laptops are not connected to the auxiliary video cable.</p>
<p>Data Sharing</p> <p>CTS supports well-formed presentation video sent to and from the CTMS for Cisco WebEx data sharing.</p> <p>You can use Cisco TelePresence Auto Collaborate share function through the Cisco WebEx application; data displays simultaneously in the Cisco TelePresence room and on the Cisco WebEx session.</p>	<p>CTS enables data share between Cisco TelePresence Auto Collaborate and Cisco WebEx when a Cisco TelePresence meeting is Cisco WebEx enabled:</p> <ul style="list-style-type: none"> • When you plug your laptop into a CTS system’s auxiliary video cable, the content is shared on the Auto Collaborate screen. • When you share content using Cisco WebEx (with presenter privileges), that content is also visible via Auto Collaborate in all the Cisco TelePresence rooms in that call. • A CTS user can share content between Auto Collaborate and Cisco WebEx without having to join or log into a Cisco WebEx session. • The Cisco TelePresence Auto Collaborate feature continues to work with the “last one wins” paradigm, which determines which data content is displayed in all Cisco TelePresence rooms and shared with Cisco WebEx. If a CTS presenter unplugs their Auxiliary cable, the presentation will revert to the previous CTS presenter, if any. <p>Note Presentations never automatically revert to Cisco WebEx clients.</p> <p>Note Make sure that the PC that is used to share the presentation is not using a browser to log into the Cisco WebEx meeting.</p> <ul style="list-style-type: none"> • If no users in any of the Cisco TelePresence rooms are currently plugged in to the Auto Collaborate channel, the system shows the default Cisco WebEx screen for that meeting. • Data sharing between Cisco TelePresence and Cisco WebEx is supported at 5 FPS.
<p>One-Button-to-Push (OBTP) Audio</p> <p>The CTS supports G.711 compression for sending and receiving audio from Cisco WebEx.</p>	<p>The CTS supports Cisco WebEx audio for each scheduled CTS meeting that is Cisco WebEx enabled. The system automatically joins the Cisco WebEx audio bridge when the call is launched using One-Button-to-Push.</p>
<p>Audio Addin</p> <p>Audio add-in calls and Presentation Audio are supported simultaneously while in a Cisco WebEx meeting.</p>	<p>The CTS supports Auxiliary audio via your PC port when the CTS endpoint is plugged into the Auto Collaborate data channel. The Auxiliary Audio supports sending presentation audio to Cisco WebEx. The audio media is carried over the PSTN connection between the Cisco WebEx or TSP audio bridge, and the CTMS. Auxiliary Audio is heard by Cisco WebEx callers.</p>

Table 1-4 Cisco WebEx Features Supported on the CTS

Feature	Description
<p>Cisco WebEx Ball Icon</p> <p>The Cisco WebEx “ball” icon is present on the CTS Cisco Unified IP Phone schedule page of the phone user interface for each meeting event that is Cisco WebEx enabled.</p>	<p>CTS-Manager marks meetings as Cisco Webex enabled and provides additional details of the active call. The phone UI also contains a meeting details page with other access information.</p>
<p>Meeting Details</p> <p>Meeting details are shown on the CTS Cisco Unified IP Phone, including the Cisco WebEx access number.</p>	<p>The CTS shows Cisco WebEx meeting details on the CTS phone when a call is launched. The runtime display includes the Cisco WebEx audio call status as reported by CTMS using the Conference Control Channel Protocol (CCCP).</p>

Key Call Connection Functionality

Call connection functionality includes the following:

- Both live video and presentation video is carried over a secure HTTPS tunnel using port 443. This port number is added to the Cisco TelePresence Gateway URL while configuring the CTMS in the [“Configuring Cisco WebEx Details in CTMS” section on page 2](#).
- The HTTPS tunnel is created on the CTMS, and the CTMS initiates the outbound TCP connection to the Cisco WebEx service.
- Once the connection is established, the CTMS exchanges handshake and meeting details with the Cisco WebEx service.
- Audio is carried separately and uses a connection from the PSTN that terminates on the CTMS. Each meeting uses a separate call, but uses the same inbound number.
- When the PSTN call arrives at the CTMS, the CTMS and the Cisco WebEx service negotiate the local CTMS meeting ID to which the call is to be connected. The handshake information that is sent to Cisco WebEx includes the number that the Cisco WebEx service should call (which is defined on the CTMS) and the meeting instance identifier.
- If errors occur, the CTMS automatically initiates recovery of the connection via the HTTPS tunnel signaling.

