Cisco TelePresence Server Server 7010 and MSE 8710 in Locally Managed Mode

Printable Online Help

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Software version:4.2(4.25)

Introduction

This document contains the text of the online help for the Cisco TelePresence Server version 4.2(4.25) web user interface. It is provided so that the help text can be viewed or printed as a single document.

This document accompanies version 4.2(4.25) of the TelePresence Server software when operating in locally managed mode. This software is used on the following Cisco TelePresence hardware:

- Cisco TelePresence Server 7010
- Cisco TelePresence Server MSE 8710 blade

The contents of this document are organized in a similar way to the product's user interface, and replicate the contents of its online help system.

There is a chapter for each of the main interface pages and each chapter's title page contains a list of topics in the chapter.

Further information

See the online help for details of software licenses relating to this product.

Logging into the web interface

Why do I need to log in to the web interface?

The TelePresence Server restricts user access by holding a set of pre-configured accounts and denying access to anyone who does not have an account. Each account has a username and password that enables the account owner to gain access to their associated privileges.

There are three privilege levels for user accounts:

- *Administrator*: users with this privilege level may access all functionality
- *API access*: users with this privilege level can only access the API, not the web interface
- *None*: users with this privilege level may not access the TelePresence Server. This level is used to disable accounts.

Tasks

Logging in to the web interface:

1. Enter the host name or IP address of the TelePresence Server into the address bar of a web browser.

   The log in page displays.
2. Enter your assigned **Username** and **Password**.
3. Click **OK**.

Failing to log into the web interface

Why am I seeing the **Access denied** page?

You have not been able to log in for one of the following reasons:

- **Invalid username/password**: you have typed the incorrect username and/or password.
- **No free sessions**: the maximum number of sessions allowed simultaneously on the TelePresence Server has been reached.

- **Your IP address does not match that of the browser cookie you supplied**: try deleting your cookies and log in again
- **You do not have access rights to view this page**: you do not have the access rights necessary to view the page that you attempted to see
- **Page expired**: the **Change password** page can expire if the TelePresence Server detects that the user who requested to change password, may not actually be the user submitting the change password request. (This may happen if you use a new browser tab to submit the request.)

System status

Displaying system status

The **Status** page displays an overview of the TelePresence Server's status. To access this information, go to **Status**.

Refer to the table below for details of the information displayed.

Table 1 System status

Field	Field Description	Usage tips
Model	The specific TelePresence Server model.	
Serial number	The unique serial number of the TelePresence Server.	You will need to provide this information when speaking to customer support.
Software version	The installed software version.	
Build	The build version of installed software.	
Uptime	The time since the last restart of the TelePresence Server.	
Host name	The host name assigned to the TelePresence Server.	
IP address	The IP address assigned to the TelePresence Server.	
IPv6 address	The IPv6 address of this TelePresence Server.	
H.323 gatekeeper status	Whether the TelePresence Server is registered to an H.323 gatekeeper, and whether the registration has been made to the primary or an alternate gatekeeper.	This field is only displayed on the master blade in a TelePresence Server cluster.
SIP registrar status	Whether the TelePresence Server is registered to a SIP registrar.	This field is only displayed on the master blade in a TelePresence Server cluster.
Operation mode	Indicates whether the TelePresence Server is operating in locally managed or remotely managed mode.	

