



Cisco TelePresence System Administration Guide

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- [Related Documents, page xii](#)
- [Obtaining Documentation and Submitting a Service Request, page xiii](#)

What's New

For a complete list of features for this release, see the following documentation on Cisco.com:

- [Release Notes for Cisco TelePresence System](#)

For supported software compatibility across all releases, see the following documentation:

- [Cisco TelePresence Administration Software Compatibility](#)

Before You Begin

Before beginning the tasks in this guide, familiarize yourself with the following:

- [Information About the Touch Device, page x](#)
- [Assembly and Wiring Guidelines, page x](#)
- [CTS Software Download Support, page xi](#)
- [Obtaining the MAC Address of Your System, page xi](#)
- [Network Time Protocol \(NTP\) Requirements, page xii](#)
- [Unified Communications Manager and COP File Download Support, page xii](#)
- [Unified Communications Manager and COP File Download Support, page xii](#)
- [Web Browser Support, page xii](#)

Information About the Touch Device

For information about installing and configuring your Cisco TelePresence Touch 12 device, refer to the [Installing and Configuring the Cisco TelePresence Touch 12](#) on Cisco.com.

Assembly and Wiring Guidelines

Make sure your CTS is properly assembled and wired according to the guidelines in the Cisco TelePresence System installation guides on cisco.com.

The installation documentation is at the following URLs:

Cisco TelePresence System 500-32 Assembly, Use & Care, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_500/cts_500_32/assembly/guide/cts_500_32_guide.html

Cisco TelePresence System TX1300 47 Installation, First-Time Setup, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_1300/cts_1300_47/assembly/guide/1300_47_assembly_guide.html

Cisco TelePresence System TX1310 65 Assembly, First-Time Setup, and Field Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_1300/cts_1310/assembly/guide/1310_assembly_guide.html

Cisco TelePresence System TX9000 and TX9200 Assembly, First-Time Setup, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/tx9000/assembly_guide/tx9000_9200_assembly_guide.html

To find additional hardware and software information for your product, perform one of the following actions:

- Log onto Cisco.com, Click **Support**, type the name of the product in the Product Support text box, and click **Find**.
- Navigate to the following URL on cisco.com:

<http://www.cisco.com/cisco/web/psa/default.html?mode=prod&level0=280789323>

Then, use one of the navigation paths to find your system:

Products > TelePresence > TelePresence Endpoints - Immersive

- Cisco TelePresence TX9200 Series
 - Cisco TelePresence TX9200
- Cisco TelePresence TX9000 Series
 - Cisco TelePresence TX9000
- Cisco TelePresence TX1300 Series
 - Cisco TelePresence TX 1300 47
 - Cisco TelePresence TX 1310 65

Products > TelePresence > TelePresence Endpoints - Personal > TelePresence Office > Cisco TelePresence System 500

- Cisco TelePresence System 500-32

CTS Software Download Support

To find and download the Cisco TelePresence software that is required for the correct operation of your system, complete the following steps:

- Step 1** Navigate to the area where your device software is located by completing one of the following actions:
- Log onto Cisco.com, Click **Support**, type the name of the product in the Product Support text box, and click **Find**.
 - Manually navigate to your product by performing the following steps:

- a. Navigate to the following URL on cisco.com:

<http://www.cisco.com/cisco/web/psa/default.html?mode=prod&level0=280789323>

- b. Use one of the navigation paths to find your system:

Products > TelePresence > TelePresence Endpoints - Immersive

Cisco TelePresence TX9200 Series

Cisco TelePresence TX9000 Series

Cisco TelePresence TX1300 Series

Products > TelePresence > TelePresence Endpoints - Personal > TelePresence Office > Cisco TelePresence System 500 >

Cisco TelePresence System 500-32

For example:

Products > TelePresence > TelePresence Endpoints - Immersive > Cisco TelePresence System TX9200 Series > TX9000 Series

- Step 2** Click the **Download Software** link under the **Software Downloads, Release and General Information** heading.
- Step 3** Select your product in the navigation window.
The location choice displays on the right of the window.
- Step 4** Locate the software you require and either download it immediately by clicking the **Download** button, or download it later by clicking the **Add to Cart** button.
- Step 5** If you selected Add to Cart, click the **Download Cart** hypertext and click the **Download** button next to each software choice to download your software.

Obtaining the MAC Address of Your System

Make sure the MAC address of the device you are installing is known or available:

- The MAC address comprises a unique 12-character hexadecimal number that identifies your system.
- Locate the MAC address number on a label on the back of the Cisco TelePresence system primary codec (for example, 000B6A409C405). The MAC address is required to register your system in Unified CM.

The MAC address is also displayed on the CTS main display screen during boot-up.



Note

When entering the MAC address in Unified CM fields, do not use spaces or dashes, and do not include any other characters that may precede the MAC address on the label.

Network Time Protocol (NTP) Requirements

NTP is required to synchronize the clocks on Cisco IP telephony servers. NTP must be configured properly on Unified CM to ensure that calendar events appear as expected.

See [Table 5-5](#) in [Chapter 5, “Configuring the Cisco TelePresence TX System”](#) for more information about configuring NTP and other CTS system settings.

Unified Communications Manager and COP File Download Support

See the “[Managing Cisco Options Package \(COP\) Files on the Cisco TelePresence System](#)” section in the *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System* for detailed information about managing COP files.

Web Browser Support

The Cisco TelePresence System Administration interface is supported on Internet Explorer (IE) versions 8 and 9, as well as the latest version of Firefox.

Related Documents

Document Title	Related Topic
<ul style="list-style-type: none">Cisco Digital Media Players	Digital Media Player home page on Cisco.com
<ul style="list-style-type: none">Cisco TelePresence Administration Software	Documentation for Cisco TelePresence Administration Software, including the latest release notes for the system software.
<ul style="list-style-type: none">Cisco TelePresence Manager home page on Cisco.comCisco TelePresence Management Suite	Documentation for Cisco TelePresence Manager
<ul style="list-style-type: none">Cisco TelePresence MCU 5300 SeriesCisco TelePresence MCU 4501 SeriesCisco TelePresence MCU 4500 SeriesCisco TelePresence MCU 4200 SeriesCisco TelePresence MCU Conference DirectorCisco TelePresence MCU MSE Series	Home pages for the Cisco Multipoint Control Unit (MCU) Series
<ul style="list-style-type: none">Cisco Jabber for TelePresence	Cisco Jabber for TelePresence (Movi) home page.

<ul style="list-style-type: none"> • Cisco TelePresence Multipoint Switch 	Documentation for the Cisco TelePresence Multipoint Switch (CTMS)
<ul style="list-style-type: none"> • Installing and Configuring the Cisco TelePresence Touch 12 	Installing and configuring the Cisco TelePresence Touch 12.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at the following URL:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.





Using the Cisco TelePresence TX System Administration Interface

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Contents

This chapter contains the following sections:

- [Overview, page 1-1](#)
- [System Status, page 1-2](#)
- [Navigation, page 1-5](#)
- [Where to Go Next, page 1-8](#)

Overview

Administrators use the Cisco TelePresence System Administration interface to maintain the Cisco TelePresence System (CTS).



Note

No more than one administrator should access the CTS Administration interface at one time.

Administration tasks include the following:

- Viewing device information and detailed system status information
- Configuring system settings
- Monitoring the status of Cisco TelePresence system equipment
- Troubleshooting the system

For first-time setup instructions, refer to the Cisco TelePresence System Assembly Guide for your system on Cisco.com:

Cisco TelePresence System 500-32 Assembly, Use & Care, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_500/cts_500_32/assembly/guide/cts_500_32_guide.html

Cisco TelePresence System TX1300 47 Installation, First-Time Setup, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_1300/cts_1300_47/assembly/guide/1300_47_assembly_guide.html

Cisco TelePresence System TX1310 65 Assembly, First-Time Setup, and Field Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_1300/cts_1310/assembly/guide/1310_assembly_guide.html

Cisco TelePresence System TX9000 and TX9200 Assembly, First-Time Setup, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/tx9000/assembly_guide/tx9000_9200_assembly_guide.html

Figure 1-1 shows an example of the Cisco TelePresence System Administration window. Click the task name or the arrows in the left panel to navigate to tasks.

Figure 1-1 Main Cisco TelePresence System Administration Window

The screenshot displays the Cisco TelePresence System Administration web interface. The top navigation bar includes the Cisco logo, the title "Cisco TelePresence System Administration", and user options: "admin", "Logout", "Help", and "About". The main content area is divided into several sections:

- Phone:** 81122701
- Device Information:**
 - System Model: Cisco TelePresence 500-32
 - System Configuration: Single
 - Phone Number: 81122701
 - Meeting Room:
 - TelePresence MAC Address: 1C:DF:0F:76:F5:16
 - TelePresence Host Name: SEP1CDF0F76F516
 - TelePresence IP Address: 10.22.79.152
 - Cisco TelePresence Touch MAC Address: 00:19:30:5F:1D:AF
 - Cisco TelePresence Touch Software Version: CTS-CTRL-DV12 6.0.0(39) 2012-11-13
- Hardware/Software Versions:**

Hardware Version	Slot 1 Image	Slot 2 Image	Factory Image
0005	TX 6.0.0(39) P2 2012-11-13 16:15 *	CTS Pulsar1(147) P2 2012-06-05 1	CTS 1.8.0(44) P2 2011-10-28 14:0
- System Status:**
 - Cameras: ✓
 - Displays: ✓
 - Doc Camera: ✓
 - Presentation Out: ✓
 - Touch: ✓
 - Unified CM: OK
 - In a Call: No
 - Updated: 0 min 2 secs

The bottom of the interface features a search bar with the text "there is no works" and navigation controls: "Next", "Previous", "Highlight all", and "Match case".

System Status

This section contains the following system status information:

- [System Status Window, page 1-3](#)
- [Device Status Indicators, page 1-4](#)
- [Cisco Unified Communications Manager Status, page 1-5](#)
- [In a Call Indicator, page 1-5](#)

System Status Window

System status is always in view in the lower left corner of the Cisco TelePresence System Administration screen, as shown in [Figure 1-2](#). The system administrator should closely monitor this area for changes in the status of the Cisco TelePresence system functions and equipment. The system status is updated every 60 seconds.

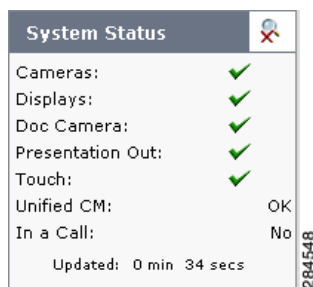

Note

Information provided in the System Information Details window is used by Cisco technical support personnel to assist in troubleshooting your system.

To view detailed status information in the System Status box:

- Step 1** Move your mouse over the colored icons in the System Status box to display dialog boxes containing the state of each piece of equipment. For example, rolling your mouse over the green check-mark icons in [Figure 1-2](#) will show the detailed state of the equipment.

Figure 1-2 System Status Window



Or

- Step 2** Click the magnifying glass icon in the upper right corner of the System Status box. A new window opens with the following two tabs:
- **System Information Details**—Lists detailed information about your CTS, including the camera, audio, and display.
 - **Status Details**—Lists status details of CTS components and software, including the camera, or presentation display, and whether your Unified CM configuration is enabled and functional.







For more information, see [Chapter 3, “Device Information.”](#)

Device Status Indicators

CTS devices include the following:

- Cameras
- Displays
- Document Camera
- Presentation display (if present)
- Cisco Touch device

The System Status box shows the following icons for the camera, display, documentation camera, projector, and Cisco Touch device for the conditions indicated.

-  Ellipses or Black Dot—Microphone is not expected or microphone is not connected.
-  Green check mark—Device is configured and operational.
-  Hourglass—Device status is unknown or is being determined.
-  Question Mark—Microphone is not expected or microphone is not connected.
-  Red X with a broken pipe—Device is inaccessible. This icon is seen if the primary codec cannot communicate with a secondary codec.
-  Red X—Device is not connected or device is not configured:
 - Cameras—When the video cable is not connected or is loose, or when the Ethernet cable is not connected.
 - Displays—When the video cable is not connected or the display does not have power.
 - Projectors—If the video cable is unplugged or the unit does not have power.
 - Microphones—Offline.
 - If you have specified in Cisco Unified Communications Manager (Unified CM) that a projector/LCD is present and there is not one present.

Determining Device Status Using the Troubleshooting Interface

To determine individual microphone and speaker functionality, use the hardware troubleshooting interface for your system. To find troubleshooting information for your system, follow the steps in the [“Troubleshooting Your TX and CTS System Components”](#) section on page 5-24.

Cisco Unified Communications Manager Status

The Cisco Unified Communications Manager can be in the following states:

- Enabled and OK
- Inaccessible

In a Call Indicator

The Status box tracks when the meeting room is in a call and displays the security level of active calls. When in a call, the security level is determined between the two endpoints. There are five possible levels of levels of security.

- **Yes/Encrypted**—Active call with both the signaling and the media encrypted.
- **Yes/Authenticated**—Active call with encryption on the call signaling only.
- **Yes/Non-Secure**—Active call with no authentication or encryption.
- **Yes/Not Available**—Active call but the security level of that call is unavailable.
- **No**—Not actively in a call.

Navigation

In the navigation pane at the left side of the Cisco TelePresence System Administration window, the Configuration, Troubleshooting, and Monitoring folders display lists of tasks. Lists of tasks are also displayed in the main content area of the window when you click any of the following topics in the navigation pane:

- Configuration
- Troubleshooting
- Monitoring

You can quickly access a task by clicking the highlighted name (IP Settings, for example).

[Figure 1-3](#) shows your choices for accessing system administration tasks.

Figure 1-3 Choosing Cisco TelePresence System Administration Tasks

The screenshot displays the Cisco TelePresence System Administration interface. At the top, the Cisco logo and title "Cisco TelePresence System Administration" are visible, along with user information "admin | Logout | Help | About". The main content area is titled "Configuration" and shows a list of configuration options for phone 81122704. A note indicates that configuration settings may only be changed in Unified CM.

System Status	Status
Cameras:	✓
Displays:	✓
Doc Camera:	✓
Presentation Out:	✓
Touch:	✓
Unified CM:	OK
In a Call:	No
Updated: 0 min 35 secs	

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The following sections describe objects, functions, and information that is displayed in the windows associated with the Cisco TelePresence System Administration interface:

- [Administration Window Header, page 1-7](#)
- [Content Area, page 1-7](#)
- [Typing and Selecting Information in Fields, page 1-7](#)
- [Validating Information in Fields, page 1-7](#)
- [Validating Information in Windows, page 1-7](#)

Administration Window Header

The header at the top of all Cisco TelePresence System Administration windows contains the name of the person currently logged in and provides links for the following functions:

- **Logout**—Click to log out of the system.
- **Help**—Click to display online help for using the Cisco TelePresence System Administration.
- **About**—Click to display software version and licensing information.

Content Area

The frame on the right is the content area, and the gray bar above the content area shows the navigational path so you can quickly identify where you are at any time.

Typing and Selecting Information in Fields

To modify information in fields, use the mouse to highlight and delete existing information. Type in new information. Some fields offer drop-down menus from which you choose settings.

Validating Information in Fields

Some Cisco TelePresence System Administration windows contain **Apply** and **Reset** buttons, which are initially disabled. Once you change or add settings in these windows, both buttons become enabled.

- Use the **Apply** button to apply new or modified information. When you click **Apply**, validation is performed for all fields in that window, and a message is displayed if there is invalid data in the fields.
- Use the **Reset** button to discard changes and restore the values shown when the window was first displayed.

Other Cisco TelePresence System Administration windows have fields containing information such as IP addresses, domain names, media port numbers (view only), and so on, that are validated when you exit the field. When information in a field is found to be invalid, a message describing the error is displayed.

**Note**

View only fields such as stop and start media port numbers can be configured by going to **Devices > Device Settings > SIP Profile** in the Cisco Unified CM Administration interface. See the [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#) on Cisco.com for more information.

Validating Information in Windows

When you go to the navigation pane and click a task, the Cisco TelePresence System Administration software checks data in the current window and takes an action, as follows:

- If all changes are saved, the content area displays the requested window.

- If there are unsaved changes in the current window and data is valid, a message reminds you that there are unsaved changes. An **OK** button saves the changes, and a **Cancel** button allows you to continue modifying data.
- If there are unsaved changes and the data is not valid, a message explains what to do and provides **OK** and **Cancel** buttons to assist you.

**Note**

If you change settings and click **Apply** in the navigation pane, the request may take a few moments to take effect. Wait until the pending request is completed before clicking a new task.

Where to Go Next

Proceed to [Chapter 3, “Device Information”](#) to access the Cisco TelePresence System Administration interface. For a full description of the fields in the interface, proceed to the [Chapter 2, “Understanding the Fields In the Cisco TelePresence TX System Administration Interface”](#).



Understanding the Fields In the Cisco TelePresence TX System Administration Interface

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Contents

This chapter contains the following sections:

- [Fields in the Troubleshooting Area, page 2-3](#)

Fields in the Configuration Area

This section contains information about the fields that are in the Configuration area and contains the following topics:

- [IP Settings, page 2-1](#)
- [Network Settings, page 2-2](#)
- [Call Control Settings, page 2-2](#)
- [Address Book, page 2-2](#)
- [Telephony Settings, page 2-2](#)
- [SNMP Settings, page 2-2](#)
- [System Settings, page 2-3](#)
- [Security Settings, page 2-3](#)

IP Settings

The IP Settings window displays the CTS MAC address and hostname and you can view and manage the following:

- DHCP—Choose **Yes** if your network uses the Dynamic Host Configuration Protocol (DHCP) to dynamically assign a network address for your system. Choose **No** to assign a static address for your system if your network does not use DHCP.
- Domain name
- IP Address
- Default gateway
- DNS servers.

For more information about this field, see the [“IP Settings” section on page 5-8](#).

Network Settings

You can view or configure the following settings in the Network Settings window:

- Operational VLAN ID
- Administrative VLAN ID
- Syslog Address

For more information about this field, see the [“Network Settings” section on page 5-10](#).

Call Control Settings

Use this field to specify TFTP server locations and view a list of available settings for this Cisco TelePresence system. For more information about this field, see the [“Call Control Settings” section on page 5-11](#).

Address Book

The Address Book window displays read-only entries that have been set in Unified CM. You can create listings for up to 40 meeting rooms.

For more information about this field, see the [“Address Book” section on page 5-13](#).

Telephony Settings

The Telephony Settings window displays read-only information about the telephony settings for the Cisco TelePresence System that were set in Unified CM.

For more information about this field, see the [“Telephony Settings” section on page 5-14](#).

SNMP Settings

This field shows your SNMP settings. For more information about this field, see the [“SNMP Settings” section on page 5-16](#).

System Settings

This field allows to view Unified CM configuration settings for your system. For more information, see the [“System Settings” section on page 5-18](#).

Security Settings

To view the MIC or LSC certificates that are used for your system, click the **Download** button to download either the MIC Key or LSC Certificate in this field. A dimmed Download button indicates the lack of an available certificate. For more information, see the [“Security Settings” section on page 5-21](#)

Fields in the Troubleshooting Area

This section describes the fields that are available in the Troubleshooting area and contains the following topics:

- [Hardware Setup, page 2-3](#)
- [Diagnostics, page 2-7](#)
- [Log Files, page 2-8](#)
- [Touch Screenshot, page 2-12](#)
- [Audio, page 2-12](#)
- [Network Connection, page 2-13](#)
- [Configuration Issues, page 2-13](#)
- [System Restart, page 2-13](#)

Hardware Setup

Cisco TelePresence System Administration includes a diagnostics interface.

To access all available troubleshooting tasks, go to **Troubleshooting > Hardware Setup**.

If your GUI has tabs visible in this window, select one of the following tabs:

- **Device Test**: You can use the following Cisco TelePresence system troubleshooting features:
- **CTX Tests (Not Available on All Systems)**: Test reverberation and noise levels for some systems.



Note Not every system has the CTX test available; in this case, the tab is not visible.

Device Test

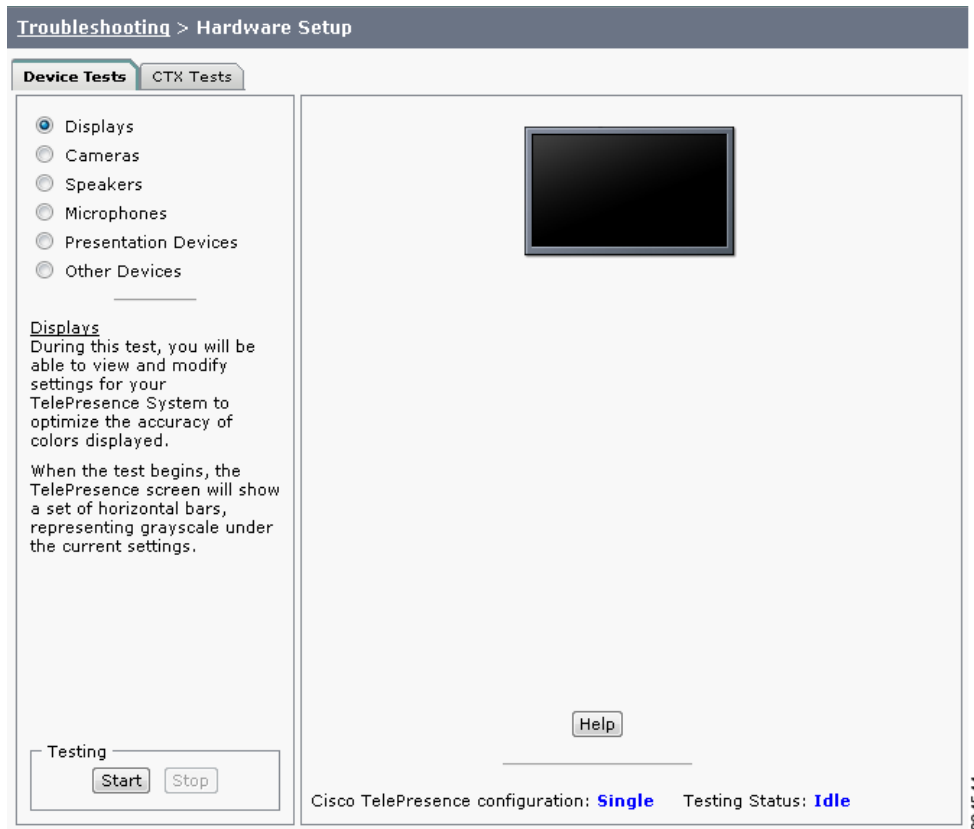
The Device Tests tab provides the traditional Hardware Setup troubleshooting tasks for the following Cisco TelePresence System peripherals:

- Displays
- Cameras

- Speakers
- Microphones
- Presentation Devices
- Other Devices

Figure 2-1 shows the CTS device troubleshooting window.

Figure 2-1 CTS Device Troubleshooting Window



For more information about these tests, refer to the “First-Time Setup” chapter of the assembly guide for your system, listed at the following URLs.

Cisco TelePresence System 500-32 Assembly, Use & Care, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_500/cts_500_32/assembly/guide/cts_500_32_guide.html

Cisco TelePresence System TX1300 47 Installation, First-Time Setup, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_1300/cts_1300_47/assembly/guide/1300_47_assembly_guide.html

Cisco TelePresence System TX1310 65 Assembly, First-Time Setup, and Field Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_1300/cts_1310/assembly/guide/1310_assembly_guide.html

Cisco TelePresence System TX9000 and TX9200 Assembly, First-Time Setup, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/tx9000/assembly_guide/tx9000_9200_assembly_guide.html

CTX Tests (Not Available on All Systems)

The CTX Tests tab provides the following troubleshooting tasks for the CTX:

- [Reverberation](#)
- [Noise Level](#)



Note

Running a test will not end a call but may temporarily change what is shown on local and remote displays.