See the following sections for more information about Cisco TelePresence with Cisco WebEx call components:

- [The Audio Component of a Call, page 1-15](#)
- [The Video Component of a Call, page 1-16](#)
- [Call Security and Licensing, page 1-16](#)

The Audio Component of a Call

The system uses the traditional Cisco WebEx services for sharing audio. The Cisco WebEx user dials into a conference bridge located in the Cisco WebEx network. Users may also optionally use the VoIP client, running on a local PC as part of the Cisco WebEx client package.

Audio from the CTS endpoints is forwarded as a G.711 stream to the CTMS. The CTMS performs the stream selection and mixing function, then forwards the mixed output to the Cisco WebEx audio bridge over the PSTN connection.

Audio streams from Cisco WebEx callers are mixed on the Cisco WebEx Telephony server and sent over the PSTN connection to the local PSTN Gateway. The Gateway then encodes the media as G.711 and forwards it to the CTMS. The CTMS then forwards that audio stream to each endpoint in the call using DTMF to negotiate.

The Video Component of a Call

Cisco TelePresence video is automatically streamed into the Cisco WebEx session, so remote users can view video of the active Cisco TelePresence participants. On the Cisco WebEx side, the system uses the standard Cisco WebEx services for sharing and viewing presentation video, and for displaying the live CIF video from the Cisco TelePresence endpoint. Cisco Telepresence participants in the meeting continue to see each other with normal high definition 1080p or 720p video. Cisco Presentation video from Cisco WebEx is displayed on the local projector or Presentation-in-Picture (PiP) display area with a frame rate of up to 5 FPS.

**Note**

Cisco WebEx video always appears on the Auxiliary output channel and is only seen on the main display screen when PiP is used.

You can relocate the PiP display on the main display screen or hide PiP altogether using the PiP softkey on your CTS Cisco Unified IP phone.

The video stream of the most active Cisco Telepresence speaker is sent to the Cisco WebEx network where it can be seen on the participants' Cisco WebEx client program. Video is sent using CIF resolution set at 352 x 288 pixels, with a lower bitrate than is used for standard Cisco Interoperability meetings.

Auxiliary video presentations from Cisco WebEx participants are encoded (using H.264 format by the participant's local PC client) and sent to the Cisco WebEx conferencing system. The conferencing system then packetizes the Auxiliary video into RTP format at 5 frames per second, and forwards it to the CTMS via the CTMS Cisco WebEx interface.

**Note**

Actual frame arrival rates may be much lower, depending on network conditions and the capabilities of the client software, so variable arrival rates for auxiliary video is supported.

Call Security and Licensing

Because Cisco WebEx does not support Datagram Transport Layer Security (DTLS) or Encrypted Key Transport (EKT) media encryption, Cisco Telepresence multipoint meetings are not encrypted. Only the SSL tunnel from the CTMS to Cisco WebEx over the public Internet will use a secure link.

Cisco WebEx bundles a long-term (10 year) SSL certificate with the Cisco WebEx interface. This certificate is already loaded into the system, so you do not need to load the certificate yourself.

**Caution**

The only circumstances under which you must upload a new certificate are if the currently loaded certificate exceeds its 10-year term or changes are made to the Cisco WebEx service, which requires that you to use a different certificate. Uploading a new certificate without the currently loaded certificate expiring could potentially disable the Cisco WebEx function.

If one of the expiration circumstances applies, you can load a new certificate through the WebEx page in the CTMS Administration interface or by updating to the most current CTMS release. To request a new license, contact Cisco [TAC](#).