Table 2 Feature keys

Field	Field description	Usage tips
TelePresence Server 8710 activation or **TelePresence Server 7010 activation**	Whether or not the unit is enabled.	The TelePresence Server will not operate without activation. This feature key is installed before shipping.
Media encryption	Whether or not media encryption is enabled.	The *Media encryption* feature key allows encrypted conferences on this TelePresence Server. Feature keys are installed in the **Configuration > Upgrade** page. See Upgrading and backing up the TelePresence Server.
Cluster support	This feature allows MSE 8710 blades configured on the same Cisco TelePresence MSE 8000 chassis to be linked together to behave as a single unit. This key does not apply to the 7010 platform, as these appliances cannot be clustered.	Up to four blades can form a cluster. See Understanding clustering. If you want to cluster blades, each blade must have the *Cluster support* feature key installed. Feature keys are installed on the **Configuration > Upgrade** page. See Upgrading and backing up the TelePresence Server
Screen licenses	The number of screen licenses allocated to the TelePresence Server. In the case of a cluster, this is the number of screen licenses allocated to the whole cluster. The number of allocated screen licenses can be lower than the maximum that the system can support.	You need to install a screen license key to enable screen licenses. For more information about licenses, see Understanding your TelePresence Server's conferencing capacity, page 103.

Table 3 Conference status

Field	Field description	Usage tips
Active conferences	The number of active conferences on this TelePresence Server.	A conference is active if it has participants.
Active participants	The number of participants (of all types) that are currently in conferences on this TelePresence Server.	
Previous participants	The number of participants who were previously participating in a conference (since the last time the TelePresence Server restarted).	
Video ports	The number of video ports in use on this TelePresence Server.	The numbers are those supported by the number of screen licenses available on the TelePresence Server and dependent upon whether the TelePresence Server is configured to run in HD or Full HD mode. See Content channel video support and Understanding your TelePresence Server's conferencing capacity, page 103.
Audio ports	The number of audio-only ports in use on this TelePresence Server.	
Content ports	The number of content channel ports in use on this TelePresence Server.	

Table 4 System log

Field	Field description	Usage tips
	The system log displays the most recent shutdown and upgrade events, with the most recent shown first.	The log will display "unknown" if there has been an unexpected reboot or power failure or after an upgrade. If this occurs frequently, report the issues to customer support.

Table 5 Diagnostic information

Field	Field description	Usage tips
Diagnostic information	Diagnostic files are provided in **.zip** archive format that contain a text document. To download a diagnostic file, click **Download file**.	Diagnostic information is provided to aid in troubleshooting problems that may occur with the TelePresence Server. In the event of an issue with your TelePresence Server, provide this file to the Cisco Technical Assistance Center (TAC) who may wish to perform further diagnostic tests.
Network capture file	To download a network capture, click **Download file**.	There is also a link to **Delete network capture** which you should only click when your TelePresence Server is operating normally again.
System logs	To download the logs, click **Download file**.	An archive containing several useful log files.

Displaying hardware health status

The **Health status** page (**Status > Health status**) displays information about the hardware components of the TelePresence Server.

Note: The **Worst status seen** conditions are those since the last time the TelePresence Server was restarted.

To reset these values, click **Clear**. Refer to the table below for assistance in interpreting the information displayed.

Table 6 Device health details

Field	Field description	Usage tips
Fans **Voltages** **RTC battery**	Displays two possible states: ■ OK ■ Out of spec States indicate both *Current status* and *Worst status seen* conditions.	The states indicate the following: ■ *OK* – component is functioning properly ■ *Out of spec* – Check with your support provider; component might require service If the *Worst status seen* column displays *Out of spec*, but *Current status* is *OK*, monitor the status regularly to verify that it was only a temporary condition. **Note: Fans** field does not display on 8710 as it does not have fans.

Table 6 Device health details (continued)

Field	Field description	Usage tips
Temperature	Displays three possible states: ■ OK ■ Out of spec ■ Critical States indicate both *Current status* and *Worst status seen* conditions.	The states indicate the following: ■ *OK* – temperature of the TelePresence Server is within the appropriate range ■ *Out of spec* – Check the ambient temperature (should be less than 34 degrees Celsius) and verify that the air vents are not blocked ■ *Critical* – temperature of TelePresence Server is too high. An error also appears in the event log indicating that the system will shutdown in 60 seconds if the condition persists If the **Worst status seen** column displays *Out of spec*, but **Current status** is *OK* monitor the status regularly to verify that it was only a temporary condition.