Because the test stops and then starts various services, if you decide to stop the test before it completes, it might take a few minutes before your system is usable. Do not perform any actions on the system while the test is running, and do not switch to another test while the test is running.

Figure 2-2 shows the CTX Tests window.

Figure 2-2 CTX Tests

Reverberation

During this test, the Cisco TelePresence System collects sound pressure levels and noise criteria for each frequency. Once the test is completed, the results are shown in the Test Results.



Tip

Ensure that the room is silent while you perform these tests. Any external noise will interfere with the testing process.

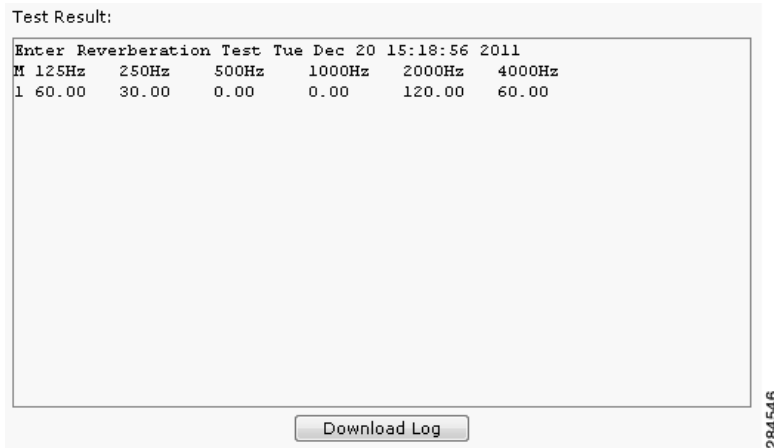
Step 1 Select the Reverberation radio button and then click **Start**.

The system issues the following information:

“Test Running: Test is running. Please wait until the test completes; if you stop the test, no results will be recorded.”

The test takes a few minutes to complete. When complete, system reverberation information is displayed in the Test Results window, as shown in [Figure 2-3](#).

Figure 2-3 Reverberation Test Results



Step 2 If desired, click **Download Log**.

The system asks whether you want to open or save the .txt file. This completes the reverberation test.

Noise Level

During this test, the Cisco TelePresence System plays audio chirps and collects the average sound decays for each frequency. Once the test is completed, the results are shown in the text field.



Tip

Ensure that the room is silent while you perform these tests. Any external noise will interfere with the testing process.

Step 1 Select the Noise Level radio button and then click **Start**.

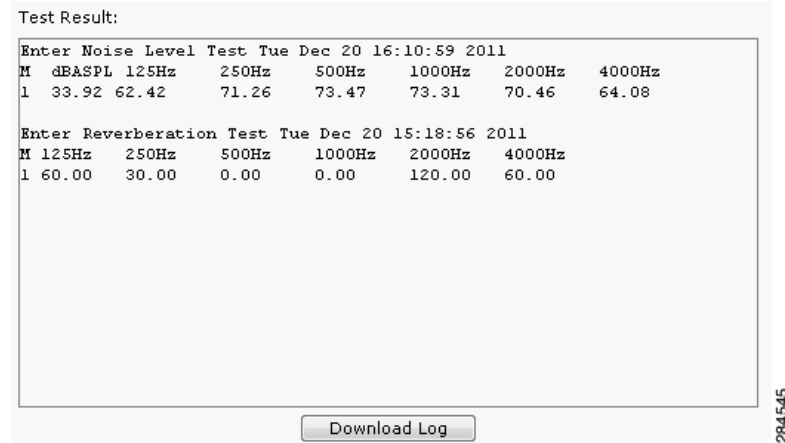
The system asks you if you want to continue with the test.

Step 2 Click **OK** in the dialog to begin the test.

The system issues the following information:

“Test Running: Test is running. Please wait until the test completes; if you stop the test, no results will be recorded.”

The test takes a few minutes to complete. When complete, system noise level information is displayed in the Test Results window, as shown in [Figure 2-4](#). If you have already run a reverberation test, the noise level test will appear at the top of the window.

Figure 2-4 Noise Level Test Results

Step 3 If desired, click **Download Log**.

The system asks whether you want to open or save the .txt file. This completes the noise level test.

Diagnostics

The Diagnostics window contains choices to diagnose issues with either your display or camera and contains the following pull-downs:

- **Display:** Contains the following tests:
 - **Display OSD state:** Shows the state of the on-screen display (OSD) service. The OSD service controls the appearance of on-screen icons during meetings.
 - **Display On/Off:** Shows the power status of the display (on or off).
 - **Display Edid:** Provides the Extended Display Identification Data (EDID) for the display.
 - **Display Error Status:** If the system detected an error with the display, this field shows the status of the error and also provides status of the power supply for the display.
 - **Display Diagnostics:** Shows the diagnostic information for all system displays.
 - **Display Information:** Shows the following information about the display. This information is useful in troubleshooting problems:

```

Center Display
Main Tx:
Port Address: 0x72.
VENDOR_ID=0x01
DEV_ID=0x9134
DEV_REV=0x1
Aux Tx:
Port Address: 0x76.
VENDOR_ID=0x01
DEV_ID=0x9134
DEV_REV=0x1
Main Rx:
Port Address: 0x60.
VENDOR_ID=0x01
DEV_ID=0x9135
DEV_REV=0x4
Aux Rx:
Port Address: 0x62.
  
```

```
VENDOR_ID=0x01
DEV_ID=0x9135
DEV_REV=0x4
```

- **Camera:** you can troubleshoot the camera using any of the following choices:
 - **Camera Cable Connectivity:** This checks the physical cable connections of the power and signal cables for the camera.
 - **Camera Reset:** Resets the cameras.



Note Resetting the cameras does not remove any changes you made to the auto brightness, luminance, auto color brightness, and flicker reduction settings to the cameras.

- **Camera Settings:** Provides you with a list of the current camera settings. You cannot change these settings. The following are output examples:

```
Center Camera
flickerCompensation=false
autoBrightness=false
autoColorBalance=false
focusDistance=4
targetLuminance=35
```

- **Camera Settings File:** Shows the setting as stored in the camera settings file.



Note The luminance values might differ between the settings shown here and the setting shown from the Camera Settings test; this is normal.

```
Center Camera
set gain 2.36205
set gain_red 1.21544
set gain_blue 1.80757
set gain_green 1
set roi_A_start_x 0
set roi_A_start_y 0
set roi_A_width 1919
set roi_A_height 1079
#autoBrightness=false
set autogain off
set autointegration off
#flickerCompensation=false
set integration 100
#targetLuminance=35
set target_luminance 60
#autoColorBalance=false
set whitebalance off
```

- **LCU:** Check the status of the Light Control Unit (LCU), if present on your system.

Log Files

The Log Files window contains three tabs:

- **Sysop logs:** Contains the System Operation (sysop) logs. For detailed explanations of each of the sysop logs, refer to the [Cisco TelePresence System Message Guide](#).

- **Log files:** These are files that are generally used by Cisco Technical support when troubleshooting system issues. Use this choice if directed by your Cisco technical support representative.
- **SIP messages:** These messages are related to SIP negotiation when setting up and ending a call.

Sysop Logs

View system operation (sysop) messages, including call information, call statistics, and call errors for the Cisco TelePresence system from this selection. There can be up to 20 individual files saved on the CTS, and each file can contain up to 100,000 characters.

To download the sysop log files, click the Download Sysop Files button at the bottom of the page. CTS Administration software then prompts you to do one of the following:

- Open to view the sysop log files—The last 100,000 bytes of the log are shown. When you download Sysop files, all available Sysop files will be downloaded.
- Save the sysop log files.

Log Files

Use this selection to retrieve log files from the Cisco TelePresence system. Log files can be retrieved from the CTS or from the CTS Cisco Unified IP phone. You can also retrieve log files from the Cisco TelePresence Touch 12 by tapping **More > Status > Report Problem**.

To manage log files:

-
- Step 1** Navigate to **Troubleshooting > Log Files**.
- Step 2** Select the Log Files tab. The following fields are displayed:
- Log Status—Shows the status of the log capture, including the percentage completed.
 - Time Generated—Shows the time of the most recent log file capture.
 - Problem—Problem Type can be one of the following:
 - Audio (Speakers, Microphones)
 - Video (Displays, Cameras)
 - Projector, LCD, document camera
 - Phone
 - Recording
 - Other/Unknown
- Step 3** Choose from one of the following file download options:
- Download existing log files
 - Capture and download new log files—The system will capture but not download the log files if your have pop-up blockers enabled for your system; to fix this problem, either disable pop-up blocker for your browser, or select **Capture and download new log files** and then selecting **download existing log files**.
 - None —Default. No log files will be captured unless a download option is selected.
- Step 4** From the Select Problem Type drop-down menu, choose the type of problem you are experiencing:
- Audio (speakers, microphones)

- Video (displays, cameras)
- Projector, LCD, document camera
- Phone
- Recording
- Other/Unknown

Step 5 Click the **Get Log Files** button. The following message appears:

A WinZip download will start within several minutes. Please wait...

Or

Collecting Cisco TelePresence system log files. This may take several minutes. Please wait...



Tip

The Get Log Files button is deactivated while the system captures the requested log files and is reactivated when complete.

The File Download window appears prompting you to open or save the file. Click Save to send the gzip file to Cisco technicians to help solve the problem.

SIP Messages

Session Initiation Protocol (SIP) request and response methods are used to establish communications between components in the network and ultimately to establish a call or session between two or more endpoints. Table 4-7 and Table 4-8 describe the SIP requests and message types.

To manage SIP messages:

-
- Step 1** Navigate to **Troubleshooting > Log Files** and click the Select the **SIP Messages** tab. The SIP Messages window appears.
- Step 2** View a specific type of message in the SIP log file by performing one of the following actions:
- Enter the filter where the SIP Message Type is by typing the name in the field provided. The Filter button is activated.
 - Select the message type from the drop-down menu and click the Filter button to view the SIP messages of the type you specified.
- Step 3** Choose the number of messages to view at one time from the Rows Per Page drop-down menu. Use the First, Previous, Next, and Last buttons to navigate through the message list with the Navigating Long Lists option. You can also Generate Detailed Message Reports.
- Step 4** To see additional details associated with a SIP message, perform one of the following actions:
- Double-click on a SIP message from the list to open the SIP Message Details dialog box. The SIP Message Details dialog box opens containing the message details and Related SIP Messages.
 - Highlight the SIP message and click the Details button. The SIP Message Details dialog box opens containing the message details and Related SIP Messages.

Related SIP Messages

The bottom portion of the SIP Message Details window lists SIP messages that are related to the SIP message that was selected at the top of the window.

To view related SIP message details, Double-click a message in the Related SIP Messages window to see details for that message. SIP Requests and Methods and SIP Response Categories are explained in the following table.

Click **Close** to dismiss this window.

Use the information in the following sections to understand and navigate SIP requests and responses:

[SIP Requests and Methods](#)

[SIP Response Categories](#)

SIP Requests and Methods

[Table 2-1](#) summarizes the SIP requests and methods supported by the Cisco TelePresence System Administration software. The first column lists the RFC that describes the SIP request messages or method.

Table 2-1 Supported SIP Requests and Methods

RFC	Request/Method	Description
3261	ACK	Confirms that the client has received a final response to an INVITE request.
3261	BYE	Terminates a call. Can be sent by either the caller or the called party.
3261	CANCEL	Cancels any pending searches but does not terminate any call currently in progress.
2976	INFO	Allows session-related control information generated during a session to be carried along the SIP signaling path.
3261	INVITE	Indicates that a user or service is being invited to participate in a call session.
3265	NOTIFY	Immediately upon successful accepting or refreshing of a subscription, a NOTIFY message is sent to communicate the current resource state to the subscriber. This NOTIFY message is sent in the same dialog as that created by the SUBSCRIBE message.
3261	OPTIONS	Queries the capabilities of servers.
3262	PRACK	Provides reliability for 1xx type messages. See Table 2-2 .
3515	REFER	Provides a mechanism allowing the party sending the REFER message to be notified of the outcome of the referenced request.
3261	REGISTER	Registers the address listed in the To header field with a SIP server.
3265	SUBSCRIBE	Requests current state and state updates from a remote node.
3311	UPDATE	Allows a client to update parameters of a session, but has no impact on the state of a dialog. This request can be sent before the initial INVITE has been completed, thereby making it useful for updating session parameters within early dialogs.

SIP Response Categories

SIP replies to the requests in [Table 2-1](#) using the response categories described in [Table 2-2](#).

Table 2-2 SIP Response Categories

Response Category	Response Type
1xx	Informational messages
2xx	Successful responses
3xx	Redirection responses
4xx	Request failure responses
5xx	Server failure responses
6xx	General failure responses

Navigating Long Lists

The log file can hold up to 2 MB worth of SIP messages. To navigate long lists:

-
- Step 1** Choose the number of rows that you wish to see on one page from the Rows Per Page drop-down menu.
 - Step 2** Double click to select and open single message details. The SIP Message Details window appears.
 - Step 3** If there are multiple pages listing log files, click the **First**, **Previous**, **Next**, or **Last** button to navigate to the desired page.
 - Step 4** Click the radio button to the left of the table entry, and then click **Clear** to delete a single error message.
 - Step 5** Click **Clear All** to delete all error messages displayed.
-

Related Information

For more information, refer to the following documentation:

- The Session [Initiation Protocol \(SIP\) home page on Cisco.com](#).
- The [Cisco TelePresence System Message Guide](#)

Touch Screenshot

To take a screenshot of the current image on your CTS Touch device, navigate to **Troubleshooting > Touch Screenshot** and click **Capture New Touch Screenshot**. A screenshot of what is currently displaying on the Touch device for your system appears in the CTS administration GUI.

You can view this image or save it.

Audio

To take an audio recording of your CTS conference, navigate to **Troubleshooting > Audio** and click **Start Recording Audio**. The audio records for a maximum of two minutes or until you click **Stop Audio Recording**.

The recording is saved as a .tar file that contains an .mp4 file that can retrieve, unzip, open, and play.

This option is useful to troubleshoot audio issues with your system.

Network Connection

To change the Ethernet parameters of your network connection, navigate to **Troubleshooting > Network Connection**. This window contains the following choices:

- **Auto Negotiation:** Enables or disables auto negotiation by clicking the **On** or **Off** radio button. Turning off auto negotiation might require you to specify the speed of your connection manually.
- **Duplex:** Changes the duplex method from full-duplex to half-duplex, or vice versa, by clicking the **Full** or **Half** radio button. Only active is Audio Negotiation is set to Off.
- **Speed:** Changes the speed of your Ethernet connection by choosing any of the radio buttons that appear.

Configuration Issues

Use this window to check the software images that are stored and running on your codec(s). You can also restart the system from the factory software image from this window.:

This window contains the following information:

- **Unit** (only for systems with more than one codec): Shows the codec position (left, center, or right) as viewed from the table side of the system.
- **Hardware version:** shows the hardware version of the codec(s).
- **Slot 1 image:** Shows the image that is stored on slot 1 of the system.
The active image for the system is shown in bold, with an asterisk next to it.
- **Slot 2 image:** Shows the image that is stored on slot 2 of the codec(s).
- **Factory image:** Shows the image that was preloaded on the codec(s) from the factory.

To reload the codec from the factory image and restart the system, click the **Revert to Factory Configuration and use Cisco TelePresence image specified in Cisco Unified CallManager...and Restart TelePresence System...** button.

After the image reboots, it loads the system from the image that is in slot 0.

While the system is booting, an IP address display on the main display screen (the center display screen for three-screen systems). Make a note of the IP address to log into your system. After you log in to your system, you need to re-register to your Unified CM by navigating to **Configuration > Call Control Settings**, specifying the IP address of the Unified CM server, and clicking **Apply**.

System Restart

This If you reboot your system, the codec reboots from the active image.

To restart your system, click the **Restart Cisco TelePresence System...** button. Clicking this button reloads the codec from the image that is specified as the default image in Cisco Unified CM and restart the system. If there is no image specified in Unified CM, the system boots from the active image.

To see the active image, navigate to **Troubleshooting > Configuration Issues**. The active image displays in bold with an asterisk next to it.

Fields in the Monitoring Area

This section describes the fields that are available in the Monitoring area and includes the following topics:

- [Call Statistics, page 2-14](#)
- [Network Statistics, page 2-16](#)
- [Services Statuses, page 2-17](#)

Call Statistics

Use Call Statistics to view audio and video statistics collected by the codecs. The reports include descriptions to help you understand the type of information being collected.

To view call statistics, follow these steps:

Step 1 Choose **Monitoring > Call Statistics**.

You can view the following Cisco TelePresence system statistics:

- **Real Time Call Statistics**—Lists details of an in-progress call, including the following:
 - Connection status
 - Registered to Cisco Unified CM
 - Local meeting number
- **Audio/Video Call**—Lists details about the audio and video of an in-progress call, including the following:
 - Call Start Time
 - Call Duration
 - Call Type
 - Remote meeting number
 - Call State
 - Actual Bit Rate
 - Negotiated Bit Rate
- **Historical Call Statistics (not including current call, if any)**—Lists historical information about calls including the following:
 - Call Statistics Clear Time
 - Last Call Start Time
 - Last Call Duration
 - Number of Calls Since System Setup
 - Time in Calls Since System Setup (seconds)
 - Number of Calls Since Last Reboot
 - Time in Calls Since Last Reboot (seconds)
 - Registered to Cisco Unified Communications Manager

- Configured Bit Rate

Step 2 For more specific audio and video statistics, click the check-box next to the following selections:

Audio/Video Call: Audio Stream Statistics

- Click once to select. Additional statistics fields appear.
- Click once to de-select. Additional fields are hidden.

Audio/Video Call: Video Stream Statistics

- Click once to select. Additional statistics fields appear.
- Click once to de-select. Additional fields are hidden.

Audio-Only Call: Stream Statistics

- Click once to select. Additional statistics fields appear.
- Click once to de-select. Additional fields are hidden.

Statistics are listed in columns labeled as if you were looking at the front of the system sitting at the conference table. For example, on a CTS 3000 or CTS 3200, the labels would indicate statistics from the left, center, and right codecs (and presentation codec, if installed), and from auxiliary devices (when connected).

When the additional statistics fields appear, the following status information is listed:

- Local
- Remote
- Average Latency (Call)
- Average Latency (Period)

Additional statistics are listed for the following:

Transmit

- Is Active
- Media Type
- Total Bytes
- Total Packets

Receive

- Is Active
- Media Type
- Total Bytes
- Total Packets
- Lost Packets
- Lost Packets % (Call)
- Lost Packets % (Period)
- Duplicate Packets
- Late Packets
- Failed SRTP Authentication Packets

- Average Jitter (Call)
- Average Jitter (Period)

**Note**

For more information about jitter and packet loss, see the “[Understanding Jitter and Packet Loss Reporting](#)” section of the *Cisco TelePresence System Message Guide* on Cisco.com.

Step 3 Set an interval for updating these reports by choosing the time in minutes from the **Refresh** drop-down menu. Choices, in minutes, include the following:

- None (default)
- 1
- 2
- 5
- 10
- 13
- 60

Step 4 Click **Refresh** to update the statistics immediately.

Network Statistics

Use Network Statistics to view packet transmission statistics collected from the network. Statistics are listed in columns labeled as if you were looking at the back of the system. For example, on a CTS 3000 or CTS 3200, the labels would indicate statistics from the left, center, and right codecs.

To detect problems in network statistics, follow these steps:

Step 1 Choose **Monitoring > Network Statistics**.

Step 2 Look for error counters that have been incremented since the last time you viewed these statistics. Statistic types include the following:

- False Carrier Sensor Errors
- Receiver Not Okay Errors
- Number of TxOctets
- Number of TxBroadcastPkts
- Number of TxMulticastPkts
- Number of TxUnicastPkts

Step 3 Set an interval for updating these reports by choosing the time from the Refresh drop-down menu. Choices, in minutes, include the following:

- None (default)
- 1
- 2
- 5

- 10
- 13
- 60

Step 4 Click **Refresh** to update the statistics immediately.

Services Statuses

To check and, in some cases, restart network services, navigate to **Monitoring > Services Statuses**. You can restart the following services; to do so, click the **Restart** button next to the service to restart it:

- Dynamic Host Control Protocol (DHCP) server
- Simple Network Management Protocol (SNMP) server
- Calling Services
- The telephone server

Where to Go Next

Proceed to [Chapter 3, “Device Information”](#) to access the Cisco TelePresence System Administration interface.



Device Information

Revised: February 2013, OL-28614-01

Contents

This chapter contains the following sections:

- [Accessing the Device Information Window, page 3-1](#)
- [Fields in the Device Information Area, page 3-3](#)
- [Fields in the Hardware/Software Versions Area, page 3-3](#)
- [System Information and Status Details Tabs, page 3-4](#)
- [Where to Go Next, page 3-10](#)

Accessing the Device Information Window

The Device Information window is the first thing you see when you log on to the Cisco TelePresence System Administration interface. It is from this window that you can access configuration, troubleshooting, and monitoring tasks for the Cisco TelePresence System (CTS) as well as view information about the devices installed on your system.

Before You Begin

To access the Cisco TelePresence System Administration interface for the first time, complete the steps in Logging into the Cisco Unified CM Administrator section of *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System*.

To view information about the Cisco TelePresence devices on your system:

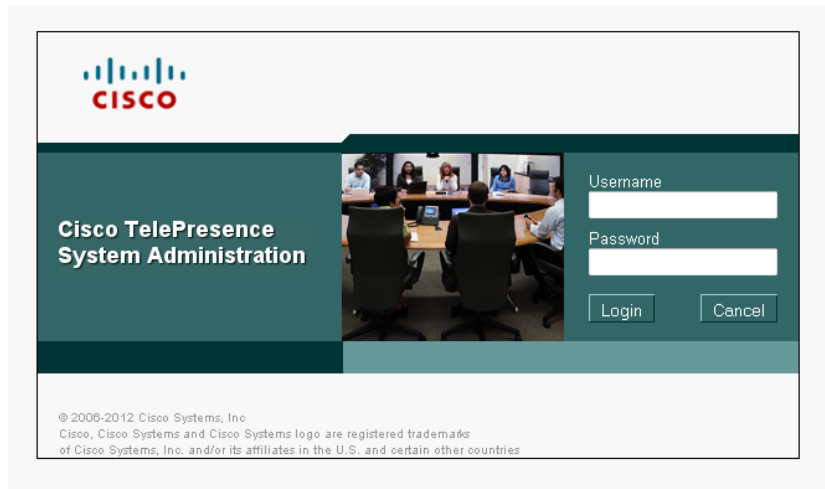
-
- Step 1** Log in to the Cisco TelePresence System Administration interface by completing the following steps:
- a. Open an Internet browser window, type the IP address of the system in the URL field, and click **Enter**. The Cisco TelePresence Administration Login Screen appears, as shown in [Figure 3-1](#).



Note

If you need to obtain the IP address, tap the **More** button, then the **Status** and **System Status** buttons. The IP address displays under the Cisco TelePresence System column.

Figure 3-1 Cisco TelePresence System Administration Login Screen



- b. In the Admin field, type **admin**.
- c. In the Password field, type **cisco**.

**Note**

You can change the default password in Unified CM. See the [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#).

- d. Click **Login**.
- e. Click **Device Information**.

The Device Information window appears, as shown in [Figure 3-2](#).

Figure 3-2 Device Information Screen

Hardware Version	Slot 1 Image	Slot 2 Image	Factory Image
0005	TX 6.0.0(39) P2 2012-11-13 16:15 *	CTS Pulsar1(147) P2 2012-06-05 1	CTS 1.8.0(44) P2 2011-10-28 14:0

* Active Image

System Information Details...