Understanding the CTS Meeting Experience

This section contains the following Cisco WebEx user interface information:

- [The CTS Cisco Unified IP Phone, page 1-17](#)
- [The Meeting Details Page, page 1-18](#)
- [The Cisco WebEx Collaboration Conference Experience, page 1-18](#)
- [Initiating a Scheduled Cisco Telepresence Meeting, page 1-20](#)
- [Hosting a Presentation, page 1-20](#)

The CTS Cisco Unified IP Phone

CTS-Manager indicates to the CTS that the meeting is Cisco WebEx-enabled when the meeting schedule is downloaded to the CTS phone. Each meeting that is Cisco WebEx-enabled shows the blue-green ball icon next to the meeting entry, as shown in [Figure 1-3](#).

Figure 1-3 Cisco WebEx Enabled on the CTS Phone



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The Meeting Details Page

The CTS phone interface includes a meeting details page, which contains static information (including the meeting access number, the status of the CTMS audio connection with Cisco WebEx, and meeting ID) that is downloaded from CTS-Manager as part of the meeting schedule. The Cisco WebEx caller uses this information to join the Cisco WebEx meeting.

Additionally the CTS phone accepts dynamic status updates that detail the Cisco WebEx PSTN call state on the CTMS. When the call connects, the meeting details page indicates the current state of the audio call to the CTS user via the Conference Control Protocol (CCP) messages that are exchanged between the CTMS and the CTS endpoints in the meeting. Each CTS that is connected to the meeting is updated with this status.

For more information, see the [Using Cisco WebEx Conferencing](#) section of the *Cisco TelePresence System User Guide* on Cisco.com.

The Cisco WebEx Collaboration Conference Experience

This section contains the following information about the Cisco TelePresence with Cisco WebEx caller experience:

- [Scheduling a Call, page 1-19](#)
- [Mapping Enterprise to a Cisco WebEx account, page 1-19](#)
- [Re-Validating Cisco WebEx User IDs, page 1-20](#)

Scheduling a Call

Schedule a Cisco TelePresence room by using standard calendaring software such as Microsoft Exchange or IBM Lotus Domino. You can schedule meetings in two different modes with setting options defined in Cisco TelePresence Manager based upon one of three possible end user configurations controlled by CTS-Manager:

- **Premium User—Cisco WebEx Always-On.** Use this option if you want to use Cisco WebEx Meeting Center for every Cisco TelePresence meeting. “Always-On” users select the Cisco TelePresence rooms in the calendaring application and the Cisco WebEx session is automatically set up. A meeting confirmation e-mail is sent from Cisco TelePresence Manager with Cisco WebEx session details that the scheduler can forward to the Cisco WebEx attendees.
- **Permitted User—Enable Cisco WebEx Per Meeting.** This option requires you to enable a Cisco WebEx session with each Cisco TelePresence meeting by doing the following:
 - a. Select Cisco TelePresence rooms in the Microsoft Outlook or Lotus Notes client.
 - b. Follow the link provided in the Cisco TelePresence Manager confirmation e-mail message.
 - c. Enable the Cisco WebEx meeting option in the Cisco TelePresence Manager Meeting View page.
 - d. Receive a confirmation e-mail message from Cisco TelePresence Manager with the Cisco WebEx session details. The Cisco TelePresence scheduler forwards the e-mail to the Cisco WebEx attendees.

When the meeting is scheduled, CTS-Manager pushes the schedule information, along with the Cisco WebEx meeting details, to the CTMS Conference Manager. This information is maintained in the Conference Manager until the meeting starts.

- **Non-Permitted User—Disallow Cisco WebEx.** You can configure CTS-Manager to disallow Cisco WebEx support entirely. Users configured in this mode may not use the Cisco WebEx feature, and may only schedule standard multipoint CTMS meetings.

**Note**

Each CTMS can support up to 24 simultaneous Cisco WebEx-enabled meetings. CTS-Manager ensures that this limitation is not exceeded for any server at scheduling time.

You can start a Cisco WebEx meeting earlier than the scheduled time (up to 30 minutes).

Mapping Enterprise to a Cisco WebEx account

Cisco WebEx requires a Cisco WebEx-specific user ID for scheduling meetings. This ID is used for authentication, authorization, and billing purposes. Users scheduling Cisco TelePresence meetings also need to have an account set up on the Cisco WebEx server so that they can log in to Cisco WebEx.