Displaying cluster status on a master TelePresence Server

To display cluster status, go to **Status > Cluster**.

Note: This cluster related page is only available if your TelePresence Server is in a cluster.

Cluster status is only available for blades that are configured on the Cisco TelePresence Supervisor MSE 8050 to be part of a cluster. For more information about clustering, refer to Understanding clustering.

The table below describes the **Status > Cluster** page that displays for the master TelePresence Server in a cluster. For details about slave blades, see Displaying cluster status on a slave TelePresence Server, page 10.

Table 7 Cluster status

Field	Field description	Usage tips
Slot	The number of the slot in the Cisco TelePresence MSE 8000 chassis that corresponds to this row in the table.	To configure a blade as a master or a slave in a cluster, log in to the Supervisor.
IP	The IP addresses of the slave blades, or *Master blade* in the case of the master.	You can click the IP address to go to the slave's cluster page.

Table 7 Cluster status (continued)

Field	Field description	Usage tips
Status	The status of the master can only be *OK* which means that the master is operating correctly in the cluster. The following options are possible for slave status: ■ *OK*: The master and slave are communicating correctly. ■ *OK (last seen <number> seconds ago)*: The master has lost contact with the slave. The slave will restart itself and rejoin the cluster. Wait a few minutes and then refresh the **Status > Cluster** page. ■ *Still starting up*: The slave is in the process of starting up. Wait a few minutes and then refresh the **Status > Cluster** page. ■ *Lost contact <number> secs ago*: The master has lost contact with the slave. The slave will restart itself and rejoin the cluster. Wait a few minutes and then refresh the **Status > Cluster** page. ■ *Cluster support not enabled*: There is no Cluster support feature key on this TelePresence Server. ■ *Failed, version mismatch*: All TelePresence Servers in the cluster must be running the same version of software. This status message indicates that this slave is running different software to the master, and hence the TelePresence Server is not part of the cluster. Update all units in the cluster to the same version of the software. ■ *Blade not configured as slave*: The Supervisor has told the master that the blade is a slave, but the blade is not a slave. Possibly the slave blade was replaced. ■ *Blade incorrect type*: Possibly the slave blade was replaced with a different blade type after the cluster was configured.	If the status of the slave is OK, it is currently functioning in the cluster. For any of the other statuses, the slave is not currently functioning as part of the cluster. If a slave has a problem that causes it to no longer be part of the cluster, the cluster can continue to operate without the slave. If a slave fails, participants in conferences will not be disconnected: if there are sufficient resources in the cluster, they will continue to receive audio and video. In the worst case, participants may lose video. The audio will continue because all audio is processed by the master. If the master loses contact with a slave, the slave will automatically restart itself. In this way, it can rejoin the cluster.
Software version	The software version on each TelePresence Server in the cluster.	
Media processing load	An overview of the current media loading of each TelePresence Server in the cluster. The load may increase during periods of peak conference use.	Conferences are distributed between the TelePresence Servers in the cluster. The load on each depends on the number and size of the conferences running on them. On a slave blade, the audio load will always be zero: the master is responsible for all the audio.

Table 7 Cluster status (continued)

Field	Field description	Usage tips
Screen licenses	The number of screen licenses on each TelePresence Server in this cluster.	All screen licenses on slaves are controlled by the master. Depending on how you use the blades in the MSE chassis, you might want to allocate all screen licenses to the slot that houses the master blade or you might distribute them between the slots in the cluster. It does not matter to the cluster how you allocate the screen licenses–the master controls all screen licenses and even if a slave fails, the master will continue to have access to any screen licenses allocated to the failed slave.

Displaying cluster status on a slave TelePresence Server

To display cluster status, go to **Status > Cluster**. When you look at the **Status > Cluster** page on a slave TelePresence Server, it shows the status of the master.

Note: This cluster related page is only available if your TelePresence Server is in a cluster.