System Status:

- Cameras: ✓
- Displays: ✓
- Doc Camera: ✓
- Presentation Out: ✓
- Touch: ✓
- Unified CM: OK
- In a Call: No
- Updated: 0 min 2 secs

Find: there is no works Next Previous Highlight all Match case

Step 2 View the information in the following sections within the Device Information window:

- [Fields in the Device Information Area](#)
- [Fields in the Hardware/Software Versions Area](#)

- [System Information and Status Details Tabs](#)

Fields in the Device Information Area

The Device Information area contains details about the settings that were configured in the CTS and the Unified CM. The information in [Table 3-1](#) describes setting descriptions in the Device Information fields.

Table 3-1 *Device Information Fields*

Field or Button	Setting or Description
System Model	The model of your Cisco TelePresence system.
System Configuration	Number of high-definition displays for this system.
Phone Number	Call pattern for the system as defined in Unified CM.
Meeting Room	Name of the meeting room in which this system located as defined in Unified CM.
TelePresence MAC Address	MAC address of the primary system codec.
TelePresence Host Name	Host name of the primary system codec.
TelePresence IP Address	IP address of the primary system codec.
Cisco TelePresence Touch MAC Address	MAC address of the Touch 12 device.
Cisco TelePresence Touch Software Version	Software version used by the Touch 12 device.

Fields in the Hardware/Software Versions Area

In the Hardware/Software Versions area in the Device Information window, data in bold **blue** text (with an asterisk “*”) indicates which software image is currently running. [Table 3-2](#) describes the hardware and software versions information fields.

Table 3-2 *Hardware/Software Information Fields*

Field or Button	Setting or Description
Unit	For Cisco TelePresence Systems with more than one codec. Indicates the codec. For TX9000 and TX9200 systems, this is represented as TS1, TS2, TS3, and TS4, with TS1 being the primary codec.
Hardware Version	Version number of the codecs of the Cisco TelePresence System.
Slot 1 Image Slot 2 Image	The flash card is set up with three partitions for the software. Slot 1 and Slot 2 each hold a version of the codec software.
Factory Image	Software that is pre-loaded at the factory and the software that will be loaded after a factory reset.

System Information and Status Details Tabs

Click the **System Information Details** button in the Device Information window to access this window. Information provided in this window is used by Cisco technical support personnel to assist in troubleshooting your system.

To obtain a detailed report about the system:

-
- Step 1** Log in to the Cisco TelePresence System Administration page. The Device Information window appears.
- Step 2** Click the **System Information Details** bar. A new window opens.
- Step 3** Click the following tabs in the new window:
- [System Information Details](#)
 - [Status Details](#)
- Step 4** Click **Close** to close the window.
-

System Information Details

Detailed system information is displayed per codec:

- One codec—For systems with one codec, all information displayed is for the system's single codec.
- Four codecs—For systems with four codecs, hardware and software information is displayed for left, center, and right codecs.

[Table 3-3](#) describes the fields found in the System Information Details window.

Table 3-3 System Information Details Fields

Field or Button	Setting or Description
UDI_Hardware_Ver	Unique device identifier hardware version number.
UDI_Serial	Unique device identifier serial number.
UDI_PID	Unique device identifier product identification number.
System_Up_Time	Amount of time the system has been running since last reboot.
OS_Ver	Version number of the operating system.
OS_BuildTime	Time at which operating system was built.
UBOOT_Ver	Version number of the application that controls the boot process.
CF_Model	Compact flash model number.
Camera_PID	Camera product identification number. ¹
Camera_Hardware	Camera hardware number. ¹
Camera_Firmware_Ver	Camera firmware version number. ¹
Camera_Hardware_Ver	Camera hardware version number. ¹
Camera_BuildTime	Time at which the camera firmware version was built. ¹
Document_Camera_Serial	Document camera serial number. ²

Table 3-3 System Information Details Fields (continued)

Field or Button	Setting or Description
Document_Camera_Hardware_Ver	Document camera hardware version number. ²
Document_Camera_Model	Document camera model number. ²
Display_Serial	Serial number of the display.
Display_Hardware_Ver	Display hardware version number.
Display_Model	Display model number.
Display_BootCode_Ver	Version number of the boot loader for AppCode. BootCode also provides upgrade feature for AppCode.
Display_AppCode_Ver	Version number for AppCode. AppCode provides monitoring, managing control, and diagnostic functionality.
FPGA_ID	Field programmable gate array identification number.
FPGA_Rev	Field programmable gate array revision number.
FPGA_BuildTime	Time at which field programmable gate array was built.
MainRx_DeVID	Main camera device identification number.
MainRx_Rev	Main camera revision number.
AuxRx_DeVID	Auxiliary camera (document camera or VGA input device) device identification number.
AuxRx_Rev	Auxiliary camera (document camera or VGA input device) revision number.
MainTx_DeVID	Main display (plasma) device identification number.
MainTx_Rev	Main display (plasma) revision number.
AuxTx_DeVID	Auxiliary display (projector) device identification number.
AuxTx_Rev	Auxiliary display (projector) revision number.
OSD_DEVICE1_BuildTime	On screen display (device 1) build time.
OSD_DEVICE5_BuildTime	On screen display (device 5) build time.
VCODEC_encoder_Card_Ver	Video CODEC encoder card version number.
VCODEC_decoder_Card_Ver	Video CODEC decoder card version number.
Audio_Hardware_Ver	Audio version hardware version number.
Audio_CPLD_Ver	Audio complex programmable logic device version number.
Audio_DSP_BuildID	Audio DSP software version. ³
Audio_Base_BoardID	Type of audio base board. Choices are: <ul style="list-style-type: none"> • 0xAD • 0xAB
Audio_Base_Board_FAB_Ver	Hardware version of the audio (base) board
Audio_Base_Board_FW_Ver	Firmware version of the audio (base) board
Audio_Extension_UnitID	Type of audio extension board. The board type is either 0xAE or is disconnected.
Audio_Extension_Unit_FAB_Ver	Hardware version of the audio extension board.

Table 3-3 System Information Details Fields (continued)

Field or Button	Setting or Description
Audio_Extension_Unit_FW_Ver	Firmware version on the audio extension board.
Audio_Clock_Source	Clock source syncing the audio and video streams.
Audio_PCB_S/N	CTS 500 Series and CTS 1300 only. Unique device identification (UDI) containing serial numbers unique to that printed circuit board (PCB).
Audio_PCB_P/N	CTS 500 Series and CTS 1300 only. Unique device UDI containing part numbers unique to that PCB.
Audio_PCB_Rev	CTS 500 Series and CTS 1300 only. Unique UDI containing hardware revision information unique to that PCB.
PoE_Reset_Available	Indicates whether Power over Ethernet (PoE) Reset feature is available.
Mfg_Installed_Cert	Security certificate for encryption defined by Cisco Root Certificate Authority.
Locally_Significant_Cert	Security certificate obtained through Certificate Authority Proxy Function (CAPF), which supersedes the manufacturing installed security certificate.
Max_Security_Setting	Configured security setting.
Aux_Control_Unit_Model	Auxiliary control unit model.
Aux_Control_Unit_Ver	Auxiliary control unit system firmware version.
Aux_Control_Unit_UDI_Vid	Auxiliary control unit unique device identifier version identification.
Aux_Control_Unit_UDI_Pid	Auxiliary control unit unique device identifier product identification number.
Aux_Control_Unit_UDI_Sn	Auxiliary control unit unique device identifier serial number
Projector_Model	Projector model number, if projector is installed.
Presentation_Display_Model	Presentation display information.
Phone_midlet_status	Displays MIDlet status.
Phone_midlet_version	Displays MIDlet version

1. CTS 1300 displays information for Center, Left, and Right cameras.
2. The document camera is not available on the CTS 1300.
3. CTS devices are backward compatible up to two CTS Software Releases. Cisco recommends that you upgrade to the latest version software.

Status Details

Detailed status information is displayed per codec:

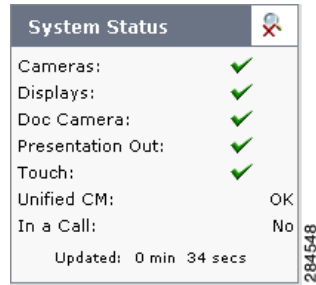
- One codec—For systems with one codec, all information displayed is for the system's single codec.
- Four codecs—For systems with four codecs, hardware and software information is displayed for those codecs.



Tip

You can also view this window by returning to the Device Information window and clicking the magnifying glass icon in the upper right corner of the Status pane, which is in the lower left corner of the screen. See [Figure 3-3](#) for an example of the magnifying glass icon and the Status pane.

Figure 3-3 CTS System Status



[Table 3-4](#) contains descriptions of the Status Details fields. CTS displays a red X next to devices that are not operational or in error.

Table 3-4 Detailed Status Information Fields

Field	Setting or Description
Peripheral Status	<p>Cameras</p> <ul style="list-style-type: none"> • Video Cable Connection • Ethernet Connection <p>Note CTS 1300 displays information for Center, Left, and Right cameras.</p> <p>Displays</p> <ul style="list-style-type: none"> • Status <p>Microphones</p> <ul style="list-style-type: none"> • Status <p>Note CTS 1300 displays information for the following microphones:</p> <ul style="list-style-type: none"> – Positional (Center, Left, and Right) – Table (Center, Left, and Right) – Not used (ellipses) <p>Document Camera</p> <ul style="list-style-type: none"> • Video Cable Connection • Power Status • Unified CM Configuration • Ethernet Connection <p>Note The document camera is not available on the CTS 1300.</p> <p>Projector/LCD</p> <ul style="list-style-type: none"> • Video Cable Connection • Power Status • Unified CM Configuration • Status • Lamp Age (hours) • Ambient Temperature • Lamp Temperature • LCD Temperature <p>Touch</p> <ul style="list-style-type: none"> • Status

Table 3-4 Detailed Status Information Fields (continued)

Field	Setting or Description
System Status	<ul style="list-style-type: none"> • Unified CM • In a call • Audio/Video Extension Unit • Auxiliary Control Unit
Note	Further status information is located in the Time Since Last Update and Microphone Status sections at the bottom of the Status Details page.

Time Since Last Update

A running timer is located at the bottom of the Status Details page that displays elapsed time since last update.

Microphone Status

A roadmap of microphone status information icons is displayed at the bottom of the Status Details page.

- Ellipses—Not Expected / Not Connected.
- • •
- Green Check Mark—Connected.
- ✓
- Question Mark—Not Expected / Not Connected.
- ?
- Red X—Not connected.
- ×



Note

To determine individual microphone and speaker functionality, use the hardware troubleshooting interface for your system. See [Where to Go Next](#) to locate the troubleshooting support document for your Cisco TelePresence system.

Where to Go Next

Proceed to the following Cisco TelePresence system administration tasks from the Device Information window:

Configure

- [Configuring the Cisco TelePresence TX System, page 5-1](#)

Troubleshoot

- For troubleshooting information, see the “[Troubleshooting Your TX and CTS System Components](#)” section on [page 5-24](#).

Monitor

- [Monitoring the Cisco TelePresence TX System, page 6-1](#)



TX Software Features

Created: February 2013
Updated: January 23, 2014

This chapter includes an overview of, and configuration information for, TX software features.

This chapter includes information only about the features that require an overview or detailed configuration steps. For a description of all features that are introduced in a specific TX software release, see the Release Notes for that release.

Contents

- [1080p 60 Main Video, page 4-1](#)
- [High-Definition Presentation, page 4-7](#)
- [Video Bandwidth Allocation Weights, page 4-13](#)
- [802.1X Authentication, page 4-15](#)
- [Adjusting the White Balance for Your System, page 4-22](#)

1080p 60 Main Video

In software releases prior to TX release 6, a Cisco TelePresence endpoint can send and receive main video at a maximum frame rate of 30 frames per second (fps). Systems running TX software release 6 and above can send and receive video at 60 fps with 1080p quality (1080p 60).



Note

If your conferences appear darker after you start using 1080p 60 video, you might have to readjust the white balance for the system cameras. To perform this procedure, see the [“Adjusting the White Balance for Your System”](#) section on page 4-22.

Systems Supporting 1080p 60

The following systems running TX software can send and receive main video at 1080p 60 during a point-to-point call:

- Cisco TelePresence System TX1300 47
- Cisco TelePresence System TX1310 65
- Cisco TelePresence System TX9000
- Cisco TelePresence System TX9200

The following systems can send and receive main video at 1080p 60 with systems running TX software during a point-to-point call:

- Cisco TelePresence SX20
- Cisco TelePresence C60 and C90 with latest hardware

To determine if your system has the latest hardware, log in to the administration console for the system and navigate to the System Information window. If the system can support 1080p 60, the 1080p60 capable field is set to **Yes**, as shown in [Figure 4-1](#).

Figure 4-1 Checking 1080p 60 Capability for C60 and C90 Codec-Based Systems

The screenshot shows the 'System Information' window with a yellow warning banner at the top: 'There are potential issues with your system. For more details please see Diagnostics – Troubleshooting'. The 'General' section is visible, containing a large greyed-out area on the left and system details on the right. The details include:

- Installed options: NaturalPresenter, MultiSite, PremiumResolution
- Temperature: 69.0°C / 156.2°F
- Fans: Fan 1 - locked on 3496 rpm, Fan 2 - locked on 3496 rpm, Fan 3 - locked on 3496 rpm, Fan 4 - locked on 3496 rpm

At the bottom left, the 'Valid release key:' field is set to 'Yes'. The '1080p60 capable:' field is also set to 'Yes' and is highlighted with a red rectangular border.

1080p 60 is currently supported only for point-to-point calls. 720p 60 is supported for point-to-point calls and multipoint calls that are placed through the Cisco TelePresence Server version 2.3.

For more information, refer to the Release Notes for TC6 software at the following URL:

http://www.cisco.com/en/US/docs/telepresence/endpoint/software/tc6/release_notes/tc_software_release_notes_tc6.pdf

The following systems can send and receive main video at a frame rate of 60 fps with 720p quality (720p 60) with systems running TX software during a point-to-point-call:

- All versions of the Cisco TelePresence C20, C40, C60, and C90
- Cisco TelePresence EX90 and EX60

**Note**

To support the 60 fps main video feature, the Cisco TelePresence endpoints listed above must use the camera(s) that originally ship with the endpoint. The 60 fps main video feature does not support third-party cameras.

Table 4-1 shows the send and receive main video resolution and frame rate of the 60 fps-capable Cisco TelePresence systems.

Table 4-1 *Send/Receive Main Video Resolution and Frame Rate of 60 fps-Capable Cisco TelePresence Endpoints and Devices*

Endpoints/Devices	Endpoints Capable of Up to 1080p@60 fps	Endpoints Capable of Up to 720p@60 fps	Endpoints Capable of Up to 1080p@30 fps
TX1300 47, TX1310 65, TX9000, TX92000, SX20 endpoints, and C60 and C90 endpoints with the latest hardware	1080p@60 fps ¹	720p@60 fps ¹	1080p@30 fps
C20, C40, EX60, and EX90 endpoints, and C60 and C90 endpoints with earlier hardware	720p@60 fps ¹	720p@60 fps ¹	1080p@30 fps
All other CTS endpoints	1080p@30 fps	1080p@30 fps	1080p@30 fps
TelePresence Server	720p@60 fps	720p@60 fps	1080p@30 fps

1. Point-to-point calls only.

Benefits

The 60 fps main video feature provides the following benefits:

- Video
 - Improved clarity.
 - Sharper images and increased number of pixels, which create a perception that the video is of a higher resolution than it actually is.
- Motion
 - Smoother motion handling, less blurriness.
 - Reduced motion streaks.

**Note**

The bandwidth requirements for 1080p 60 is 1.5 times higher than that for 1080p 30. If bandwidth conservation is a concern for your Cisco TelePresence environment, you must carefully weigh the benefits of a better video experience against the increased bandwidth requirements of 60 fps and choose accordingly.

As an alternative, 720p 60 fps can provide a video experience comparable to 1080p 30 fps for approximately 5 to 15 percent less bandwidth. For more information about bandwidth requirements, see the [“Understanding How Endpoints Determine fps and Video Quality”](#) section on page 4-5

Required Configuration

The following configuration is required to enable the 60 fps main video feature in your Cisco TelePresence environment:

- For the TX endpoints listed in the [“Systems Supporting 1080p 60”](#) section on page 4-2, make the following changes in Unified CM version 8.6(2a)SU2 or later:
 - Set Main Display Frames Per Second in the Phone Configuration page to “60 fps main”. (To access the Phone Configuration page, from Cisco Unified CM Administration, choose Device > Phone. Search for a device, then click on the device name, which brings up the Phone Configuration page.)
 - Set Video Bandwidth Allocation Weights in the Phone Configuration page appropriately. For more information about this parameter, see the [“Video Bandwidth Allocation Weights”](#) section on page 4-13.
- For the 60 fps-capable C and SX endpoints listed in the [“Systems Supporting 1080p 60”](#) section on page 4-2, make the following configuration changes:
 - Install a premium resolution option key on each endpoint.
 - Set the call rate to 6000 Kbps by logging into the administrative interface for your system and navigating to **Configuration > System Configuration**, clicking the **Conference 1** choice in the left navigation bar, and verifying that the Rate setting in the **DefaultCall** area is set to 6000.
 - Set the camera for to 60 fps for the camera by logging into the administrative interface for your system and navigating to **Configuration > System Configuration**, clicking the **Video** choice in the left navigation bar, and verifying the following settings:
 - In the **Source 1** area, verify that Quality is set to **Motion**.
 - In the **Source 1 > Optimal Definition** area, verify that Profile is set to **High** and Threshold60fps is set to **1280_720**.
- For the Cisco TelePresence Server, make the following changes in the System Settings page of the Cisco TelePresence Server administration interface:
 - Click the **Configuration** tab and check the **Enable 60 fps** check box.
 - From the HD mode drop-down menu, choose **Full HD**.

After performing the required configuration, 60 fps-capable Cisco TelePresence endpoints can send and receive main video at a maximum frame rate of 60 fps. The actual usage of 60 fps for sending and receiving depends on the following factors:

- The setting of Video Bandwidth Allocation Weights in Unified CM.
- For point-to-point calls, the results of the call setup negotiation with the receiving endpoint.
- For multipoint calls, the results of the call setup negotiation with the Cisco TelePresence Server.
- Current network conditions (bandwidth).

For more information about the call setup negotiation and bandwidth, see the [“Understanding How Endpoints Determine fps and Video Quality”](#) section on page 4-5.

Lighting Considerations

To optimize your Cisco TelePresence environment for 60 fps main video, a lighting level of 250 lux is acceptable, but a lighting level of at least 350 lux is recommended.

Understanding How Endpoints Determine fps and Video Quality

During Cisco TelePresence call setup, the sending and receiving endpoints determine the fps (30 or 60 fps) and video quality (1080p or 720p) in which the video streams are sent and received.

The determination is made as a result of the following factors:

- The amount of Transport Independent Application Specific (TIAS) bandwidth that is negotiated between the sending and receiving endpoints.

The minimum amount of bandwidth is determined by the settings of Main Display Frames Per Second and Quality (Per Display) in the Phone Configuration page of Unified CM. [Figure 4-2](#) and [Table 4-3](#) show the bandwidth requirements based on the Unified CM configuration for 30 fps and 60 fps calls.

- The maximum frame size that the network and system can accommodate.
- The negotiation of the video resolution and frame rate (in fps) by the sending and receiving endpoints.
- The maximum bit rate allowed in the Region settings for your device in Unified CM. These settings are applied to the Device Pool, which in turn are applied to your device.

To find your region settings, log in to the Cisco Unified CM Administration GUI and navigate to **System > Region**. The maximum rate is the value shown in the Max Video Call Bit Rate (Includes Audio) field.

[Table 4-2](#) shows the three criteria that are required in the first three columns of the table, and the resulting video stream that can be sent in the fourth column of the table.

If any of the factors do not meet the minimum requirements, the system attempts to send and receive video at the next lowest rate as shown in [Table 4-4](#).

For example, if the system and network cannot meet the minimum requirements to send a video stream with the maximum video quality of 1080p 60, the system attempts to negotiate a video stream of 720p 60. If the system cannot meet the requirements to send a video stream of 720p 60, it attempts to negotiate a video stream of 720p 30as shown in [Table 4-4](#).



Note

720p Lite and other lower resolutions such as 360p do not support the 60 fps main video feature because of bandwidth restrictions.

If a call is put on hold, then resumed, the amount of bandwidth is re-negotiated using the same factors.

Table 4-2 Possible Values of Signaling Parameters and Resulting Resolution/Frame Rate

Minimum Preferred Bit Rate (Kbps)	Minimum Frame Size	Minimum fps	Resulting Resolution and fps
4500	8100	60	1080p 60
1500	3600	60	720p 60
3000	8100	30	1080p 30
936	3600	30	720p 30
475	900	30	640x360@30 fps
100	300	30	SIF@30 fps

Figure 4-2 Bandwidth Requirements Per Unified CM Quality (Per Display) Requirements

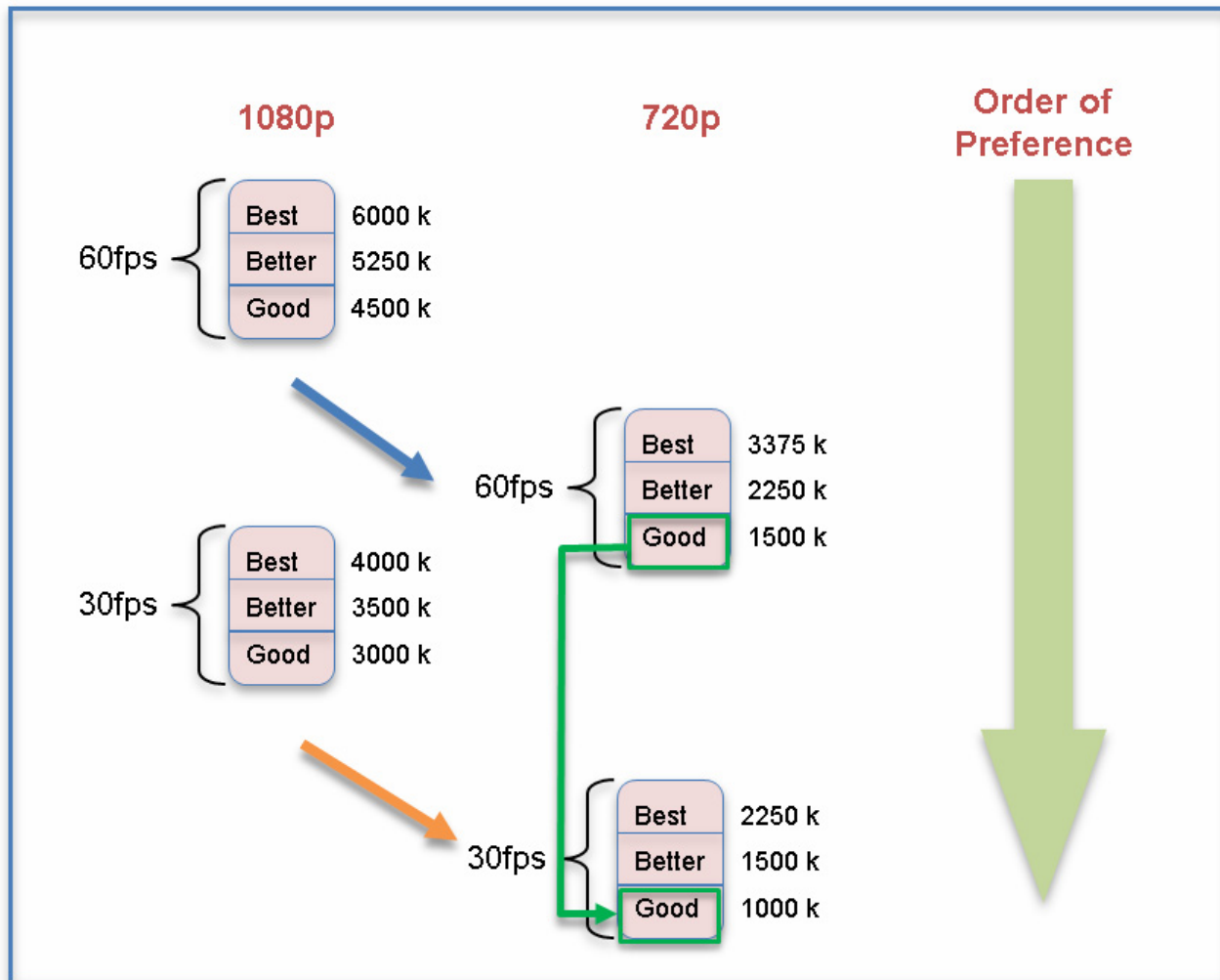


Table 4-3 Bandwidth Requirements Based On Unified CM Quality (Per Display) Requirements

Main Display Frames Per Second Setting	Quality (Per Display) Setting		
	Best	Better	Good
1080p Bandwidth Requirements (kbps)			
60 fps main	6000	5250	4500
30 fps main	4000	3500	3000
720p Bandwidth Requirements (kbps)			
60 fps main	3375	2250	1500
30 fps main	2250	1500	1000

Table 4-4 Negotiated Downgrade Paths

Initial Negotiated Resolution and Frame Rate	Downgrade Path During Call
Initially Negotiated 60 fps Calls	
1080p@60 fps	720p@60 fps, then 720p@30 fps
720p@60 fps	720@30 fps
Initially Negotiated 30 fps Calls	
1080p@30 fps	720@30 fps
720p@30 fps	720@30 fps

Under the following circumstances, the 60 fps-capable Cisco TelePresence endpoints and device send the main video stream at 30 fps:

- When in a call with an endpoint or device that supports a maximum frame rate of 30 fps.
- When in a call with a Cisco TelePresence endpoint that is registered with a Cisco Unified Communications Manager (Unified CM) version that does not support 60 fps as a setting for Main Display Frames Per Second in the Phone Configuration page.
- When in a call with a Cisco TelePresence endpoint that is registered with a Unified CM version that supports 60 fps but “30 fps main” is the setting for Main Display Frames Per Second in the Phone Configuration page.