When you enable Cisco WebEx through CTS-Manager for the first time, the system redirects your browser to the Cisco WebEx server. The Cisco WebEx server determines whether the site is single sign-on (SSO)-enabled, which affects how you create your Cisco WebEx account:

- If the site is SSO enabled, the user browser is redirected to the customer SSO login page where you enter your SSO credentials. Once authentication is passed, the SSO server redirects the user browser back to the Cisco WebEx server with a token that the Cisco WebEx server decodes and passes back to CTS-Manager.

- If the site is not SSO-enabled, the Cisco WebEx-hosted login page appears. The Cisco WebEx server prompts for the Cisco WebEx username and password, authenticates the user, and generates an authentication token. Once authentication is passed, Cisco WebEx redirects the browser back to CTS-Manager.

Once you have successfully created your account and are logged in to the Cisco WebEx server, essential Cisco WebEx parameters are logged (Cisco WebEx username and Telephony Service Provider (TSP) telephony pass-codes for TSP users, for example) and encoded for better security. Your Cisco WebEx ID is kept in the database for future validation the next time the user schedules a Cisco WebEx meeting.

Re-Validating Cisco WebEx User IDs

In some cases a user may schedule a Cisco WebEx-enabled Cisco TelePresence meeting, but the user account becomes disabled or expires before the scheduled meeting date. If Cisco WebEx discovers an invalid user ID, all future meetings scheduled by that user are marked as “Error” and a notification e-mail is sent asking the user to re-validate their scheduling credentials.

To regain scheduling privileges, simply log in to the CTS-Manager Administration interface and re-validate with the correct Cisco WebEx ID.

Initiating a Scheduled Cisco Telepresence Meeting

The Cisco Telepresence user initiates the Cisco WebEx meeting dial-in by pressing the designated [One-Button-to-Push](#) on the CTS Cisco Unified IP phone. The call progresses to the connected state and the CTS endpoint immediately joins the meeting. Any Cisco WebEx callers that are in the waiting room will be announced by the Cisco WebEx server and placed into the meeting. Subsequent CTS callers may come and go from the meeting, and the meeting will persist as long as one CTS endpoint is still connected. Once the last CTS endpoint departs and there is no alternate host assigned, the meeting terminates and any remaining Cisco WebEx users are disconnected. If there is an alternate Cisco WebEx host assigned and they have joined the meeting, the Cisco WebEx meeting will not terminate when the CTMS disconnects.



Note

Because Cisco WebEx sends only Auxiliary video, the main display screen remains black until another CTS caller joins the meeting. An on-screen message appears to inform the CTS participant that no video is available.

Hosting a Presentation

In Cisco Telepresence-enabled meetings the CTMS is always the host, and as such is automatically granted presenter status and may present at any time.



Note

Alternate hosts are also possible. These hosts would log into Cisco WebEx with a Web browser.

CTS presentations are initiated by plugging in the Auxiliary cable on the CTS endpoint. When there is no active presentation, Cisco WebEx transmits a Welcome page, which is visible on the CTS Auxiliary output display. This page contains meeting details and roster information.

If a Cisco WebEx caller wishes to present, a meeting host must be logged into the Cisco WebEx Web client to grant permission before the new presentation will be allowed.

**Note**

Any updates to the presentation causes a refresh on the Cisco WebEx client application at a rate of 5 FPS.

**Tip**

When transitioning from a Cisco WebEx presenter to a Cisco TelePresence presenter, the Cisco TelePresence presenter must perform these steps to initiate the transition:

- If logged into the Cisco WebEx Meeting Center client, exit from the client.
- If the VGA cable is already plugged into a laptop, unplug the cable
- Plug the cable into the presenter's laptop.

Where to Go Next

To implement Cisco WebEx interoperability for your Cisco TelePresence meeting, configure the following:

1. CTMS—See [Chapter 3, “Configuring Cisco TelePresence WebEx OneTouch on the Cisco TelePresence Multipoint Switch.”](#)
2. Cisco Unified CM—See [Chapter 4, “Configuring Cisco TelePresence WebEx OneTouch on Cisco Unified Communications Manager.”](#)
3. CTS-Manager—See [Chapter 5, “Configuring Cisco TelePresence WebEx OneTouch on Cisco TelePresence Manager.”](#)