The table below describes the **Status > Cluster** page that displays for slave TelePresence Servers in a cluster. For information about the master TelePresence Server, see Displaying cluster status on a master TelePresence Server , page 8.

Slave units have restricted user interfaces; not all settings are available. You must configure the cluster from the Cisco TelePresence Supervisor MSE 8050.

Table 8 Cluster status

Field	Field description	Usage tips
Status	Possible statuses for the master unit are: ■ *Still starting up*: the master is in the process of starting up. Wait a few minutes and then refresh the **Status > Cluster** page. ■ *OK*: The master and slave are communicating correctly. ■ *Lost contact*: The slave has lost contact with the master. This status will only be momentarily visible because the slave will quickly restart itself in this case.	If a slave TelePresence Server loses contact with the master, it will restart itself. This is the only way that a slave can correctly rejoin the cluster. A common reason for a slave to lose contact with the master is because the master has restarted.
Last seen	This field is only visible if the master has not been seen for up to 11 seconds. The slave will automatically restart itself shortly after it loses contact with the master.	
IP address	The IP address of the master TelePresence Server.	

Network settings

Configuring network settings

To configure the network settings on the TelePresence Server and check the network status, go to **Network > Network settings**.

On this page:

- IP configuration settings
- IP status
- Ethernet configuration
- Ethernet status

IP configuration settings

These settings determine the IP configuration for the appropriate Ethernet port of the TelePresence Server. When you have finished, click **Update IP configuration**.

Table 9 IPv4 configuration

Field	Field description	Usage tips
IP configuration	Specifies whether the port should be configured manually or automatically. If set to *Automatic via DHCP* the TelePresence Server obtains its own IP address for this port automatically via DHCP (Dynamic Host Configuration Protocol). If set to *Manual* the TelePresence Server will use the values that you specify in the fields below.	You can disable IPv4 on the TelePresence Server port but only if logged in using IPv6.

Table 9 IPv4 configuration (continued)

Field	Field description	Usage tips
IP address	The dot-separated IPv4 address for this port, for example 192.168.4.45.	You only need to specify this option if you have chosen *Manual* IP configuration, as described above. For Port A, if the IP configuration setting is set to *Automatic by DHCP* this setting will be ignored.
Subnet mask	The subnet mask required for the IP address you wish to use, for example 255.255.255.0	
Default gateway	The IP address of the default gateway on this subnet, for example 192.168.4.1	

Table 10 IPv6 configuration

Field	Field description	Usage tips
IP configuration	Select *Disabled*, *Automatic via SLAAC/DHCPv6* or *Manual*. If you select *Manual*, you must also supply the IPv6 address, prefix length and default gateway. If you select *Automatic via SLAAC/DHCPv6*, the TelePresence Server automatically gets an IPv6 address. It uses SLAAC, Stateful DHCPv6 or Stateless DHCPv6 as indicated by the ICMPv6 Router Advertisement (RA) messages (see Automatic IPv6 address preferences below).	Disable IPv6 on the port if the network does not support IPv6. You can disable IPv6 on the TelePresence Server port but only if logged in using IPv4.
IPv6 address	If you chose *Manual* configuration, supply the IPv6 address in CIDR format, for example `fe80::202:b3ff:fe1e:8329`.	You only need to enter an address if you chose *Manual* IP configuration. If you chose *Automatic via SLAAC/DHCPv6*, a manually entered setting is ignored.
Prefix length	If you chose *Manual* configuration, supply the prefix length.	The prefix length is the (decimal) number of bits that are fixed for this address.
Default gateway	(Optional) Supply the IPv6 address of the default gateway on this subnet.	The address may be global or link-local

IP status

The IP status section shows the current IP settings for this Ethernet port of the TelePresence Server, as follows, whether they were automatically or manually configured.