High-Definition Presentation

This section provides you with information about the supported presentation resolutions and presentation audio and video cables and includes the following sections:

- [HD Presentation Overview, page 4-8](#)
- [Available Presentation Cables, Supported Presentation Devices, and Tested Adapters, page 4-9](#)
- [Resolution Support For Digital and VGA Cables, page 4-10](#)
- [Connecting the Audio Cable to the Codec, page 4-10](#)
- [Required Configuration For HD Presentation, page 4-11](#)

- [Scaling HD Presentation Video Resolution, page 4-12](#)
- [Bandwidth Requirements for the HD Presentation Feature, page 4-12](#)

HD Presentation Overview

Systems running TX software support high-definition (HD) presentation to a maximum of 1080p resolution at 30 frames per second (1080p 30). The following systems support the HD presentation feature:

- Cisco TelePresence System 500-32
- Cisco TelePresence System TX1300 47
- Cisco TelePresence System TX1310 65
- Cisco TelePresence System TX9000
- Cisco TelePresence System TX9200

Two presentation cable types are supported for systems running TX software:

- A digital cable with an attached audio cable that connects to the codec with an HDMI connector
- An analog cable with an attached audio cable that connects to the codec with a VGA connector.

For more information, see the [“Available Presentation Cables, Supported Presentation Devices, and Tested Adapters” section on page 4-9](#). For information about the resolutions that are supported by each cable, see the [“Resolution Support For Digital and VGA Cables” section on page 4-10](#).

The following Cisco TelePresence endpoints are tested and known to interoperate with the TX endpoints that can send an HD presentation video stream:

- C Series
- EX Series
- MX Series
- SX20

While these endpoints are supported, the received rate for that endpoints, and the quality of the HD presentation, depend on one or more of the following factors:

- The negotiated bandwidth for the call. See [Table 4-8](#) for the bandwidth requirements for HD presentations.
- Any bandwidth and fps settings as set in Unified CM (for example, the Quality (per Display) setting for the CTS system) and/or on the endpoint itself (for example, the MainChannel Weight and PresentationChannel Weight settings for the Cisco TelePresence EX Series).
- The maximum received presentation resolution and frame rate that the other endpoint can receive. To determine the maximum received presentation resolution and frame rate that is supported for a particular system, consult the data sheet for that system.



Note

Some presentation resolutions do not take up the full space of the presentation display area. For example, if a laptop that is sending the presentation is set to a resolution of 1600x900, and the presentation display is set to a resolution of 1920x1080, the image shown on the display is 1600x900 pixels with a black border around it to make a total pixel size of 1920x1080.

Available Presentation Cables, Supported Presentation Devices, and Tested Adapters

The following presentation cables are available to use with systems running TX 6 software:

- HDMI-to-HDMI (part number CTS-HDMIHDMI-A=) with audio cable attached
- DisplayPort-to-HDMI (part number CTS-CAB-DPHDMI-A=) with audio cable attached
- Mini DisplayPort-to-HDMI (part number MDPHDMI-A=) with audio cable attached



Note If you use any of the HDMI cables, connect the audio cable to the audio connector labeled “Aux” on the codec. For more information, see the [“Connecting the Audio Cable to the Codec”](#) section on page 4-10.

- VGA-to-VGA (part number CTS-CAB-VGA-A=) with audio cable attached



Note If you use the VGA cable, connect the audio cable to the audio connector with a PC icon on the codec. For more information, see the [“Connecting the Audio Cable to the Codec”](#) section on page 4-10.

The following presentation devices have been tested with the following cables:

- Laptop (PC) using an HDMI-to-HDMI cable and a DisplayPort-to-HDMI adapter
- MacBook Air and MacBook Pro using the following cables:
 - An HDMI-to-HDMI cable with a passive Mini DisplayPort-to-HDMI adapter
 - A DisplayPort-to-HDMI cable with a Mini DisplayPort-to-DisplayPort adapter
 - A Mini DisplayPort-to-HDMI cable



Note Some Apple devices showed flickering on the screen when being used for presentation sharing. If you encounter this issue, change the resolution quality to a lower resolution.

- iPad 3 using a proprietary cable available from Apple

If an adapter is required, Cisco recommends using a passive adapter, rather than an active adapter that changes or enhances the video signal. Active adapters can cause issues with the presentation being shared immediately after the adapter is connected to the presentation cable.

The following adapters have been tested with the HDMI-to-HDMI cable:

- Monoprice Mini DisplayPort/Thunderbolt-to-HDMI adapter
- Startech.com DisplayPort-to-HDMI adapter

The following adapter has been tested with the Mini DisplayPort-to-HDMI cable:

- Monoprice Mini DisplayPort to DisplayPort/DVI/HDMI multifunction adapter

Resolution Support For Digital and VGA Cables

In software releases prior to TX release 6, the proportional relationship between the width and height (also known as *aspect ratio*) of the presentation display was 4:3. For the HD presentation display, the aspect ratio is 16:9.

Table 4-5 outlines the common resolutions shared by the presentation devices, the corresponding aspect ratios, and the presentation cables that support the resolutions.

Table 4-5 Aspect Ratios/Cables For Common Resolutions Shared By Presentation Device

Resolutions Shared By Presentation Device	Aspect Ratio	Supported Presentation Cable
1920x1080 (1080p) @ 30 or 5 fps	16:9	HDMI cable only
1680x1050 (WSXGA+) @ 30 or 5 fps	8:5	VGA cable only
1440x900 (WXGA+) @ 30 or 5 fps	8:5	HDMI or VGA cable
1280x800 (WXGA) @ 30 or 5 fps	8:5	HDMI or VGA cable
1280x720 (720p) @ 30 or 5 fps	16:9	HDMI or VGA cable
1024x768 (XGA) @ 30, 5, or 1 fps	4:3	HDMI or VGA cable
800x600 (SVGA) @ 30, 5, or 1 fps	4:3	HDMI or VGA cable
640x480 (VGA) @ 30, 5, or 1 fps	4:3	HDMI or VGA cable

The actual size of the presentation display depends if the Swap Picture In Presentation (PIP) feature is disabled or enabled.

Connecting the Audio Cable to the Codec

Starting with TX software release 6, you connect the audio cable to different connections based on the type of cable.

- For HDMI cables, connect the audio cable to the AUDIO IN connector labeled “Aux” (callout 1 in Figure 4-3).
- For VGA cables, connect the audio cable to the AUDIO IN connector with a PC icon (callout 2 in Figure 4-3).



Note For the TX9000 and TX9200 systems, the audio connections plug into the TS1 codec, while the video connections plug into the TS4 codec. For more information, refer to the “[Connecting and Routing the Cables](#)” chapter of the *Cisco TelePresence System TX9000 and TX9200 Assembly, First-Time Setup, and Field-Replaceable Unit Guide*.

Figure 4-3 Audio Connections for the Presentation Cable



Required Configuration For HD Presentation

In software releases prior to TX release 6, if both Binary Floor Control Protocol (BFCP) and TelePresence Interoperability Protocol (TIP) are negotiated for a call, TIP takes precedence, and BFCP is not used to control presentation. BFCP is the preferred protocol for controlling the presentation for systems that run TX software.

To support HD presentation, Unified CM version 8.6(2a)SU2 and later is required.

[Table 4-6](#) describes the Unified CM configuration that enables HD presentation to function on TX endpoints.

Table 4-6 Unified CM Configuration Required For Each TX Endpoint

Unified CM Configuration	Notes
For each TX endpoint, use the Standard SIP Profile (not the Standard SIP BFCP Profile) for the SIP profile.	If using Unified CM 8.6(2a)SU2 and later (the recommended configuration), if you specify the Standard SIP BFCP profile, calls might be dropped and BFCP might not function properly.
When setting up your endpoint in Unified CM, make sure that you check the Allow Presentation Sharing Using BFCP check box in the Protocol Specific Information area of the Phone Configuration window.	For more information about configuring BFCP, refer to the “Configuring BFCP for Your Cisco TelePresence Device” section of the <i>Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System</i> .
In the Phone configuration, the default value of Video Bandwidth Allocation Weights is 8 Main/2 Presentation. Adjust this setting if desired.	For more information about this parameter, see the “Video Bandwidth Allocation Weights” section on page 4-13.

For more details about the Unified CM configuration, see the [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#).

No other configuration is required.

Scaling HD Presentation Video Resolution

For HD presentation, the system running TX software that is sharing content can automatically change resolutions for the content being shared, such as a slide presentation, document, or video. [Table 4-7](#) outlines common presentation device display resolutions, and the higher or lower resolutions to which content can be scaled and sent by the TX endpoint.

In general, HD presentation supports the following scaling schemes:

- Scaling to a higher resolution is not supported except for 1280x720 (720p), which can be scaled to XGA.
- Scaling to lower resolutions of XGA, SVGA, and VGA is supported.

Scaling is done to accommodate lower network bandwidth. Before the system running TX software scales the presentation, it lowers the frame rate of the presentation, which preserves the video clarity.

Table 4-7 Common Device Display Resolutions and Scaled Resolutions

Resolutions Shared By Presentation Device	Scaled Resolutions							
	640x480 (VGA)	800x600 (SVGA)	1024x768 (XGA)	1280x720 (720p)	1280x800 (WXGA)	1440x900 (WXGA+)	1680x1050 (WSXGA+)	1920x1080 (1080p)
640x480 (VGA)	Yes	No	No	No	No	No	No	No
800x600 (SVGA)	Yes	Yes	No	No	No	No	No	No
1024x768 (XGA)	Yes	Yes	Yes	No	No	No	No	No
1280x720 (720p)	Yes	Yes	Yes	Yes	No	No	No	No
1280x800 (WXGA)	Yes	Yes	Yes	No	Yes	No	No	No
1440x900 (WXGA+)	Yes	Yes	Yes	No	No	Yes	No	No
1680x1050 (WSXGA+)	Yes	Yes	Yes	No	No	No	Yes	No
1920x1080 (1080p)	Yes	Yes	Yes	No	No	No	No	Yes

Bandwidth Requirements for the HD Presentation Feature

The resolutions and frame rates at which each type of video can be sent is based on the available bandwidth.

[Table 4-3 on page 4-7](#) displays the bandwidth required for supported 60 fps main video send resolutions and frame rates, while [Table 4-8](#) displays the bandwidth required for supported HD presentation send resolutions and frame rates.

Table 4-8 Bandwidth Required For Supported HD Presentation Send Resolutions and Frame Rates

Send Resolution	30 fps (Kbps)	5 fps (Kbps)	5 fps ¹ (Kbps)	1 fps ² (Kbps)
640x480 (VGA)	1000	250	100	100
800x600 (SVGA)	1400	350	175	100
1024x768 (XGA)	2000	500	250	100
1280x720 (720p)	2300	550	250	Not supported
1280x800 (WXGA)	2500	600	300	Not supported
1440x900 (WXGA+)	2900	725	350	Not supported
1680x1050 (WSXGA+)	3700	900	450	Not supported
1920x1080 (1080p)	4000	1000	500	Not supported

1. These bandwidth rates are designed to avoid scaling when the receiving endpoint does not have sufficient bandwidth but is capable of receiving the sent resolution.
2. The sent frame rate of 1 fps is compatible only with 720p Lite.

For the single-single sample scenario described in “[Sample Calculations For Single-Single Calls and Triple-Triple Calls](#)” section on page 4-14, 4.74 Mbps of bandwidth is required for main video and 1.18 Mbps for presentation video. As a result, the endpoint can send the following:

- Main video at 1080p@60 fps, video quality = good, which requires 4.5 Mbps of bandwidth
- Presentation video at 1080p@5 fps, which requires 1 Mbps of bandwidth

After an endpoint calculates the main or presentation video bandwidth for a single-single or triple-triple call, if either video stream has more bandwidth than required, the excess bandwidth is applied to the other stream.

For example, in the single-single sample scenario, there is an extra 0.24 Mbps of bandwidth for the main video (4.75 Mbps - 4.5 Mbps). The extra 0.24 Mbps of bandwidth could be applied to the presentation video stream, which can result in the upgrade of the presentation video resolution and frame rate.

Conversely, the extra 0.18 Mbps of bandwidth for the presentation video (1.18 Mbps - 1 Mbps) could be applied to the main video bandwidth, which can result in the upgrade of the main video resolution and frame rate.

If, in a limited bandwidth scenario, you want to send a presentation with a higher fps but a lower resolution, you can change the resolution of the presentation at the source of the presentation. For example, given a maximum rate of 1000 Kbps, if you are sending a 1920x1080 presentation at 5 fps, you can instead send 640x480 at 30 fps by changing the resolution of your presentation to 640x480.

Video Bandwidth Allocation Weights

The Video Bandwidth Allocation Weights parameter allows you to balance the bandwidth ratio for main video and presentation video during a conference.

Use this feature when the amount of session bandwidth that is used by a Cisco TelePresence endpoint to send audio, main video, and presentation video media streams exceeds the amount of available session bandwidth.

You add this value in the Bandwidth Allocation Weights field in the Product Specific Configuration Layout Area of the Unified CM administration console, version 8.6.2 and later.

The default value of this parameter is a weight of 8 for main video and a weight of 2 for presentation video (8 main / 2 presentation). The weight is always based on a total number of 10.

**Note**

Weighting is not used for calls that use the TelePresence Interoperability Protocol (TIP). For TIP calls, presentations are either sent at XGA resolution, either 30 fps or 5 fps (1 fps in the case of 720p Lite).

Supported Systems and Parameters for the Bandwidth Allocation Feature

The following systems support the bandwidth allocation feature:

- Cisco TelePresence System 500-32
- Cisco TelePresence System TX1300 47
- Cisco TelePresence System TX1310 65
- Cisco TelePresence System TX9000
- Cisco TelePresence System TX9200

The following values are supported for this feature. The first value is the weight for main video, and the second value is the weight for the presentation video.

9 main / 1 presentation

8 main / 2 presentation (**default**)

6 main / 4 presentation

4 main / 6 presentation

3 main / 7 presentation

Sample Calculations For Single-Single Calls and Triple-Triple Calls

The calculation formula depends on whether the call is between single-screen endpoints (single-single call) or triple-screen endpoints (triple-triple call).

**Note**

A call between a single-screen endpoint and a triple-screen endpoint is considered a single-single call because during this call, only the center screen of the triple-screen endpoint is used.

To provide an example for a Cisco TelePresence endpoint: during a call, the available session bandwidth is 6 Megabits per second (Mbps), while the endpoint attempts to use the following bandwidth for the send media streams:

6 Mbps (main video) + 4 Mbps (presentation video) = 10 Mbps

The actual session bandwidth for the send media streams exceeds the available session bandwidth by 4 Mbps.

To fit the available bandwidth, the endpoint performs calculations based on these general formulas, which include values from the Video Bandwidth Allocation Weights parameter:

Definitions:

Session Video Bandwidth (**SVB**) = Total session bandwidth - Audio bandwidth

Main Video Weight (**Mwt**) = Configured weight for main video stream

Total Weight for main video (**T_Mwt**) = Number of Streams x Main Video weight

Presentation Video Weight (**Pwt**) = Configured weight for presentation video stream

Total Weight for presentation video (**T_Pwt**) = Number of streams x Presentation video weight

Total Weight (**TW**) = T_Mwt + T_Pwt

Formula to allocate main video bandwidth:

$SVB \times (T_Mwt / TW) = Mwt$

Formula to allocate presentation video bandwidth:

$SVB \times (T_Pwt / TW) = Pwt$

Single-Single Call Calculation Example

$T_Mwt = (1 \text{ (number of main video streams)} \times 8) \text{ (Mwt)} = 8$

$T_Pwt = (1 \text{ (number of presentation video streams)} \times 2) \text{ (Pwt)} = 2$

$TW = 10$

Allocated main video bandwidth = $6 \times (8 / 10) = 4.8 \text{ Mbps}$

Allocated presentation bandwidth = $6 \times (2 / 10) = 1.2 \text{ Mbps}$

Triple-Triple Call Calculation Example

$T_Mwt = (3 \text{ (number of main video streams)} \times 8) \text{ (Mwt)} = 24$

$T_Pwt = (1 \text{ (number of presentation video streams)} \times 2) \text{ (Pwt)} = 2$

$TW = 26$

Allocated main video bandwidth = $6 \times (24 / 26) = 5.53 \text{ Mbps}$

Allocated presentation video bandwidth = $6 \times (2 / 26) = 0.461 \text{ Mbps}$

802.1X Authentication

This chapter describes how to set up, monitor, and troubleshoot 802.1X authentication in the Cisco TelePresence System:

- [IEEE 802.1X Authentication Overview, page 4-15](#)
- [Setting up 802.1X Authentication, page 4-17](#)
- [Checking the CTS 802.1x Authentication Status, page 4-18](#)
- [Troubleshooting 802.1x Authentication Issues, page 4-20](#)

IEEE 802.1X Authentication Overview

802.1X is an IEEE standard for port-based network access control. It offers the capability to permit or deny network connectivity, control Virtual LAN (VLAN) access, and apply traffic policy, based on user or machine identity.

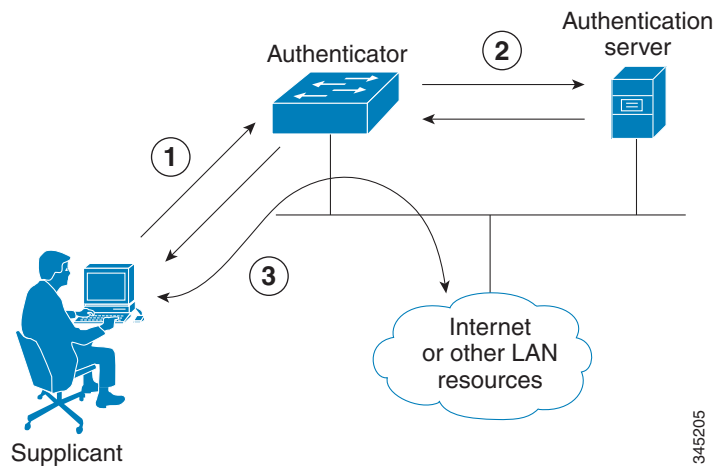
802.1X permits or denies device access to the network by using authentication. Ethernet switch ports can be enabled dynamically based on the identity of the device that connects to it. Devices which are not authenticated cannot gain access to the network.

802.1X Authentication Components

802.1X authentication involves the following three network devices:

- A **supplicant**: a client device (such as a laptop or endpoint) that attempts to access a LAN/Wireless LAN (WLAN), or the software that runs on this device and that provides credentials to the authenticator.
- An **authenticator**: a network device (such as an Ethernet switch or wireless access point) that acts as an access point to a protected network. For 802.1X authentication, the supplicant provides network credentials, such as user name, password, digital security certificate, or a combination of these, to the authenticator. The authenticator then forwards the credentials to the authentication server for verification.
- An **authentication server**: a server (such as Cisco Secure Access Control Server) that guards the protected network. For 802.1X authentication, the authentication server receives the supplicant's network credentials from the authenticator and verifies the supplicant's identity. Then the supplicant is able to access the resources located on the network.

Figure 4-4 Diagram of 802.1X Authentication Process



Authenticating Your System

Your Cisco TelePresence System is equipped to function as an 802.1X-compliant supplicant. 802.1X authentication is enabled by default.



Note

Cisco recommends that you configure your switch port (or authenticator) for multi-domain mode.

Setting up 802.1X Authentication

This section describes the steps you perform to set up 802.1x authentication, and includes the following topics:

- [Authenticating the Cisco TelePresence System Using a Security Certificate \(MIC or LSC\)](#), page 4-17
- [Examining the Security Certificate in the Cisco TelePresence System](#), page 4-17

**Note**

In order to complete 802.1X authentication, you must use a port that is not already enabled for 802.1X.

Authenticating the Cisco TelePresence System Using a Security Certificate (MIC or LSC)

When the Cisco TelePresence System receives an authentication challenge from an Authenticator, the system responds with either the Manufacturing Installed Certificate (MIC) or the Locally Significant Certificate (LSC). When both the MIC and LSC are installed, the system uses the LSC to authenticate. If the LSC is not installed, Cisco TelePresence System uses the MIC, as the MIC is built into the system by the manufacturer.

The LSC provides greater security because it creates a public key infrastructure (PKI) that is unique to each system. To authenticate the codec using the LSC, you must install it on your system manually by using the Certificate Authority Proxy Function (CAPF) in Cisco Unified Communication Manager (CUCM). For more information, see the [“Installing the LSC” section on page 4-17](#).

Installing the LSC

To install the LSC, refer to the [“Deploying Locally Significant Certificates”](#) section found in the *IP Telephony for 802.1X Design Guide*.

Examining the Security Certificate in the Cisco TelePresence System

You may want to examine the security certificate (MIC or LSC) on an 802.1X-authenticated system in order to verify that the certificates are valid, not expired, and issued by the CAPF.

To examine the security certificate in your Cisco TelePresence System, you may download a copy of the certificate to your own system by using either of two methods:

- [Downloading the Security Certificate Using the CLI](#), page 4-17
- [Downloading the Security Certificate Using the GUI](#), page 4-18

Downloading the Security Certificate Using the CLI

To download the MIC or LSC using the CLI, complete the following steps:

-
- Step 1** Log in to the CLI.
- Step 2** Enter the following command: **file get cert** {cert-type} {SCP-user} {SCP-password} {IP-address-or-hostname} {file-save-location}
- See [Table 4-9](#) for syntax descriptions.