IPv4 settings:

- DHCP
- IP address
- Subnet mask
- Default gateway

IPv6 settings:

- DHCPv6
- IPv6 address
- IPv6 default gateway
- IPv6 link-local address

Ethernet configuration

Configure the Ethernet settings for this port of the TelePresence Server, and then click **Update Ethernet configuration**.

Table 11 Ethernet configuration

Field	Field description	Usage tips
Ethernet settings	Select *Automatic* or *Manual*. If you select *Manual*, you must also supply the speed and duplex settings. Select *Automatic* if you want this Ethernet port to automatically negotiate its Ethernet settings with the connected device.	It is important that the devices at either end of the Ethernet connection have the same settings. That is, configure both devices to use automatic negotiation, or configure them both with the same fixed speed and duplex settings. Select *Automatic* negotiation if you require a connection speed of *1000 Mbit/s*.
Speed	(For *Manual* configuration only) Set the connection's speed to one of the available options.	The connection speed setting must be the same for the ports at both ends of this connection.
Duplex	(For *Manual* configuration only) Set the connection's duplex mode to *Full duplex* or *Half duplex*.	The connection duplex setting must be the same for the ports at both ends of this connection. Full duplex mode allows simultaneous bidirectional transmission, while half duplex mode only allows bidirectional transmission that is not simultaneous.

Ethernet status

Table 12 Ethernet status

Field	Field description	Usage tips
Link status	Indicates whether or not this Ethernet link is connected.	
Speed	The speed of this Ethernet link.	This value is negotiated with the device to which this port is connected or based on your manual configuration.
Duplex	The duplex mode (*Full duplex* or *Half duplex*) of the network connection to this port.	This value is negotiated with the device to which this port is connected or based on your Manual configuration selected above.
MAC address	The fixed hardware MAC (Media Access Control) address of this port.	This value can not be changed, it is for information only.

Table 12 Ethernet status (continued)

Field	Field description	Usage tips
Packets sent	The total number of packets sent from this port (all TCP and UDP traffic).	This information can help you confirm that the TelePresence Server is transmitting packets into the network.
Packets received	The total number of packets received by this port (all TCP and UDP traffic).	This information can help you confirm that the TelePresence Server is receiving packets from the network.
Statistics:	More statistics for this port. ■ Multicast packets sent ■ Multicast packets received ■ Total bytes sent ■ Total bytes received ■ Receive queue drops ■ Collisions ■ Transmit errors ■ Receive errors	This information can assist you with diagnosing network issues, such as link speed and duplex negotiation issues.

Configuring DNS settings

Go to **Network > DNS** to check and change the DNS settings of the TelePresence Server.

Click **Update DNS configuration** to apply the new settings.

Table 13 DNS settings

Field	Field description	Usage tips
DNS configuration	Select how you want the TelePresence Server to get its name server address. For example, if you select *Via Port A DHCPv6*, the device will automatically get a name server address using DHCP over the IPv6 network connected to Ethernet port A. If you select *Manual*, you must provide a name server address. You may also want to provide a secondary name server or domain name (DNS suffix).	The TelePresence Server does not allow you to automatically configure the name server address if you have set a static IP address on the selected interface. For example, if you select *Via Port A DHCPv4* here but have also selected *Manual* in the IPv4 configuration section of the **Port A settings** page, the TelePresence Server will warn you that no DNS servers will be configured.
Host name	Specifies a name for the TelePresence Server.	The host name can be up to a maximum of 63 characters. Depending on your network configuration, you may be able to use this host name to communicate with the TelePresence Server, without needing to know its IP address.
Name server	The IP address of the name server.	Required when **DNS configuration** is *Manual*.

Table 13 DNS settings (continued)

Field	Field description	Usage tips
Secondary name server	Identifies an optional second name server.	If an optional second name server is configured, the TelePresence Server may send DNS queries to either name server.
Domain name (DNS suffix)	Specifies an optional suffix to add when performing DNS lookups.	Add a suffix if you want to use unqualified host names to refer to devices (instead of using IP addresses). For example, if the domain name (suffix) is set to *cisco.com*, then a request to the name server to look up the IP address of host *endpoint* will actually look up *endpoint.cisco.com*.