Table 4-9 Syntax Descriptions

Argument	Description
cert-type	Type of certificate to retrieve (either MIC or LSC)
SCP-user	Username of Secure Copy (SCP) user
SCP-password	Password for SCP user
IP-address-or-hostname	Hostname or IP address of target system
file-save-location	Location to save file on target system

After entering the command, the security certificate will save on the target system in the designated file-save location:

```
file get cert MIC username password 10.1.1.1 /home/user
Uploading MIC to 10.1.1.1...DONE
```

If you select the LSC as the type of certificate to retrieve, but the LSC is not installed on the Cisco TelePresence System, the command line will read as follows:

```
admin:file get cert LSC username password 10.1.1.1 /home/user
Uploading LSC to 10.1.1.1...LSC does not exist
Executed command unsuccessfully
```

If the LSC command is unsuccessful, you need to install the LSC on the codec. See the [“Installing the LSC” section on page 4-17](#). If the command is successful, continue to the next step.

Step 3 Go to the designated file-save location, and click the file to view the certificate.

Downloading the Security Certificate Using the GUI

To download the MIC/LSC from the GUI, complete the following steps:

-
- Step 1** Log into the GUI and navigate to **Configuration > Security Settings**.
- Step 2** Click **Download** to download and view a certificate. A dimmed Download button indicates the lack of a given certificate.
-

Checking the CTS 802.1x Authentication Status

To check 802.1X authentication status in the Cisco TelePresence System, use either of the following options:

- View the CTS primary display screen during system bootup (see the [“Checking the 802.1X Authentication Status on the Primary Display Screen” section on page 4-19](#))
- Enter the CLI command **show dot1x status** (see the [“Checking the 802.1X Authentication Status with a CLI Command” section on page 4-20](#))

Checking the 802.1X Authentication Status on the Primary Display Screen

To check the 802.1X authentication status on the Cisco TelePresence System primary display screen, complete the following steps:

- Step 1** Power off the Cisco TelePresence System.
- Step 2** Power on the Cisco TelePresence System.
- Step 3** View the bottom right of the primary display screen. In a three-screen system, view the bottom-right of the center screen. Text will display to indicate whether 802.1X is authenticated, not authenticated, or not required on your system.

Example:

```
802.1X: Connecting...
802.1X: Not Authenticated
```

This text, as viewed on the Cisco TelePresence System primary display screen, indicates the success or failure of 802.1X authentication on that system. If the status line reads “Not Required,” 802.1X authentication is not required for that system.

Figure 4-5 Screenshot of Cisco TelePresence System Boot-Up Screen



See [Table 4-10](#) for a summary of 802.1X authentication status displays for enabled and non-enabled networks.

Table 4-10 802.1X Authentication Status Display Summary

Status	802.1X-Enabled Network	Non-802.1X-Enabled Network
In Progress	Connecting / Authenticating	Connecting

Table 4-10 802.1X Authentication Status Display Summary

Status	802.1X-Enabled Network	Non-802.1X-Enabled Network
Success	Authenticated	Not Required
Failure	Not Authenticated	Not Required

**Note**

The 802.1X authentication status can only be viewed on your Cisco TelePresence System primary screen, not on a secondary screen (e.g., a presentation screen, or in a three-screen system, the left or right screen). If the 802.1X authentication status does not show on the primary screen, follow the steps below listed under the “[Checking the 802.1X Authentication Status with a CLI Command](#)” section on [page 4-20](#)

Checking the 802.1X Authentication Status with a CLI Command

To check the 802.1X authentication status with a CLI command, complete the following steps:

-
- Step 1** Log into the CLI.
 - Step 2** Input the following command: **show dot1x status**
 - Step 3** View resulting text. Text will display indicating whether 802.1X is authenticated, not authenticated, or not required on your system.

Example:

```
admin:show dot1x status
Authenticated
```

Troubleshooting 802.1x Authentication Issues

When 802.1X does not authenticate properly, review the following sections:

- [Troubleshooting Issues in 802.1X Authentication, page 4-20](#)
- [Viewing the Security Certificate, page 4-22](#)

Troubleshooting Issues in 802.1X Authentication

[Table 4-11](#) summarizes some issues that may appear during 802.1X authentication, as well as potential resolutions.

Table 4-11 Troubleshooting Issues in 802.1X Authentication

Symptom	Possible Root Causes	Resolution
Cisco Secure ACS authentication server rejects security certificate from the Cisco TelePresence System supplicant.	The security certificate is invalid, expired, or not issued by CAPF.	Install a valid, non-expired security certificate using the security certificate from the CAPF. See Viewing the Security Certificate .
Cisco TelePresence System fails 802.1X authentication.	Errors may be present in the system's most recent log files.	Use the file list log dot1x command in the CLI to check logs for error or failure messages.
Cisco TelePresence System displays "802.1X: Not Required" on its boot-up screen.	The ethernet switch is not configured to support 802.1X.	Check the 802.1X authentication status on the ethernet switch by logging into the switch and using the CLI command show authentication sessions interface {FastEthernet GigabitEthernet} {Interface Number} . If the ethernet switch is not 802.1X-enabled, enable it. Please refer to Identity-Based Networking Services: IP Telephony in IEEE 802.1X-Enabled Networks Deployment and Configuration Guide for instructions.
Cisco Secure ACS authentication server rejects security certificate from the Cisco TelePresence System supplicant.	Cisco Secure ACS is not configured to support 802.1X.	Configure Cisco Secure ACS (and all backend network configurations) to support 802.1X. Please refer to Identity-Based Networking Services: IP Telephony in IEEE 802.1X-Enabled Networks Deployment and Configuration Guide for instructions.
Cisco TelePresence System attempts authentication with the MIC instead of the LSC.	The LSC has not been exported from CAPF and imported into Cisco Secure ACS.	Check that the LSC is exported from CAPF and imported into Cisco Secure ACS. See Installing the LSC .
After moving to a different CAPF and Unified CM, Cisco TelePresence System fails 802.1X authentication.	The LSC no longer supports 802.1X authentication, since it was installed from the previous CAPF and Unified CM. Moving the Cisco TelePresence System to a different CAPF and Unified CM requires reinstalling the LSC and upgrading the system.	Reinstall the LSC from Cisco Unified CM and upgrade the Cisco TelePresence System. See Installing the LSC .

Viewing the Security Certificate

You may need to examine the security certificate (MIC or LSC) in order to verify that the certificates are valid, not expired, and issued by the CAPF.

You can use the CLI or a third-party tool to view the MIC or LSC.

- [Viewing the Security Certificate from the CLI, page 4-22](#)
- [Viewing the Security Certificate from a Third-Party Tool, page 4-22](#)

Viewing the Security Certificate from the CLI

To show the MIC or LSC from the CLI, complete the following steps:

-
- Step 1** Log in to the CLI.
- Step 2** Enter the following command: **show cert {mic | lsc}**. You must enter either **mic** or **lsc**, not both.
- Step 3** View the certificate that displays within the CLI. Verify that the certificate is valid, not expired, and issued by the CAPF.

Example:

```
> admin:show cert lsc
> Certificate:
Data:
Version: 3 (0x2)
Serial Number: 5 (0x5)
Signature Algorithm( sha1WithRSAEncryption
Issuer: C=US, O=organization, OU=department, CN=CAPF-1a234bcd, ST=CA, L=CH
Validity
Not Before: Mar 23 16:10:31 2012 GMT
Not After: Mar 22 16:10:30 2017 GMT
Subject: C=US, O=organization, OU=department, CN=SEPXXXXXXXXXXXXX
```

If you enter **show cert lsc** on a system where the LSC is not installed, the command line will read as follows:

```
show cert lsc
There is no certificate to display
```

If the security certificate is expired, invalid, or issued by a different source, install a new certificate using the CAPF.

Viewing the Security Certificate from a Third-Party Tool

You can also view the MIC or LSC using a third-party tool. Consult the documentation provided with the tool for instructions.

Adjusting the White Balance for Your System

To adjust the white balance settings for your cameras, complete the following steps.

-
- Step 1** Prepare the camera targets for the white balance by completing the following actions:

**Note**

If you need to order a camera target kit, including the mounting hardware for the target, order CTS-CAM-TOOL= for the Cisco TelePresence System TX9000 and TX9200, and CTS-CAM-TOOL-G2= for the Cisco TelePresence TX1310 65 or Cisco TelePresence TX1300 47.

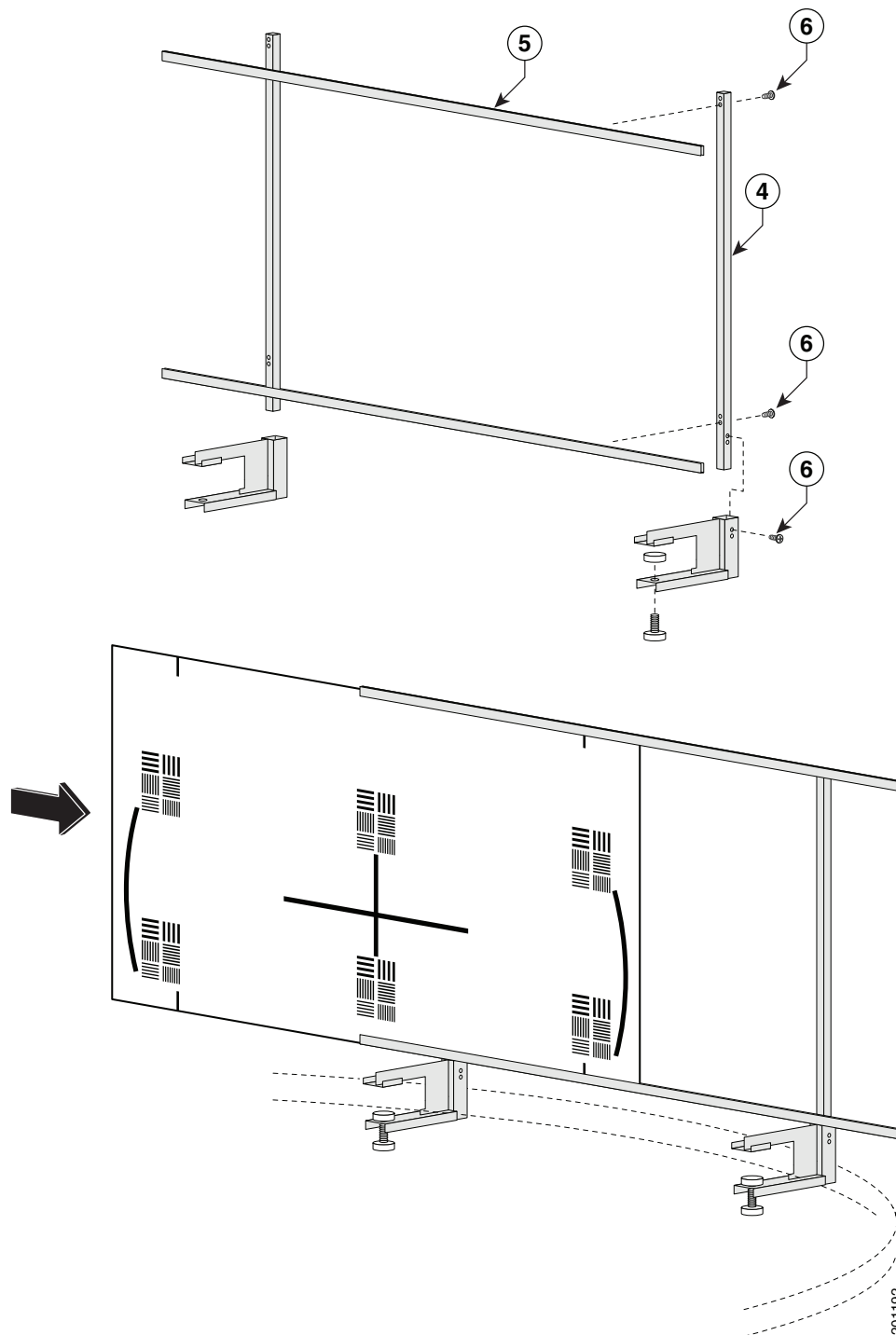
- If your system is a Cisco TelePresence System TX9000 or Cisco TelePresence System TX9200, prepare your camera targets by completing the following steps:
 - a. Assemble the large camera target, using [Figure 4-6](#) as a guide.

When you slide the Camera target into the frame, make sure the target is centered in the frame between the vertical lines at the top and bottom of the target.

Table 4-12 *Parts List for the Camera Target*

Key	Part Description
1	Tabletop camera target: large
2	Tabletop camera target: small
3	Cardboard ruler
4	Vertical bar
5	Horizontal bar
6	M4 x 20 mm screws

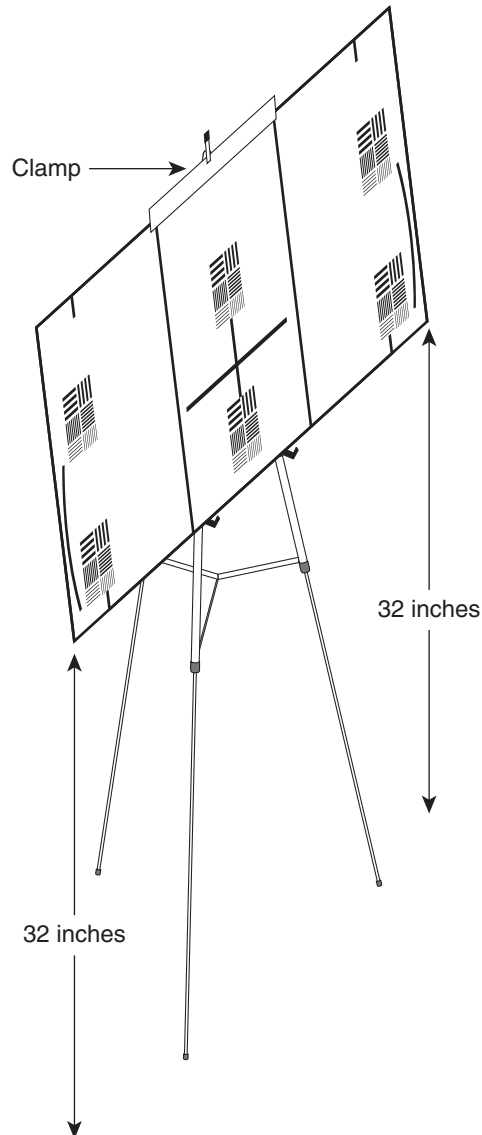
Figure 4-6 Camera Target Assembly



- b. Attach the large target to the underside of the left table section by placing the round pads on the underside of the clamps into recesses that are drilled under the table, with the white part of the target facing the camera.

- If your system is a Cisco TelePresence TX1310 65 or Cisco TelePresence TX1300 47, prepare your camera targets by performing the following actions:
 - a. Remove the easel, large camera target, and small camera target from their packaging.
 - b. Unlock and slide the telescoping legs of the easel until the legs are at their full height.
 - c. Separate the three legs.
 - d. Raise the front legs until they are 29 inches (74 cm) high.
 - e. Raise the rear leg until it is 31 inches (79 cm) high.
 - f. Lock the legs into place using the leg locks.
 - g. Attach the large camera target to the clip on top of the easel.
 - h. Raise the target supports on the front legs until they touch the lower part of the large camera target.
 - i. Raise and lower the front legs until the bottom of the camera target is 32 inches (81 cm) above the ground.
 - j. Place the camera target and easel behind the left camera segment.

Figure 4-7 Easel and Target After Assembly



Step 2 Using a supported browser, log in to the Cisco TelePresence Administration GUI for your system.

Step 3 Navigate to **Troubleshooting > Hardware Setup** and click the **Cameras** radio button.

Step 4 Click **Start** in the Testing area.



Note Make sure that the left camera shows only the target. If other parts of the room can be seen, reposition the target.

Step 5 Click the **Setup** button underneath the left display in the GUI.

Step 6 Click **Auto Adjust**.

The auto adjust procedure automatically adjusts the white balance for your system.

Step 7 Click **Close** to close the Auto Adjust pop-up window.

- Step 8** Click **Done**.
- Step 9** Position the target for the center segment.
- Step 10** Click the **Setup** button underneath the center display and click **Auto Adjust**.
The auto adjust procedure automatically adjusts the white balance for your system.
- Step 11** Click **Close** to close the Auto Adjust pop-up window, then click **Done**.
- Step 12** Position the target for the right segment.
- Step 13** Complete [Step 10](#) and [Step 11](#), substituting the right segment for the center segment.
- Step 14** Click **Stop** to stop the testing procedure.
-



Configuring the Cisco TelePresence TX System

Revised: February 2013, OL-28614-01

Contents

This chapter contains the following sections:

- [Configuring Cisco Unified Communications Manager for Your Cisco TelePresence System, page 5-1](#)
- [First Time Setup Wizard for the CTS 500-32, page 5-2](#)
- [First Time Setup for All Other TX Models, page 5-3](#)
- [IP Settings, page 5-8](#)
- [Network Settings, page 5-10](#)
- [Call Control Settings, page 5-11](#)
- [Address Book, page 5-13](#)
- [Telephony Settings, page 5-14](#)
- [SNMP Settings, page 5-16](#)
- [System Settings, page 5-18](#)
- [Security Settings, page 5-21](#)
- [Troubleshooting Your Configuration, page 5-21](#)
- [Upgrading CTS Codec Firmware, page 5-21](#)
- [Upgrading Software for Cisco TelePresence Touch 12, page 5-22](#)
- [Resetting Your CTS Codec Password, page 5-22](#)
- [Troubleshooting Your TX and CTS System Components, page 5-24](#)

Configuring Cisco Unified Communications Manager for Your Cisco TelePresence System

Before you can use your system, you need to configure your system in Cisco Unified Communications Manager (Unified CM).

You can configure your system and complete all steps in this chapter prior to configuring your device in Unified CM, but you will not be able to complete any of the following actions until you register your device:

- The Touch device cannot download its software from Unified CM and you receive an error in the logs.
- The Cisco TelePresence device cannot place or receive calls.
- The device appears as either a Cisco TelePresence System 500-32 or a Cisco TelePresence System 1000 in the Cisco TelePresence Administration GUI.

To configure your device in Unified CM, complete the following steps:

Step 1 Load the Cisco TelePresence Administration Software image on the Unified CM server.



Note

The Cisco TelePresence TX9000 and TX9200 systems require a minimum version of CTS administration software 1.9.0 to run. If your Unified CM is already running the required minimum software, you can skip this step.

For more information, refer to the following sections in the *Cisco Telepresence Touch 12 Installation Guide*:

- If you are upgrading from a software version that prior to 1.7.4, follow the steps in the “[Upgrading the CTS Software for Systems That Are Running Cisco TelePresence Software Versions Prior to 1.7.4](#)” section.
- If you are upgrading from a software version that is 1.7.4 or later, follow the steps in the “[Upgrading the CTS Software for Systems That Are Running Cisco TelePresence Software Versions 1.7.4 and Above](#)” section.

Step 2 Register your system as a device in Unified CM. For more information, refer to the “[Configuring a Cisco TelePresence Device](#)” section in the *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System*.

Step 3 Add the TFTP server for your Unified CM server to your system using the Cisco TelePresence Administration Software GUI. For more information, refer to the “[Cisco Unified Communications Manager Settings](#)” of the *Cisco TelePresence System Administration Guide* for your software release.

For more information about configuring Unified CM with your Cisco TelePresence device, refer to the *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System*.

First Time Setup Wizard for the CTS 500-32

Because the CTS 500-32 uses a first-time setup wizard, the configuration process is somewhat different than other CTS models. See First Time Setup section of the following documentation for complete instructions:

- *Cisco TelePresence System 500-32 Assembly, Use & Care, and Field-Replaceable Unit Guide*

First Time Setup for All Other TX Models

To set up your Cisco TelePresence System for the first time, you must first load the Cisco TelePresence Administration software and bootup the system.

This section contains the following information:

- [Powering on the System and Enabling the Cisco TelePresence Administration Software GUI, page 5-3](#)
- [Setting Up a System That Uses a Static Network Address, page 5-6](#)
- [Setting Up a System That Uses a Static Network Address, page 5-6](#)

Powering on the System and Enabling the Cisco TelePresence Administration Software GUI

To load the CTS Administration Software, complete the following steps:

Step 1 Power on all codecs in your system.



Note

If your system has multiple codecs, power on all codecs within 30 seconds to avoid power on detection failure.

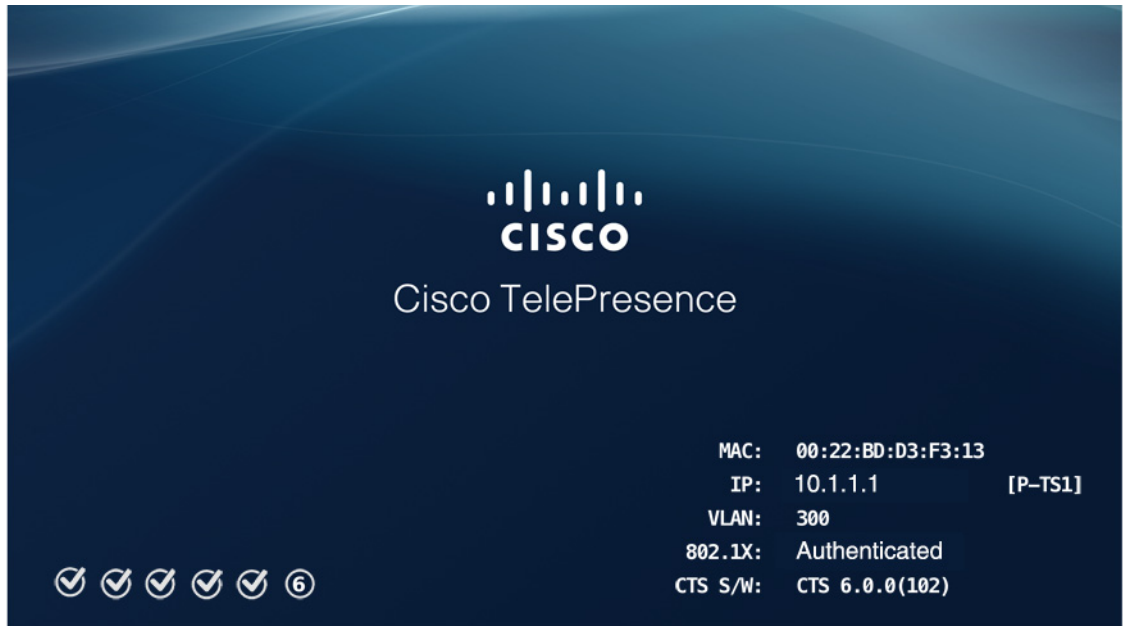
After you turn on the codec(s), the display associated with each codec becomes active. CTS displays green check marks on all displays to show bootup progress. Bootup is complete when the system displays six check marks as shown in [Figure 5-1](#).



Tip

If you have not registered the system to Unified CM, make a note of the MAC address that appears during the bootup process. The MAC address is required to register the system to Unified CM.

Figure 5-1 Bootup Screen



If all six check marks do not display, use the following list to attempt to troubleshoot the problem:

- If the fourth check mark does not display, your system might not have network connectivity. Check the network port and/or the Ethernet cable going to the network port. If your system does not use the Dynamic Network Host Protocol (DHCP) to automatically assign an IP address, you need to configure a static IP address as described in the [“Setting Up a System That Uses a Static Network Address”](#) section on page 5-6.

Step 2 Watch the Cisco TelePresence Touch 12 (Touch) device (the call control device for your system) as the system is booting.

A series of circled numbers appear on the display of the Touch device. These numbers change to check marks as the Touch device components become active.

**Tip**

If the circled numbers do not change to check marks or you receive a message on the Touch device that it could not register to the codec, disconnect the Touch device, wait 5 minutes, then reconnect it. If you continue to see errors or the device does not become active, refer to the [“Troubleshooting Software Installation Issues”](#) chapter of the *Cisco TelePresence Touch 12 Installation Guide* for troubleshooting steps.

Step 3 After bootup completes, make a note of the IP address that displays on the center of the screen as shown in [Figure 5-2](#). You use that information to log in to the Cisco TelePresence System Administration. This IP address displays until you log in to Cisco TelePresence System Administration GUI or use Secure Shell (SSH) to log in to the TX9000 and TX9200.

Figure 5-2 System IP Address**Note**

If the IP address that displays is 192.168.100.2, the system could not contact the DHCP server or your network does not use DHCP; in this case, set a static IP address for your system as described in the [“Setting Up a System That Uses a Static Network Address”](#) section on page 5-6.

- Step 4** If you have not already done so, configure Cisco Unified Communications Manager for your system. For detailed instructions to configure Cisco Unified Communications Manager, refer to the [Cisco Unified Communications Manager Installation Guide for the Cisco TelePresence System](#) for your software release.
- Step 5** Open a browser on a computer that is connected to your network.
- Step 6** In the URL field, type the IP address that you obtained in [Step 3](#) and press **Enter**. The browser launches Cisco TelePresence System Administration.

**Tip**

If you did not make a note of the IP address and it no longer appears on the display, either power-cycle the system, or follow the instructions in [Step 5](#) and [Step 6](#) in the [“Setting Up a System That Uses a Static Network Address”](#) section on page 5-6 to retrieve it.

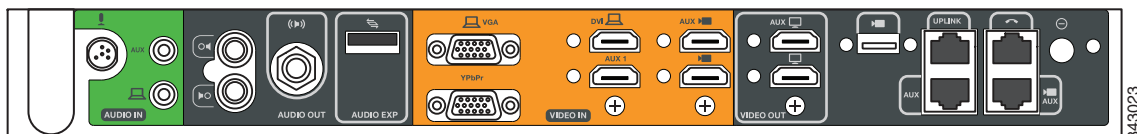
- Step 7** Log in to the system by entering the following information:
- Username: **admin** (case sensitive)
 - Password: **cisco** (case sensitive)

Setting Up a System That Uses a Static Network Address

If your system does not use the Dynamic Host Configuration Protocol (DHCP) to obtain an address and uses a statically-assigned IP address, use the following procedure to assign the static address to the system.

-
- Step 1** Make sure that the system is disconnected from the network.
- Step 2** Wait for the system to finish booting and for the 192.168.x.x address to appear on the center display.
- Step 3** Make a note of the IP address that displays.
- Step 4** (TX9000 and TX9200 systems only) Disconnect the auxiliary camera port connection on TS1 (the primary codec).
- Step 5** Connect a DHCP-enabled PC to the auxiliary camera port of the primary codec. The connection on the port is the Ethernet port labeled “Aux” with a camera icon next to it. The port is on the far lower right in [Figure 5-3](#).

Figure 5-3 Aux Camera Port Location



- Step 6** Find the IP address that the Cisco TelePresence system provided for your network session and make a note of it.



Tip

If your PC is Windows-based, find the session IP address by clicking typing **cmd** in the Search box (or clicking **Start > Run** and typing **cmd**) to open a terminal window, and then typing **ipconfig**.

- Step 7** Set the network address using either CLI commands or the Cisco TelePresence Administrative GUI using one of the following methods:
- **To set the address using the Cisco TelePresence Administrative GUI:**
 - a. Using a supported Internet browser, log in to the Cisco TelePresence system GUI using the IP address *xxx.xxx.xxx.1*,

Where:

xxx.xxx.xxx is the first three octets of the session IP address.

For example, if your determine that your session IP address is 10.0.4.2, use the IP address 10.0.4.1.
 - b. Enter the user name and password when you are prompted to do so. By default, the user name is **admin** and the password is **cisco**.
 - The First-Time Setup wizard screen displays.
 - c. If the CTS Admin UI button displays, click this button to open the Cisco TelePresence Administrative GUI.
 - d. Navigate to **Configuration > IP Settings**.
 - e. Change the DHCP Enabled setting to **No**.
 - f. Enter a static IP address, subnet mask, and IP gateway for your system into the fields. Optionally, enter DNS server(s) and the network domain name.

- **To set the address using CLI commands:**
- a. Using a Secure Shell (SSH) or other secure host client, log in to the Cisco TelePresence system GUI using the IP address *xxx.xxx.xxx.1*,

Where:

xxx.xxx.xxx is the first three octets of the session IP address.

For example, if you determine that your session IP address is 10.0.4.2, use the IP address 10.0.4.1.

- b. Enter the following command to configure a static network IP address:

```
set network IP static ip-address ip-subnet ip-gateway
[dns-address1][dns-address2][domain-name]
```

Where:

ip-address is the IP address of the system

ip-subnet is the IP subnet mask of the system

ip-gateway is the IP gateway of the system

- *dns-address1* is the IP address of DNS server 1 (Optional)
- *dns-address2* is the IP address of DNS server 2 (Optional)
- *domain-name* is the domain name for the network (Optional)

Command Example

The following example gives the Cisco TelePresence system an IP address of 10.0.0.2, a subnet of 255.255.255.0, a gateway of 10.0.0.1, a DNS server of 172.16.1.5, and a domain name of cisco.com:

```
admin:set network IP static 10.0.0.2 255.255.255.0 10.0.0.1 172.16.1.5 cisco.com
ip address successfully set
system restarting...
```

Your system saves the changes and restarts.

- Step 8** Manually specify the IP address of your Cisco Unified Communications Server by completing the following steps:

- a. Navigate to **Configuration > Call Control Settings**.
- b. In the Use Configuration TFTP Server area, click **Specify**.
- c. In the TFTP Server 1 area, specify the IP address of the Unified CM server.
- d. (Optional) If the system uses any additional Unified CM servers, specify those in the TFTP Server 2 through TFTP Server 4 area.
- e. Click **Apply**.

- Step 9** Navigate to the following sections to continue configuring your system:

- [IP Settings, page 5-8](#)
- [Network Settings, page 5-10](#)
- [Call Control Settings, page 5-11](#)
- [Address Book, page 5-13](#)
- [Telephony Settings, page 5-14](#)
- [SNMP Settings, page 5-16](#)

- [System Settings, page 5-18](#)

IP Settings

The IP Settings window displays the Cisco TelePresence System (CTS) MAC address and hostname and you can view and manage the following:

- DHCP—Select **Yes** if your network uses DHCP. Select **No** if your system does not use DHCP.
- Domain name
- IP Address
- Default gateway
- DNS servers.

To view and manage IP settings:

- Step 1** Choose **Configuration > IP Settings**. The IP Settings window appears, as shown in [Figure 5-4](#) (DHCP Enabled) and [Figure 5-4](#) (DHCP Not Enabled).

Figure 5-4 CTS IP Settings - DHCP Enabled

The screenshot shows the 'Configuration > IP Settings' window. The settings are as follows:

MAC Address:	00:1D:A2:39:55:A9
Host Name:	SEP001DA23955A9
DHCP Enabled:	<input checked="" type="radio"/> Yes <input type="radio"/> No
Domain Name:	cisco.com
Use Static IP Address:	<input checked="" type="radio"/> Yes <input type="radio"/> No
IP Address:	10.00.000.000
Subnet Mask:	255.255.255.0
Default Gateway:	10.00.000.1
DNS Server 1:	171.400.226.120
DNS Server 2:	171.70.100.100

Buttons: Apply, Reset

Figure 5-5 CTS IP Settings - DHCP Not Enabled

The screenshot shows the 'Configuration > IP Settings' window. The settings are as follows:

MAC Address:	00:1D:A2:39:55:A9
Host Name:	SEP001DA23955A9
DHCP Enabled:	<input type="radio"/> Yes <input checked="" type="radio"/> No
Domain Name:	cisco.com
Use Static IP Address:	Yes
IP Address:	10.35.192.243
Subnet Mask:	255.255.255.0
Default Gateway:	10.35.192.1
DNS Server 1:	171.400.226.120
DNS Server 2:	171.70.100.100

Buttons: Apply, Reset

- Step 2** Configure settings for the Cisco TelePresence System uplink to your network using the information in [Table 5-1](#) as a guide. The Cisco TelePresence System can be configured in the following ways:
- Pure dynamic—Uses DHCP for everything.
 - Pure static—Uses static settings for everything.
 - Hybrid—Uses static settings for the IP Address, Netmask and gateway, but uses DHCP for name servers and other options like [Option 150](#) for the Unified CM TFTP servers.



Tip When you make a change in any of the **Configuration > IP Settings** fields, the **Apply** and **Reset** buttons are activated.

Step 3 Click **Apply** to register new or modified settings.

Step 4 Click **Reset** to restore the original settings.



Note All codecs on the system must be connected and enabled for the reset to complete. To register a device, see the “Optional Hardware” section of the [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#).

Table 5-1 IP Settings

Field or Button	Setting
MAC Address:	MAC address of the CTS primary codec. For example, “ 00:0D:D1:23:45:A1 ”
Host Name:	Host name of the CTS primary codec. For example, “ SEP000DD12345A1 ”
DHCP Enabled:	Indicates whether Dynamic Host Configuration Protocol (DHCP) has been enabled for the CTS primary codec. <ul style="list-style-type: none"> • If you select the No radio button in the DHCP Enabled field, you can update the following available fields: <ul style="list-style-type: none"> – Domain Name – IP Address – Subnet Mask – Default Gateway – DNS Server 1 – DNS Server 2 • If you select the Yes radio button in the DHCP Enabled field, no configurable fields are available unless you click the Yes radio button to Use Static IP Address.
Domain Name:	Indicates the domain name for the primary codec. This field is configurable only if you select the No radio button for DHCP Enabled.

Table 5-1 IP Settings

Field or Button	Setting
Use Static IP Address:	Indicates whether the CTS primary codec is configured to use a static IP address. Static IP address is disabled by default. Click the Yes radio button to update the following fields: <ul style="list-style-type: none"> IP Address Subnet Mask
IP Address	IP address for the Cisco TelePresence system. This field is configurable only if you select the No radio button for DHCP Enabled.
Subnet Mask	Subnet mask used for the IP address supplied. This field is configurable only if you select the No radio button for DHCP Enabled.
Default Gateway	Default gateway for the CTS primary codec. This field is configurable only if you select the No radio button for DHCP Enabled.
DNS Server 1 and 2	IP addresses of the Domain Name System (DNS) servers. This field is configurable only if you select the No radio button for DHCP Enabled.

Network Settings

You can view or configure the following settings in the Network Settings window:

- [Operational VLAN ID, page 5-10](#)
- [Administrative VLAN ID, page 5-10](#)
- [Syslog Address, page 5-11](#)

Operational VLAN ID

This field shows a display-only VLAN ID.

Administrative VLAN ID

The CTS must have a VLAN membership ID before it can proceed with a DHCP request for an IP address.

To view or configure the administrative VLAN ID:

-
- Step 1** Choose **Configuration > Network Settings**.
- Step 2** Enter an administrative VLAN ID for Cisco TelePresence in this field.



Note The **Apply** and **Reset** buttons become active when a value is entered in this field.

- Step 3** Click **Apply** to register a new or modified setting.

- Step 4** Click **Reset** to restore the administrative VLAN ID setting displayed when you opened this window.

Syslog Address

This field shows the display-only syslog address, as shown in [Figure 5-6](#).

Figure 5-6 Network Settings Syslog Address

Configuration > Network Settings

Operational VLAN ID:	28
Administrative VLAN ID:	
Syslog Address:	10.10.10.10:000

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Note

You must also configure the External Syslog Address in the Product Specific Configuration Layout field for your CTS. See the [Cisco Unified Communications Configuration Guide for the Cisco TelePresence System](#).

Call Control Settings

To specify TFTP server locations and view a list of available settings for this Cisco TelePresence system:

- Step 1** Choose **Configuration > Call Control Settings**. The Cisco Unified Communications Manager Settings window appears, as shown in [Figure 5-7](#).

Figure 5-7 Cisco Unified Communications Manager Settings

Configuration > Cisco Unified Communications Manager Settings

Use Configuration TFTP Servers:	<input type="radio"/> Automatic <input checked="" type="radio"/> Specify
TFTP Server 1:	10.00.000.00
TFTP Server 2:	
TFTP Server 3:	
TFTP Server 4:	
TFTP Server 5:	
Cisco Unified Communications Manager 1:	test-ucm7
Cisco Unified Communications Manager 2:	Not Available
Cisco Unified Communications Manager 3:	Not Available
Cisco Unified Communications Manager 4:	Not Available
Cisco Unified Communications Manager 5:	Not Available
CAPF Authentication String:	
Certificate Trust List (CTL):	Delete CTL

Apply Reset

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Step 2 Configure Unified CM settings using the information in [Table 5-2](#).

**Note**

If you enter a new value for of the TFTP Server field(s), and the change does not persist, delete the Certificate Trust List (CTL) by clicking the **Delete CTL** button and re-enter the TFTP server information.

The **Apply** and **Reset** buttons become active when a value is entered in this field.

Table 5-2 Cisco Unified Communications Manager Settings

Field	Settings
Use Configuration TFTP Server	<ul style="list-style-type: none"> Click Automatic to set the default condition, which is that the TFTP server will reply to DHCP requests for option 150, or for a list of TFTP servers that point to endpoints in the network where the Unified CM configuration files are located for your system. Click Specify to manually supply IP addresses of the Unified CM servers.
TFTP Server 1 through 5	Click Specify at Use Configuration TFTP Server to activate interactive fields that are provided for entering TFTP server IP addresses.
Cisco Unified Communications Manager 1 through 5	Display-only report that shows the names of up to five Cisco Unified Communications Managers.
CAPF Authentication String	Enter the Certificate Authority Proxy Function authentication string. The characters entered in this field must match the CAPF Authentication string entered in Unified CM.
Certificate Trust List (CTL)	<p>The Delete CTL button becomes active when the CTS is provided with a CTL by a Unified CM configured in mixed authentication mode.</p> <p>Click Delete CTL to delete all entries on the CTL.</p>

Step 3 Click **Apply** to register new or modified settings.

Step 4 Click **Reset** to restore the original settings.

**Note**

All codecs on the system must be connected and enabled for the reset to complete. To register a device, see the “Optional Hardware” and “Troubleshooting the Cisco TelePresence Configuration” sections of the [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#).

Related Information

See the following documentation for more information about Unified CM:

- [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#)

- [Cisco Unified Communications Manager \(CallManager\) Documentation Roadmaps](#)

Address Book

The Address Book window displays read-only entries that have been set during Cisco Unified Communications Manager (Unified CM) configuration. You can create listings for up to 40 favorites.

To view the phone list of Cisco TelePresence system-enabled meeting rooms:

-
- Step 1** Choose **Configuration > Address Book**. The Address Book window appears, as shown in [Figure 5-8](#).

Figure 5-8 CTS Address Book

	Label	Number
1.	Sarva	27809
2.	Hope	21069
3.	Richard	27842
4.	Chris	22304
5.		
6.		
7.		
8.		

- Step 2** Use Unified CM to make changes to the Address Book. Refer to the “[Managing the Speed-Dial Directory \(Favorites\)](#)” section of the *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System* for information about configuring favorites in Unified CM.
-

Telephony Settings

The Telephony Settings window displays read-only information about the telephony settings for the Cisco TelePresence System that were set in the Unified CM.

To view entries in the Telephony Settings window:

- Step 1** Choose **Configuration > Telephony Settings**. The Telephony Settings window appears, as shown in

Figure 5-9 CTS Telephony Settings

Configuration > Telephony Settings	
Auto Answer:	Yes
Maximum Call Length (mins):	0
DSCP For Audio:	EF DSCP (101110)
DSCP For Video:	AF41 DSCP (100010)
Start Media Port:	16384
End Media Port:	32766
Note: Use Unified CM to change these settings.	

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- Step 2** View the telephony settings described in [Table 5-3](#).

Table 5-3 Telephony Settings

Field	Settings
Auto Answer	Displays the automatic answering capability on the phone. <ul style="list-style-type: none"> • Yes indicates that automatic answering has been enabled. • No indicates that automatic answering has been disabled.
Maximum Call Length (mins)	Displays the defined limit to the number of minutes allowed for a call. The default setting is 0 minutes, which means no limit to call duration is set. The maximum number of minutes that can be set is 10080 (7 days). The call will automatically end at the number of minutes set. When the default setting is used, the call is never ended automatically.

Table 5-3 *Telephony Settings (continued)*

Field	Settings
DSCP For Audio DSCP For TelePresence	<p>Displays the traffic queuing techniques that define per-hop behavior based on the Differentiated Services Code Point (DSCP) value in the IP header of a packet. The following DSCP settings apply for both audio and video traffic:</p> <ul style="list-style-type: none"> • AF11 DSCP (001010) • AF12 DSCP (001100) • AF13 DSCP (001110) • AF21 DSCP (010010) • AF22 DSCP (010100) • AF23 DSCP (010110) • AF31 DSCP (011010) • AF32 DSCP (011100) • AF33 DSCP (011110) • AF41 DSCP (100010)—Recommended value • AF42 DSCP (100100) • AF43 DSCP (100110) • CS1 (precedence 1) DSCP (001000) • CS2 (precedence 2) DSCP (010000) • CS3 (precedence 3) DSCP (011000) • CS4 (precedence 4) DSCP (100000) • CS5 (precedence 5) DSCP (101000) • CS6 (precedence 6) DSCP (110000) • CS7 (precedence 7) DSCP (111000) • Default DSCP (000000) • EF DSCP (101110)
Start Media Port	Must be in the range from 16384 to 32766, and must be lower than the End Media Port settings.
End Media Port	Must be in the range from 16384 to 32766, and must be higher than the Start Media Port settings.

Step 3 Use Unified CM to make changes to Telephony Settings. See the *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System*.

SNMP Settings

The Simple Network Management Protocol (SNMP) Settings window displays read-only information about the SNMP settings for the Cisco TelePresence System that were set in Unified CM configuration.

To view SNMP settings:

- Step 1** Choose **Configuration > SNMP Settings**. The SNMP Settings window appears, as shown in [Figure 5-10](#).

Figure 5-10 Verify SNMP Settings

Configuration > SNMP Settings

Engine ID:	0x80001f8803001da238c993					
SNMP Configuration						
SNMP Enabled:	v3/v2c					
User ID:	admin					
Security Level:	priv					
Authentication Algorithm:	MD5					
Encryption:	DES					
System Location:	Location					
System Contact:	Contact					
Read-Only Community String:	readonly					
Read-Write Community String:	readwrite					
Trap Receiver Configuration						
Trap Receiver	IP Address	User ID	Security Level	Authentication Algorithm	Encryption	Community String
Trap Receiver 1:	10.23.45.128:162	trapUser	authPriv	SHA	AES	
Trap Receiver 2:						
Trap Receiver 3:						
Trap Receiver 4:						
Trap Receiver 5:						

Note: Use Unified CM to change these settings.

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- Step 2** View the SNMP settings fields described in [Table 5-4](#).

Table 5-4 *SNMP Settings*

Field	Settings
Engine ID	Identifies the local or remote SNMP engine. The remote agent SNMP engine ID and user password are used to compute authentication and privacy digests.
SNMP Configuration	Parameters that access the SNMP server associated with this Cisco TelePresence System. Unified CM for CTS supports SNMP Version 2c and Version 3. SNMP fields displayed in this window reflect the configured SNMP version. The following fields are included: <ul style="list-style-type: none"> • SNMP Enabled • User ID • Security Level • Authentication Algorithm • Encryption • System Location • System Contact • Read-Only Community String • Read-Write Community String
Trap Receiver Configuration	SNMP settings for the receiver to which this Cisco TelePresence system will send traps. The following information is shown for Traps 1 through 5: <ul style="list-style-type: none"> • Trap Receiver • IP Address • User ID • Security Level • Authentication Algorithm • Encryption • Community String

- Step 3** Use Unified CM to make changes to the SNMP settings. For more information, refer to the “[SNMP Configuration Parameters Area](#)” and “[SNMP Trap Parameters Area](#)” sections of the “[Configuring Cisco Unified Communications Manager for the Cisco TelePresence System](#)” chapter in the *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System*.

Related Information

For more information about configuring SNMP with your Cisco TelePresence system, refer to the “[MIBs, RFCs, and SNMP Trap Messages for the Cisco TelePresence System](#)” chapter of the *Cisco TelePresence System Message Guide*.

System Settings

The System Settings window displays read-only information about the system settings for the TX system that were set in Unified CM configuration.

In this window, you can also enable or disable the audio auxiliary output. For information about performing this task, see [“Enabling or Disabling the Audio Auxiliary Output” section on page 5-20](#).

To view system settings:

- Step 1** Choose **Configuration > System Settings**. The System Settings window appears, as shown in [Figure 5-11](#).

Figure 5-11 System Settings

- Step 2** View the system settings information described in [Table 5-5](#).

Table 5-5 System Settings

Field	Description or Setting
Username/Password Configuration	
User ID	Displays username and password.
New Password	Note Usernames and passwords must be at least 4 characters, but not more than 64 characters in length, and can contain upper and lower case alphanumeric characters and the underscore and dash characters. The following usernames are not allowed: apache, daemon, nobody, operator, and shutdown.
New Password (verify)	
Audio Auxiliary Output	
Enable Output	For information about performing this task, see “Enabling or Disabling the Audio Auxiliary Output” section on page 5-20 .

Table 5-5 System Settings (continued)

Field	Description or Setting
Overall System Quality	<p>This field displays the system bandwidth and screen resolution. The bandwidth is the maximum negotiated video bandwidth for a CTS call. A higher bandwidth increases video quality.</p> <p>Choose from the following:</p> <ul style="list-style-type: none"> • Highest Detail, Best Motion: 4Mbps 1080p (default) • Highest Detail, Better Motion: 3.5Mbps, 1080p • Highest Detail, Good Motion: 3Mbps, 1080p • High Detail, Best Motion: 3Mbps, 720p • High Detail, Better Motion: 2Mbps, 720p • High Detail, Good Motion: 1Mbps, 720p • High Detail, Limited Motion: 720p (Lite)
Locale Configuration	
Time Zone	Displays the configured time zone for your area of the world from the drop-down menu.
Language	<p>Displays the configured language for CTS.</p> <p>Note TX software releases support additional languages. These languages change the text that is shown on the Cisco TelePresence Touch 12 device and also affect some on-screen messages. For more information, refer to the “Installing Language Versions” section of the <i>Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System</i>.</p>
Cisco TelePresence System Configuration	
System Type	<p>Identifies the CTS model. Choose from the following:</p> <ul style="list-style-type: none"> • Cisco TelePresence 500 Series • Cisco TelePresence 1000 • Cisco TelePresence 1100 • Cisco TelePresence 1300 Series • Cisco TelePresence 3000 • Cisco TelePresence 3010 • Cisco TelePresence 3200 • Cisco TelePresence 3210 <p>Note You must select the CTS device type specifically to upgrade your CTS software.</p>
Days Display Not Active	Specifies the days of the week that the Cisco TelePresence system display remains off by default. Choose Monday through Sunday. Default is Sunday and Saturday.

Table 5-5 System Settings (continued)

Field	Description or Setting
Display On Time	Specifies the time of day that the Cisco TelePresence system display(s) will remain on after being turned on, if CCM is configured. Times are displayed in a 24-hour format where 00:00 indicates 12:00 midnight and 23:59 indicates 11:59 pm. Default is 07:30. If you clear the default value so that the field is blank, the display(s) will turn off after the completion of each call.
Display On Duration	Specifies the length of time the Cisco TelePresence system display(s) will remain on if a “Display On Time” value is defined. Times are displayed in a 24-hour format, where 1:30 indicates one hour and thirty minutes; the maximum value is 24:00 (24 hours). Default is 10:30. If you clear the default value so that the field is blank, then the display will turn off at 11:59 pm.
Note	If your version of Unified CM does not allow you to configure values for Days Display Not Active, Display On Time or Display On Duration, the system uses the default values for these features.
NTP Servers	
NTP Server 1 through 5	Required. Network Time Protocol (NTP) is used to synchronize the clocks on Cisco IP telephony servers with an external network time server that uses NTP. You can have up to five IP addresses for Network Time Protocol servers. Note NTP must be configured properly to ensure that calendar events appear as expected.

- Step 3** Use Unified CM to make changes to the system settings. See the [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#) for more information.

Enabling or Disabling the Audio Auxiliary Output

In the System Settings window, you can disable or re-enable the audio auxiliary output. Either operation entails restarting the calling services, which can take up to a few minutes. During the restart, be aware of the following:

- The functionality of the system is impacted. You cannot place or receive calls.
- You must refrain from performing any additional tasks in the Administration interface.

To enable or disable the audio auxiliary output:

- Step 1** Choose **Configuration > System Settings**. The System Settings window appears.
- Step 2** To disable or re-enable the audio output, click **Disable** or **Enable** as appropriate. The system displays a message, asking to proceed with the operation, which entails restarting the calling services.
- Step 3** To proceed, click **OK**.

- Step 4** While waiting for the calling services to restart, refrain from performing additional tasks using the Administration interface. After the operation is complete, the button changes to “Disable” if you just finished enabling the audio output or “Enable” if you finished disabling the output.

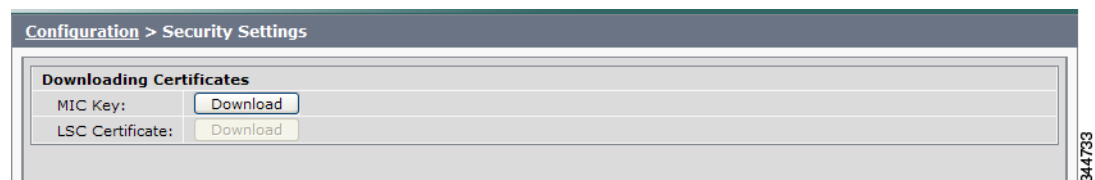
Security Settings

The Security Settings window enables you to download a Manufacturing Installed Certificate (MIC) key or Locally Significant Certificate (LSC) certificate for 802.1X authentication. For more information about 802.1X authentication, see the [“802.1X Authentication” section on page 4-15](#).

To download a MIC key or LSC certificate:

- Step 1** Choose **Configuration > Security Settings**. The Security Settings window appears, as shown in [Figure 5-12](#).

Figure 5-12 Security Settings



- Step 2** To download a certificate, click the Download button next to it.



Note If a certificate is not present in the system, the Download button next to it is dimmed.

- Step 3** Save the certificate to your hard disk.

Troubleshooting Your Configuration

For information about troubleshooting your configuration, refer to the [“Troubleshooting Your Configuration”](#) section of the *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System*.

Upgrading CTS Codec Firmware



Note Upgrades should only be performed at night or during minimal Cisco TelePresence usage times. An upgrade takes up to 30 minutes to complete.

The procedure to upgrade CTS firmware is the same as the firmware upgrade procedure for the Cisco Unified IP phones. See the Uploading Files to the Cisco Unified CM TFTP Directory section of the *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System* for complete instructions.

To download CTS firmware:

-
- Step 1** Log into the [Download Software Select a Product](http://www.cisco.com/cisco/software/select_a_product.html) page on Cisco.com:
<http://www.cisco.com/cisco/software/navigator.html>
- The Tools & Resources Download Software appears.
- Step 2** Expand the **Cisco TelePresence System** folder and open the **Cisco TelePresence System** sub folder. A list of CTS devices appears.
- Step 3** Select your CTS device
- Step 4** Upload the firmware file to the TFTP directory of your Unified CM TFTP server.
- Step 5** Restart the TFTP server.
- Step 6** Change the firmware filename for the system(s) that you want to upgrade (either via the Device Defaults page, or on a per system basis) in the Cisco Unified CM Administration interface.
- Step 7** Click the **Restart** button in Unified CM for the device(s) that you want to upgrade.
-

Upgrading Software for Cisco TelePresence Touch 12

See the following important software upgrade information in the [Upgrading From a Cisco Unified IP Phone to a Cisco TelePresence Touch 12](#) document at the following URL:

http://www.cisco.com/en/US/docs/telepresence/peripherals/cisco_touch/installation/cisco_touch_installation_upgrade.html

This section contains the following information about managing and troubleshooting password issues on the Cisco TelePresence System (CTS):

- [Resetting Your CTS Codec Password, page 5-22](#)

Resetting Your CTS Codec Password



Note

You must be in the Cisco TelePresence room to read the newly requested passcode that shows on the main display.

At each point where the **pwrecovery** account requires input, the program will wait up to 60 seconds. If nothing is entered, the system will inform you that the entry took too long and will exit.

If you encounter any difficulty, open a case with Technical Assistance Center (TAC) via the Internet at <http://tools.cisco.com/ServiceRequestTool/create/>, or contact your Cisco technical support representative and provide the representative with the information you have gathered about the problem.

Before You Begin

Make sure that the CTS is not in a call, and that there is only one instance of someone trying to reset the password, otherwise the session will abort.

Procedure

To reset your CTS codec password:

Step 1 SSH into the codec from your laptop.

Step 2 Login with the following:

- Username: **pwrecovery**
- Password: **pwreset**

The following message appears in the SSH client window:

Example 5-1 Welcome to Password Reset

```
dhcp-249:~ $ ssh pwrecovery@10.00.00.100
pwrecovery@10.00.00.100's password:

*****
*****
**                                     **
**      Welcome to password reset      **
**                                     **
*****
*****
```

```
Do you want to continue ? (y/n):y
Preparing the system...
Please enter the passcode:
```

Step 3 The system will ask whether you want to continue. Type **Y** then **return** to continue



Note If desired, type any other key then **return** to exit.

This system will now prepare for password reset and prompt you for a passcode. The new passcode is displayed on the CTS main display, as shown in the following example:

```
Password reset is now being run
Passcode: 919175
```

**Note**

The passcode is a randomly generated number and will be different for each login attempt. If you enter the wrong passcode, the system will inform you that the passcode was incorrect and will exit, as shown in the following example. If this happens, repeat [Step 1](#) and [Step 2](#).

Example 5-2 Invalid Password Reset Request

```
Do you want to continue ? (y/n):y
Preparing the system...
Please enter the passcode:12345
Sorry that was an invalid passcode...
Logging off
Connection to 10.00.00.100 closed.
dhcp-249:~ $
```

When you enter the correct passcode, the CTS will then reset the administration account name and password to the system defaults.

**Note**

The top right of the screen could still show the previous, non-default user name. Do not use this user name, and continue to use the default user name and password.

The following example shows successful password reset information:

Example 5-3 Successful Password Reset Request

```
Please enter the passcode:507530
resetting admin name and password
stopping any existing admin session
admin account and password reset to default
success in applying security rules
Logging off
Connection to 10.00.00.100 closed.
dhcp-249:~ $
```

**Note**

If you are using the CTS with a Cisco Unified Communications Manager, the next time you perform a “Refresh” or “Reset” from the Unified CM, the administration account name and password will be reconfigured to the values specified in the Unified CM device page.

Troubleshooting Your TX and CTS System Components

For information about troubleshooting your TX and CTS system components, refer to the associated installation manual on the cisco.com website and find the First Time Setup chapter. Troubleshooting information is in this chapter.

To find the installation manual for your system, complete the following task:

-
- Step 1** Enter the following URL in a browser to navigate to the cisco.com support web site:
<http://www.cisco.com/cisco/web/psa/default.html?mode=prod&level0=280789323>
 The product support navigator displays.
- Step 2** Open the following installation document that corresponds with your CTS or TX system:
Cisco TelePresence System 500-32 Assembly, Use & Care, and Field-Replaceable Unit Guide:
http://www.cisco.com/en/US/docs/telepresence/cts_500/cts_500_32/assembly/guide/cts_500_32_guide.html
Cisco TelePresence System TX1300 47 Installation, First-Time Setup, and Field-Replaceable Unit Guide:
http://www.cisco.com/en/US/docs/telepresence/cts_1300/cts_1300_47/assembly/guide/1300_47_assembly_guide.html

Cisco TelePresence System TX1310 65 Assembly, First-Time Setup, and Field Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/cts_1300/cts_1310/assembly/guide/1310_assembly_guide.html

Cisco TelePresence System TX9000 and TX9200 Assembly, First-Time Setup, and Field-Replaceable Unit Guide:

http://www.cisco.com/en/US/docs/telepresence/tx9000/assembly_guide/tx9000_9200_assembly_guide.html

Step 3 Find the chapter entitled **First-Time Setup**.

Troubleshooting Information for your system components is listed in that chapter.



Monitoring the Cisco TelePresence TX System

Revised: February 2013, OL-28614-01

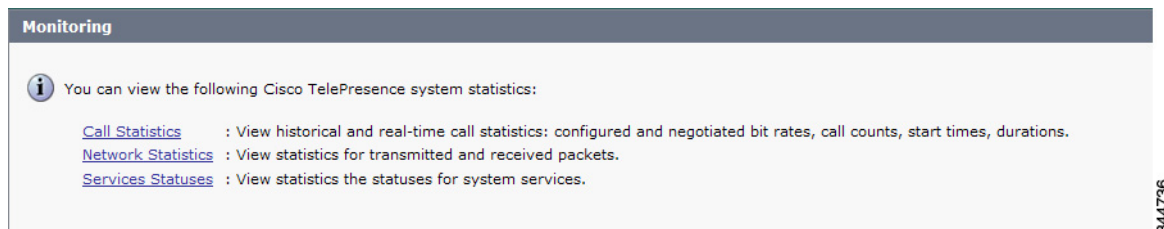
Contents

This chapter contains the following sections:

- [Call Statistics](#), page 6-2
- [Network Statistics](#), page 6-5
- [Using SNMP Traps to Monitor the Cisco TelePresence System](#), page 6-6

[Figure 6-1](#) shows the tools that are available in the Monitoring window:

Figure 6-1 *Monitoring Window*



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Call Statistics

Use the Call Statistics window to view audio and video statistics collected by the codecs. The reports include descriptions to help you understand the type of information that is being collected.

Special Note for Statistics for HD Presentations

If you are sharing an HD presentation, the call statistics will appear in different places depending on whether the call is a point-to-point or multipoint call.

- For a point-to-point call, view the presentation statistics under **Monitoring > Call Statistics > Content**.
- For a multipoint call, view the presentation statistics under **Monitoring > Call Statistics > Audio/Video Call: Audio Stream Statistics**.

Viewing Call Statistics

To view call statistics:

Step 1 Choose **Monitoring > Call Statistics**.

You can view the following Cisco TelePresence system statistics:

- **Real Time Call Statistics**—Lists details of an in-progress call.
- **Audio/Video Call: Audio Stream Statistics**—Lists details about the audio and video of an in-progress call.
- **Historical Call Statistics (not including current call, if any)**—Lists historical information about calls.

Step 2 For more specific audio and video statistics, click the check-box next to the following selections.:

- [Audio/Video Call: Audio Stream Statistics](#)
- [Audio/Video Call: Video Stream Statistics](#)
- [Audio-Only Call: Stream Statistics](#)

Audio/Video Call: Audio Stream Statistics

- Click once to select. Additional statistics fields appear.
- Click once to de-select. Additional fields are hidden.

See [Figure 6-2](#).

Audio/Video Call: Video Stream Statistics

- Click once to select. Additional statistics fields appear.
- Click once to de-select. Additional fields are hidden.

Audio-Only Call: Stream Statistics

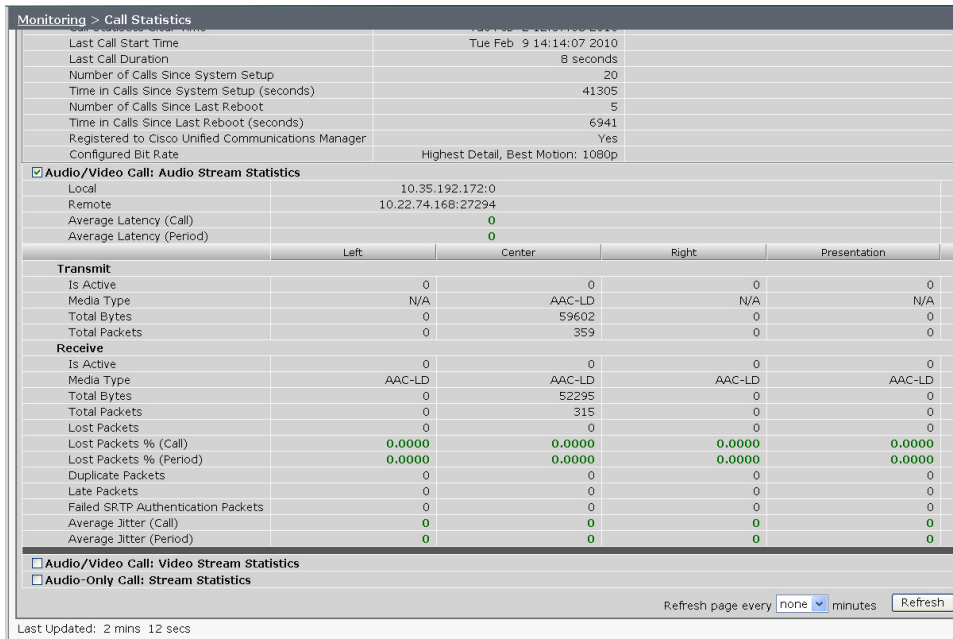
- Click once to select. Additional statistics fields appear.
- Click once to de-select. Additional fields are hidden.

Statistics are listed in columns labeled as if you were looking at the front of the system sitting at the conference table.

When you select one of the choices above, additional statistics fields appear with the following status information listed, as shown in [Figure 6-2](#):

- Local
- Remote
- Average Latency (Call)
- Average Latency (Period)

Figure 6-2 Audio/Video Call: Audio Stream Statistics



278161

Additional statistics are listed for the following, as shown in [Figure 6-3](#):

- [Transmit](#)
- [Receive](#)

Transmit

- Is Active
- Media Type
- Total Bytes
- Total Packets

Receive

- Is Active
- Media Type
- Total Bytes
- Total Packets

- Lost Packets
- Lost Packets % (Call)
- Lost Packets % (Period)
- Duplicate Packets
- Late Packets
- Failed SRTP Authentication Packets
- Average Jitter (Call) (see [jitter call](#))
- Average Jitter (Period) (see [jitter period](#))

**Note**

For more information about jitter and packet loss, see the Understanding Jitter and Packet Loss Reporting section of the *Cisco TelePresence System Message Guide* on Cisco.com.

Figure 6-3 Call Statistics - Transmit and Receive

Monitoring > Call Statistics			
Transmit			
Is Active	0	0	0
Media Type	H.264	H.264	H.264
Frames Per Second	30.00	5.00	30.00
Total Bytes	417631127	0	0
Total Packets	401674	0	0
Receive			
Is Active	0	0	0
Media Type	H.264	H.264	H.264
Frames Per Second	30.00	5.00	30.00
Total Bytes	1020548216	13609108	0
Total Packets	1005589	15823	0
Lost Packets	3	0	0
Lost Packets % (Call)	0.0003	0.0000	0.0000
Lost Packets % (Period)	0.0000	0.0000	0.0000
Duplicate Packets	0	0	0
Late Packets	0	0	0
Failed SRTP Authentication Packets	0	0	0
Average Jitter (Call)	4	2	0
Average Jitter (Period)	6	3	0

Step 3 Set an interval for updating these reports by choosing the time from the Refresh drop-down menu. Choices, in minutes, include the following:

- None (default)
- 1
- 2
- 5
- 10
- 13
- 60

Step 4 Click **Refresh** to update the statistics immediately.

Network Statistics

Use Network Statistics to view packet transmission statistics collected from the network. Statistics are listed in columns labeled as if you were looking at the back of the system. For example, on a CTS 3000 or CTS 3200, the labels would indicate statistics from the left, center, and right codecs.

To monitor network statistics:

- Step 1** Choose **Monitoring > Network Statistics**. Statistics for your system appear, as shown in [Figure 6-4](#).

Figure 6-4 Network Statistics Window

	Center	Presentation
False Carrier Sensor Errors	0	0
Receiver Not Okay Errors	0	0
TxOctets	892025508	24273378
TxBroadcastPkts	203	8
TxMulticastPkts	2287	5
TxUnicastPkts	1050924	133813

Refresh page every minutes

Last Updated: 1 min 39 secs 278162

- Step 2** Look for error counters that have been incremented since the last time you viewed these statistics. Statistic types include the following:

- False Carrier Sensor Errors
- Receiver Not Okay Errors
- Number of TxOctets
- Number of TxBroadcastPkts
- Number of TxMulticastPkts
- Number of TxUnicastPkts

- Step 3** Set an interval for updating these reports by choosing the time from the Refresh drop-down menu. Choices, in minutes, include the following:

- None (default)
- 1
- 2
- 5
- 10
- 13
- 60

- Step 4** Click **Refresh** to update the statistics immediately.

Using SNMP Traps to Monitor the Cisco TelePresence System

Cisco provides you with management information bases (MIB) files that are designed to monitor your system using the Simple Network Management Protocol (SNMP). For more information, refer to the [“MIBs, RFCs, and SNMP Trap Messages for the Cisco TelePresence System”](#) chapter of the *Cisco TelePresence System Message Guide*.

Where to Go Next

For more information about system statistics and messages, including System Operations (Sysop) Log messages see the *Cisco TelePresence System Message Guide* on Cisco.com.



Satellite Licenses for the Cisco TelePresence TX System

Revised: February 2013, OL-28614-01

Contents

The information in this appendix explains how to order satellite licenses and how to configure both Cisco Unified Communications Manager (Unified CM) and Cisco TelePresence System (CTS) to support satellite functionality. This appendix contains the following sections:

- [Cisco TelePresence over Satellite Networks, page A-1](#)
- [Ordering a Satellite License, page A-3](#)
- [Loading a Satellite License, page A-3](#)
- [Identifying the CTS Satellite Endpoints, page A-4](#)
- [Enabling the Satellite Feature, page A-4](#)
- [Additional Licensing Information, page A-4](#)



Note

The Cisco TelePresence System 500-32 is the only system that is supported as the remote endpoint in a satellite network. Other endpoint models have not been qualified to work on the remote side of a satellite link because the bandwidth needed for these systems quickly becomes cost-prohibitive to run over satellite networks. Any Cisco TelePresence endpoint or mix of endpoints (for a multipoint call) can be used on the terrestrial side of the satellite link.

Cisco TelePresence over Satellite Networks

The Cisco TelePresence over Satellite Networks solution extends the reach of Cisco TelePresence to remote, tactical locations where terrestrial bandwidth is not available. This solution incorporates existing Cisco TelePresence endpoint and infrastructure products with new software releases designed to function more effectively on poor, high-delay networks.

The following features and benefits are supported:

- Relaxed latency, jitter, and packet-loss thresholds allow the Cisco TelePresence meeting application to function effectively over poor, high-delay, real-world satellite networks.

- Qualification and testing of Type 1 encryption devices with the Cisco TelePresence application enable military-grade security for Cisco TelePresence calls.
- New network and environment recommendations provide guidance for remote, tactical, and even mobile deployments of the Cisco TelePresence System (CTS).

This section contains the following information:

- [Supported CTS Software, page A-2](#)
- [Supported Satellite Bandwidth, page A-2](#)
- [Satellite Security, page A-2](#)

Supported CTS Software

You must be running CTS software version 1.5 or a later release on all Cisco TelePresence endpoints, Cisco TelePresence Multipoint Switches, and Cisco TelePresence Managers within your network to participate in a satellite call.

Supported Satellite Bandwidth

You will need a minimum of 3-MB bandwidth (at 720p, good motion handling) in a single-channel-per-carrier (SCPC) configuration over a single-hop satellite link.



Note

Because the Cisco TelePresence video and audio are traveling up to the satellite and back down to an earth station, significant (500 ms or more) latency is introduced into the signal. The result is noticeable delay in the conversation. In addition, atmospheric conditions or other interference may impact satellite-link performance and introduce jitter or packet loss into the call. The result may be noticeable degradation of the video quality.

CTS software release 1.5 and later releases support satellite deployment configurations that significantly raise the thresholds for network warning messages and call termination. When a satellite endpoint joins a call (point-to-point or multipoint), all other endpoints in the call negotiate the new threshold setting, so no one in the call gets warning messages or gets dropped just because a satellite-based endpoint joins the call.

Satellite Security

The Cisco TelePresence application supports Transport Layer Security (TLS) and Secure Real-Time Transport Protocol (SRTP) encryption for signaling and media paths.

Ordering a Satellite License

You can order satellite licenses when you initially order your CTS, or you can purchase separate satellite licenses to upgrade an existing CTS. Note the following details when you order a satellite license:

- The product authorization key (PAK) will either be physically delivered to your location or electronically delivered via E-mail.
- Product Number:
 - Physical: CTS-SATELLITE=
 - Electronic: L-CTS-SATELLITE=

Loading a Satellite License

After you have received the satellite license, load it on Unified CM by following these steps:

**Caution**

Do not edit or change the contents of the license or it will become invalid.

-
- Step 1** Load the license file into the Cisco Unified CM TFTP directory by following the steps in the “Uploading Files to the Cisco Unified CM TFTP Directory” in the *Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System*.
- Step 2** After making sure that the license is available on your computer, log in to the Cisco Unified CM Administration page and follow these steps:
- a. From the Navigation drop-down menu in the upper right corner, select **Cisco Unified OS Administration** and click **Go**.
 - b. Log in to Cisco Unified OS Administration.
 - c. From the Software Upgrades drop-down menu, select **TFTP File Management** and click the **Upload File** button. A dialog box appears.
 - d. Browse to find the appropriate license and upload the license. Leave the Directory field blank.
- Step 3** Restart the Cisco Unified CM TFTP server and complete these steps:
- a. From the Navigation drop-down menu, select **Cisco Unified Serviceability** and click **Go**.
 - b. Log into Cisco Unified Serviceability.
 - c. From the Tools drop-down menu, select **Control Center - Feature Services**.
 - d. In the Select Server box, select the TFTP server from the drop-down menu and click **Go**.
 - e. In the CM Services box, select the **Cisco TFTP** radio button.
 - f. Click **Restart**.
 - g. Repeat Step c through Step e for all TFTP servers.
-

Identifying the CTS Satellite Endpoints

After you have loaded the satellite license on Unified CM, identify the CTS satellite endpoints so that they can retrieve the satellite licenses.

To identify the CTS satellite endpoints using the Cisco Unified CM Administration interface:

-
- Step 1** Log in to the Cisco Unified CM Administration page.
 - Step 2** From the Device drop-down menu, select **Phone**.
 - Step 3** Using the Find search fields, locate the CTS that will be used as a satellite endpoint.
 - Step 4** Click **Reset** to bring up a new dialog box, and then click **Restart**.
 - Step 5** Repeat Step 2 through Step 4 for each CTS satellite endpoint.
-

Enabling the Satellite Feature

After the satellite license has been loaded on Unified CM, and the CTS satellite endpoints have been identified, you are ready to enable the satellite feature using CTS command-line interface (CLI) commands. For information about using CTS CLI commands, see the [Cisco TelePresence System Command-Line Interface Reference Guide](#).

To enable the satellite feature:

-
- Step 1** Check to see that the satellite license is available. From the CTS CLI admin command prompt, enter the following command:

```
admin:show license status

License feature status
satellite:
  Valid license found
  License feature is disabled
  Feature is currently not running
```

- Step 2** Enable the satellite feature using the following command:

```
admin:set license satellite enable

License for satellite feature changed to enabled
```

- Step 3** Restart the calling services using the following command:

```
admin:utils service restart Calling

Calling_Services  Restarting...done
```

Additional Licensing Information

See the [Cisco TelePresence Administration Software Licensing Information](#) page on Cisco.com.



A

- ACU** Auxiliary Control Unit. Provides the ability to conserve energy by powering the lights, projector, and optional peripherals for Cisco TelePresence systems on and off.
- ad hoc meeting** Non-scheduled, administrator-initiated, dial-out meeting. A meeting scheduler or administrator initiates the meeting through the Cisco TelePresence Multipoint Switch (CTMS) administration interface by listing the telephone number of the rooms which will participate in the multipoint meeting. See [static meeting](#).
- Auto Answer** A phone set to automatically answer an inbound call. Use the Auto Answer feature in Cisco Unified Communications Manager. Activating this option or button causes the speaker phone to go off hook automatically when an incoming call is received.
- Auto Collaborate** Cisco TelePresence supports simple information sharing using a powerful “Auto Collaborate” feature that allows any object, document, or PC application to be displayed in a plug-and-play fashion. Auto Collaborate enables you to share images instantly in multiple locations by plugging in a laptop computer or high-definition ceiling document camera. The Cisco TelePresence 3000 Series built-in projector automatically displays images from the most recently activated device.
- Ceiling cameras are perfect for capturing images of objects that are too valuable to ship, or cannot easily be copied or sent electronically. Cisco recommends and supports document cameras made by WolfVision, specifically the WolfVision Visualizer. This is a special live-camera system designed for picking up any object on a working surface with perfect illumination and depth of focus. All types of objects (e.g., photos, books, brochures, transparencies, slides, or three-dimensional objects) can be picked up quickly and easily, and meeting participants can use a wireless remote to control light, zoom, or focus.
- Cisco TelePresence 3000 and 1000 systems support the Auto Collaborate capability, and meeting organizers can project content in multiple locations, including above or below displays, or on the side of a room.
- A/V Expansion Box** Audio/video extension unit. Required if your system uses an Auxiliary Control Unit (ACU).

B

- bit rate** Speed at which bits are transmitted, usually expressed in bits per second.
- black screen codes** System status information messages that appear on the main display screen before your meeting starts and while the screen is still black. For example, “Please wait, you are the first meeting participant.”
- For more information, see the [Cisco TelePresence System User Guide](#).

C

- call control device** External device that controls the Cisco TelePresence System: Cisco Unified IP Phone, and the Cisco TelePresence Touch.
- CCP** The Conference Control Protocol (CCP) is an interface between the CTS and the CTMS that controls the elements of a Cisco TelePresence meeting.
- CIF** Common Intermediate Format. A video standard that provides 352x288 pixels, or picture elements, of video resolution.
- Cisco CTI Manager** CTI Manager is required in a cluster for applications that use TAPI or JTAPI Computer Telephony Integration (CTI). The CTI Manager acts as a broker between the CTI application and the Cisco Unified Communications Manager Service. It provides authentication of the application and enables control or monitoring of authorized devices. The CTI application communicates with a primary CTI Manager and, in the event of a failure, will switch to a backup CTI Manager. The CTI Manager should be enabled only on call processing subscribers, thus allowing for a maximum of eight CTI Managers in a cluster. Cisco recommends that you load-balance CTI applications across the various CTI Managers in the cluster to provide maximum resilience, performance, and redundancy.
- Cisco TelePresence T Series** The Cisco TelePresence T Series high-definition presentation capabilities and simple controls on a touch display help make your meeting as immersive and natural as possible. See [Immersive Telepresence Endpoints](#).
- Cisco TelePresence Touch 12** A touch-panel LCD device that enables you to conduct telepresence meetings without the Cisco Unified IP phone.
- See [Installing and Configuring the Cisco TelePresence Touch 12](#) and the [Cisco TelePresence Touch 12 User Guide](#) for more information.
- Cisco Unified Communications Manager** Unified CM. Application that extends enterprise telephony features and capabilities to packet telephony network devices such as IP phones and multimedia applications. Open telephony application interfaces make possible services such as multimedia conferencing and interactive multimedia response systems. See also [CUCM](#).
- See the [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#) for more information.
- codec** The “brain” of the CTS. The [primary codec](#) connects with the network and Cisco Unified Communications Manager (Unified CM) to perform call management functions for the system. The [secondary codec](#) performs processing for the system elements that are attached to them. The optional presentation codec supports the document camera (if present), auxiliary displays, and works with an auxiliary control unit and audio extension unit for additional audio/video applications. The number and type of codecs your system uses depends on which CTS device you are using.
- CTRS** [Cisco TelePresence Recording Server](#). Providing HD studio recording capabilities in existing Cisco TelePresence rooms. Recordings can be archived automatically on a schedule or transferred to a digital content management system. The CTRS can deliver Cisco TelePresence recordings to any video-enabled device including PCs, smart phones, and digital signs. CTRS runs on the same reliable Media Convergence Server platform as Cisco TelePresence Multipoint Switch and Cisco TelePresence Manager.

CTS device	Cisco TelePresence System (CTS) device: CTS 500, CTS 1000, CTS 1100, CTS 1300, CTS 3000, CTS 3200, CTS 3010, and CTS 3210.
CTS-Manager	Cisco TelePresence Manager . Software application that schedules and manages Cisco TelePresence calls using common enterprise groupware such as Microsoft Exchange and Lotus Notes.
CTS Manager PreQualification Assistant	The CTS-Man PreQualification Assistant ensures that your pre-configuration set-up is performed correctly. The data that is entered into the Tool Test Configuration forms that are used to verify connections to the servers and to get data from them to be used to configure CTS-Man.
CUCM	Cisco Unified Communications Manager. (Unified CM) The phone that controls the CTS is configured and maintained through the Cisco Unified CM Administration interface. See the Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System for more information.

D

default gateway	A router on a computer network that serves as an access point to another network.
DHCP	Dynamic Host Configuration Protocol is a network application protocol used by devices (DHCP clients) to obtain configuration information for operation in an Internet Protocol network. This protocol reduces system administration workload, allowing devices to be added to the network with little or no manual intervention.
display screen animation	System information icons that may be displayed on the Cisco TelePresence System (CTS) main display screen. System information includes call connection status alerts, meeting alerts, and maintenance alerts. These alerts fade from one state to another to show the status of the system.
display screen icon	System information icons that may be displayed on the Cisco TelePresence System (CTS) display screen. System information includes call connection status alerts, meeting alerts, and maintenance alerts.
DMP	Digital Media Player. Cisco Digital Media Players are highly-reliable, IP-based endpoints that can play high-definition live and on-demand video, motion graphics, web pages, and dynamic content on digital displays, usually an LCD Professional Series display or any other directly attached television screen, monitor, or projector (analog or digital, standard-definition or high-definition) that shows media to an audience. There is an extra input connector for the Digital Media Player (DMP) on your Cisco TelePresence device. See the Cisco Digital Media Players home page on Cisco.com. See also LCD .
DN	Directory number.
DNS	Domain Name System. System used on the Internet for translating names of network nodes into addresses.

- DSCP** Differentiated Services Code Point. A field in the header of IP packets for packet classification purposes. DSCP for TelePresence Calls field description: This parameter specifies the DSCP value for Cisco TelePresence calls. This parameter is set to the default value unless a Cisco support engineer instructs otherwise. This is a required field, if present on your system. Default: CS4(precedence 4) DSCP (100000) and is selectable per device.
- DVI** DVI cables are used for direct digital connections between source video (namely, video cards) and LCD monitors.

E

- endpoint** Cisco TelePresence System (CTS) endpoint. The combination of hardware and software that comprise a Cisco TelePresence System. The hardware for an endpoint includes a Cisco Unified IP 7900 Series telephone, one or more large-screen meeting displays, plus presentation devices, cameras, microphones, speakers, and in some models, lighting systems.
- EWS** Exchange Web Services. Managed API that provides an intuitive interface for developing client applications that use Exchange Web Services. The EWS Managed API provides unified access to Microsoft Exchange Server resources, while using Microsoft Office Outlook-compatible business logic. The EWS Managed API communicates with the Exchange Client Access server by means of EWS [SOAP](#) messages.
- extranet** An extranet is a private network that uses Internet protocols and network connectivity. An extranet can be viewed as part of a company's intranet that is extended to users outside the company, usually via the Internet. It has also been described as a “state of mind” in which the Internet is perceived as a way to do business with a selected set of other companies (business-to-business, B2B), in isolation from all other Internet users. In contrast, business-to-consumer (B2C) models involve known servers of one or more companies, communicating with previously unknown consumer users.
- An extranet can be understood as an intranet mapped onto the public Internet or some other transmission system not accessible to the general public, but managed by more than one company's administrator(s). For example, military networks of different security levels may map onto a common military radio transmission system that never connects to the Internet. Any private network mapped onto a public one is a virtual private network (VPN), often using special security protocols.

F

- fluorescent lamp** A lamp that uses electricity to excite mercury vapor in a gas that results in an energy that produces short-wave ultraviolet light. This light then causes a phosphor to fluoresce, producing visible light. Sources of light in most rooms are either incandescent light bulbs that use tungsten filaments or fluorescent lights. Each of these light sources, and the amount of light in terms of lumens or watts, produces a different color temperature. This color temperature is sometimes expressed using terms such cool, warm, or daylight, but can be expressed more precisely in kelvins (K) as a numeric value. When adjusting the images on the display screens for the Cisco TelePresence system, you must take the color temperature of the ambient light in the room into consideration.
- full duplex mode** Transmission of data in two directions simultaneously.

G

gzip GNU zip. Software application used for file compression.

H

H.264/MPEG-4 AVC A standard for video compression. See also [MPEG-4 AVC](#) and [IDR](#).

half duplex mode Transmission of data in one direction at a time.

HD High definition display.

HDMI Document camera input and cable.

I

IAB Internet Architecture Board. The IAB is chartered both as a committee of the Internet Engineering Task Force (IETF) and as an advisory body of the Internet Society (ISOC). Its responsibilities include architectural oversight of IETF activities, Internet Standards Process oversight and appeal, and the appointment of the [RFC](#) Editor. The IAB is also responsible for the management of the IETF protocol parameter registries.

IDR An IDR frame is a special kind of I frame used in [MPEG-4 AVC](#) encoding. IDR frames can be used to create Advanced Video Coding (AVC) streams, which can be easily edited.

Immersive Telepresence Endpoints CTS 3210, CTS 1300, Cisco TelePresence T3. Provides an immersive, interactive in-person experience. See also [personal system](#).

incandescent lamp A lamp that allows an electric current to pass through a thin filament, heating it and causing it to emit light. Sources of light in most rooms are either incandescent light bulbs that use tungsten filaments or fluorescent lights. Each of these light sources, and the amount of light in terms of lumens or watts, produces a different color temperature. This color temperature is sometimes expressed using terms such as cool, warm, or daylight, but can be expressed more precisely in kelvins (K) as a numeric value. When adjusting the images on the display screens for the Cisco TelePresence system, you must take the color temperature of the ambient light in the room into consideration.

Internet model (free path) The Internet model is an unsecured “free path” model of packet delivery: Packets are delivered in any way possible and each uncontrolled router on the way to the destination handles how to deliver the packet to the next stop. See [VPN model \(fixed path\)](#).

IP address A device identifier on a TCP/IP network.

J

- jitter** Variation in packet transit delay caused by queuing, contention, and serialization effects on the path through the network. In general, higher levels of jitter are more likely to occur on either slow or heavily congested links.
- jitter call**
- jitter period** Jitter call is the average jitter measurement per call. Shown in the Jitter/Call output field as part of Per Call Jitter and Packet Loss Reporting.
- Jitter period is the interval between two times of maximum effect (or minimum effect) of a signal characteristic that varies regularly with time. Jitter frequency, the more commonly quoted figure, is its inverse.
- The CTS measures jitter every 10 seconds. The Jitter/Period field reports the jitter measurement for the last 10-second period.
- The CTS calculates jitter as the sum of the maximum deviation (both late and early) from the expected arrival time as given by the frame period. CMA computes frame jitter based on the arrival time of the last packet of a frame.

L

- LCD** Liquid crystal display. The LCD display is an accessory for the Cisco Digital Media Player (DMP) for use in your digital signage network or your enterprise TV network. It is used for displaying video, images, or computer data during a Cisco TelePresence meeting. See the [Cisco LCD Professional Series Displays](#) home page on Cisco.com for more information.
- See also [DMP](#).
- LED** Light-emitting diode. Indicators on the CTS that determine whether the user is sitting within camera range.
- light temperature** A theoretical means of describing visible light that is determined by comparing its hue with a heated black-body radiator. The lamp's color temperature is the temperature in kelvins at which the heated black-body radiator matches the hue of the lamp.
- Live Desk** The Live Desk is a person who has been assigned to a Cisco TelePresence [endpoint](#) to assist you with problems that may occur during a meeting. To connect to Live Desk, press the **Live Desk** softkey. If a Live Desk has not been assigned to your Cisco TelePresence [endpoint](#), the following message is displayed on your phone screen: "There is no Live Desk number configured"
- Live Desk is configured in the **Configure > Live Desks** Window of the CTS-Manager Administration interface. See the [Cisco TelePresence Manager Installation and Configuration Guide](#) on Cisco.com.
- LTRP** Long Term Reference Picture.

M

- MAC address** Media Access Control. A hardware address that uniquely identifies each node of a network.

- MIDlets** Mobile Information Device Profile (MIDP). A Java application designed to run on resource-constrained devices such as phones, PDAs, intelligent appliances, and the like. A MIDlet (in J2ME) is similar to a Java Applet (in J2SE), but more specialized, efficient, and optimized for limited devices. MIDlets supports graphics and animation, multimedia, touchscreen, networking, persistent data storage, and provides excellent Look And Feel (LAF) integration with the host platform.
- The Cisco Unified IP Phone uses MIDlets as part of the Cisco TelePresence System Enhanced Phone User Interface: MIDlets support CTS Cisco Unified IP phone features. Configure MIDlets in the Cisco Unified CM Administration interface for Cisco TelePresence.
- See the [Cisco Unified Communications Manager Configuration Guide for the Cisco TelePresence System](#) for more information.
- MPEG-4 AVC** A patented collection of methods defining compression of audio and visual (AV) digital data. See also [H.264/MPEG-4 AVC](#) and [IDR](#).
- multipoint meeting** Multipoint is where you are able to connect more than two sites in one video conference. This normally requires a bridge, although some video conference units are also able to connect multiple sites.
- MXE** Media eXperience Engine. The Cisco Media Experience Engine is a modular media processing system that provides interoperability between Cisco TelePresence and video conferencing devices, extending the reach of collaboration and communication within organizations. MXE provides 720p interoperability with video conferencing.
- Configure MXE in [CTS-Manager](#). See also [Cisco TelePresence Firewall and Access List Considerations](#) for support information for Cisco TelePresence.

N

- nonce** A nonce value (a random number that supports digest authentication) is used to calculate the MD5 hash of the digest authentication password.
- Non-permitted User** Cisco WebEx user role configured in the CTS Manager Administration interface. These users are not permitted to request Cisco WebEx; no Cisco WebEx meeting options are available to these users. See [Permitted User](#).

O

- One-Button-to-Push** Allows you to press the meeting that is listed on the in-room CTS Cisco Unified IP phone to start a Cisco TelePresence meeting.
- Option 150** Recommended during Dynamic Host Configuration Protocol (DHCP) Server configuration so that Windows 2000 can work with the Cisco IP Telephony solution. Unified CM devices boot up and request an IP address. When you create a new scope in the DHCP server and add a TFTP option to the scope, you are prompted to add the default gateway and the TFTP Server IP Address (Option 150). Option 150 can contain more than one IP address, which can be used for TFTP redundancy.

P

- PoE** Power over Ethernet.
- P-frame** An easily compressible video frame type. A video frame is compressed using different algorithms that allow varied amounts of data compression. These different algorithms for video frames are called picture types or frame types. The three major picture types used in the different video algorithms are I, P, and B.
- Permitted User** Cisco WebEx user role configured in the CTS Manager Administration interface. These users are permitted to request Cisco WebEx for specific meetings using CTS Manager. See [Non-permitted User](#).
- personal system** Personal Cisco TelePresence System. The virtual, in-person experience of Cisco TelePresence directly into the private office. The CTS 500 and CTS 1000 are considered to be personal systems. See also [Immersive Telepresence Endpoints](#).
- PiP** Presentation-in-Picture. Data or graphics content sharing through an external monitor known as presentation-in-picture (PiP) format for space-constrained offices. Using the **PiPCtrl** softkey and options in the PiP control screen on your CTS Cisco Unified IP phone, you can toggle the position of the PiP between center, left, or right locations on the screen or change its size in relation to the meeting participant video input during a meeting.
- PoE** Power over Ethernet.
- point-to-point meeting** The direct connection of two sites in a video conference. This only works if both sites use the same type of connection (either IP or ISDN).
- Premium User** Cisco WebEx user role configured in the CTS Manager Administration interface: Cisco WebEx is always on. Controlled on the CTS Manager LDAP configuration page.
- Presenter** Cisco WebEx user role configured in the CTS Manager Administration interface: A Presenter shares presentations, specific applications, or the entire desktop. The Presenter controls the annotation tools and can grant and revoke remote control over the shared applications and desktop to individual Attendees.

primary codec	The primary codec is the primary unit; it communicates with secondary units, sends and receives packets on the uplink network. It contains an onboard Gigabit Ethernet switch. For example, in a CTS 3000 or CTS 3200 system, the primary codec controls two secondary codecs as well as many system components and the graphical user interfaces. In a Cisco TelePresence 1000, it controls all system functions.
PCB	Printed circuit board.
<hr/>	
R	
RFC	Request for Comments. Document series used as the primary means for communicating information about the Internet. Some RFCs are designated by the IAB as Internet standards.
<hr/>	
S	
scheduled meeting	Multipoint TelePresence meetings are scheduled by end users using Microsoft Exchange or IBM Domino clients in the same manner that a point-to-point meeting is scheduled. Scheduled meetings require no CTMS administrator interaction. CTS Manager is a required component for scheduled meetings. It provides the interface between Microsoft Exchange or Lotus Domino and the CTMS, allowing the appropriate resources on the CTMS to be reserved for the multipoint meeting .
screen resolution	The fineness of detail that can be presented in the image on the CTS main display screen. Recommended screen resolution for Cisco TelePresence is 1024 x 768.
SD	Standard definition display.
secondary codec	Codecs that assist the primary codec in the large Cisco TelePresence 3000/3200 systems. Secondary codecs process audio and video signals and send them to the primary codec, which multiplexes the signals into separate, single RTP streams.
Self View	Enables you to see yourself on the main display before your meeting starts.
single system	A Cisco TelePresence System featuring a single display screen.
SHA	Secure Hash Algorithm. A set of cryptographic hash functions designed by the National Security Agency (NSA) and published by the NIST as a U.S. Federal Information Processing Standard. The three SHA algorithms are structured differently and are distinguished as SHA-0, SHA-1, and SHA-2.
SIP	Session Initiation Protocol. Protocol designed to signal the setup of voice and multimedia calls over IP networks.
SNMP	Simple Network Management Protocol. Network management protocol used almost exclusively in TCP/IP networks as a means to monitor and control network devices, and to manage configurations, statistics collection, performance, and security. See the Cisco TelePresence System Message Guide .
SOAP	Simple Object Access Protocol. XML-based protocol to let applications exchange information over HTTP.
spirit level	Spirit level or bubble level is an instrument designed to indicate whether a surface is level or plumb. A spirit level is included with the CTS 1300 camera kit.

SSCD	System Status Collection Daemon. The daemon gathers statistics about the system it is running on and stores this information. Those statistics can then be used to find current performance bottlenecks (performance analysis, for example) and predict future system load (capacity planning, for example).
static meeting	Non-scheduled meetings configured on the Cisco TelePresence Multipoint Switch (CTMS) through the administration interface. A meeting scheduler or administrator, who sets up the static meeting, manually assigns a meeting access number that is used to access the meeting. See ad hoc meeting .
supported Internet browser	Cisco administration interfaces support Internet Explorer version 6. You can use Internet Explorer versions 6, 7, or 8, or Firefox version 3.x with the CTS 500 32”.
switching mode	CTS Manager configuration. CTS 3000 and CTS 3200 endpoints only. Auto-Assign—Switching mode is determined by the default CTMS policy, which is configured in System Configuration > Policy Management page of your CTMS setup. Room—All the participant displays of the endpoint are switched each time the meeting participant who is speaking changes to a meeting participant at a different endpoint. Speaker—Only the corresponding participant display (left, center, or right) is switched; the remaining participant displays are not switched. Using the speaker switching mode provides the ability to view up to three different remote endpoints at the same time.
Sysop	System Operation (sysop) Logs. Sysop messages describe system activity. Some messages can help you identify and resolve system operation problems. These messages are available to the user from the CTS Administration interface. See the “Managing Log Files” section of the troubleshooting chapter for your CTS device.
Syslog	System Logs (syslog). Debugging logs that are collected from your system and used by Cisco technical response to diagnose and resolve issues. These messages are not ordinarily seen by the user.

T

TFTP	Trivial File Transfer Protocol. Simplified version of FTP that allows files to be transferred from one computer to another over a network, usually without the use of client authentication (for example, username and password).
-------------	---

TIP	<p>Telepresence Interoperability Protocol. The TIP Specification provides a protocol for interoperability between videoconferencing products, including streaming of audio, video, and data to and from videoconferencing products.</p> <p>This feature adds TIP 7 support to the CTS and CTMS 1.7 release. The main purpose of the feature is for CTS and CTMS to operate in a strict TIP V7 mode when communicating with devices advertising TIP V7 support. This feature adds the ability to differentiate between MUX and TIP modes of operation to help with the strict adherence to the TIP V7 specifications as well as improving debugging and other operational processes. This feature adds the ability for the CTS to be configured for operation in a TIP-only mode and configured with a set of media features typically not used in Cisco-only deployments. This helps the CTS and CTMS inter-operate with third-party TIP devices.</p> <p>TIP allows only endpoints with Restricted media settings to join Cisco TelePresence meetings. TIP endpoints are expected to be able to send restricted media and to drop endpoints that can only transmit un-restricted media. See the Telepresence Interoperability Protocol for Developers home page on Cisco.com.</p>
trap	<p>A Simple Network Management Protocol (SNMP) trap is a message which is initiated by a network element and sent to the network management system. See the Cisco TelePresence System Message Guide.</p>
triple system	<p>A Cisco TelePresence System featuring three display screens.</p>
<hr/>	
U	
UDI	<p>Unique device identification.</p>
<hr/>	
V	
VGA	<p>Video Graphics Array port and cable for Cisco TelePresence. A CTS endpoint initiates a presentation at any point by plugging the VGA Auxiliary cable into the CTS endpoint presenter's laptop, which automatically shares from the presenter's laptop. The last participant in the meeting to plug in their laptop with the VGA cable shares their presentation using PiP. See the Cisco TelePresence System User Guide for more information about sharing presentations.</p>
virtual machine	<p>A virtual machine (VM) is a software implementation of a machine (a computer, for example) that executes programs like a physical machine does. A system virtual machine provides a complete system platform which supports the execution of a complete operating system (OS). See the Cisco TelePresence System Commercial Express Installation Guide on Cisco.com for more information.</p>
VLAN ID	<p>The identification of the virtual LAN, which is used by the standard IEEE 802.1Q. Being on 12 bits, it allows the identification of 4096 VLANs.</p>
VPN model (fixed path)	<p>The VPN model uses a fixed, more secure path for packet delivery. VPNs only allow authorized personnel to gain access to their network. See also Internet model (free path).</p>

W

- WebDAV** Web-based Distributed Authoring and Versioning (WebDAV) is a set of methods based on the Hypertext Transfer Protocol (HTTP) that facilitates collaboration between users in editing and managing documents and files stored on World Wide Web servers. WebDAV was defined in RFC 4918 by a working group of the Internet Engineering Task Force (IETF).
- WebEx** Cisco WebEx collaboration tools combine real-time desktop sharing with phone conferencing. See the [Cisco TelePresence WebEx OneTouch Configuration Guide for the Cisco TelePresence System](#) for first-time setup information.



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