View DNS status

Use the DNS status fields to verify the current DNS settings for the TelePresence Server, including:

- Host name
- Name server
- Secondary name server
- Domain name (DNS suffix)

Configuring IP routes settings

You may need to set up one or more routes to control how IP traffic flows in and out of the TelePresence Server.

It is important to create these routes correctly as failure to do so may result in you being unable to make calls or access the web.

To configure the route settings, go to **Network > Routes**.

On this page:

- IP routes configuration
- Current routes tables

IP routes configuration

In this section you can control how IP packets should be directed out of the TelePresence Server. You should only change this configuration if you have a good understanding of the topology of the network(s) to which the TelePresence Server is connected.

Add a new IP route

To add a new route:

1. Enter the IP address of the target network, and the mask length that defines the range of addresses.
2. Select whether the traffic to those addresses will be routed via **Port A**'s default gateway or a **Gateway** that you specify.
3. Click **Add IP route**.
   The new route is added to the list. If the route already exists, or aliases (overlaps) an existing route, the interface prompts you to correct the route.

Use the following table for reference:

Table 14 IP route configuration

Field	Field description	Usage tips
IP address / mask length	Use these fields to define the range of IP addresses to which this route applies. IPv4 addressing: Enter the IP address of the target network in dotted quad format, setting any unfixed bits of the address to 0. Use the **mask length** field to specify how many bits are fixed (and thus how many are unfixed, giving the range of addresses). IPv6 addressing: Enter the IP address of the target network in CIDR format, setting any unfixed bits of the address to 0. Use the **mask length** field to specify how many bits are fixed (and thus how many are unfixed, giving the range of addresses).	IPv4 example: To route all IPv4 addresses in the range 192.168.4.128 to 192.168.4.255, specify the IP address as 192.168.4.128 and the mask length as 25. The first 25 bits are fixed, which means that the last seven bits determine the range of addresses. IPv6 example: To route all IPv6 addresses in the range 2001:db8::0000 to 2001:db8::ffff, enter the IP address 2001:db8:: and the mask length as 112. The first 112 bits are fixed, which means that the last 16 bits determine the range of addresses.
Route	Use this field to control how packets destined for addresses matching the specified pattern are routed.	You may select *Port A*, or *Gateway*. If you select *Gateway*, enter the IP address of the gateway to which you want packets to be directed. If you select *Port A*, matching packets will be routed to Port A's default gateway (see Configuring network settings).

To view or delete an existing IP route

The page displays the following details for each route:

- The IP address pattern and mask
- Where matching packets will be routed, with the possibilities being:
  - Port A–meaning the default gateway configured for Port A
  - **<**IP address**>**–a specific address has been chosen
- Whether the route has been configured automatically as a consequence of other settings, or manually added by you.

The *default* routes are configured automatically by your choice of *Default gateway preference*s for IPv4 and IPv6 (see Configuring network settings) and cannot be deleted. Any packets destined for addresses that are not matched by your manually-configured routes will be routed via the default gateway.

You can delete manually-configured routes. Select the check boxes next to the routes then click **Delete selected**.

Current routes tables

Each table shows all configured routes (both manual and automatic) for IPv4 and IPv6 for the TelePresence Server's Ethernet port. If you want to change the IP configuration for the Ethernet port, go to **Network > Network settings**.

Configuring IP services

Go to **Network > Services** to control access to the web services on the TelePresence Server.

The TelePresence Server offers web services, such as HTTP for the web interface and SIP for making and receiving calls. You can control whether services may be accessed on the unit's Ethernet interfaces, and also the TCP/UDP ports through which those services are available.

Enabling TCP/UDP services

There are options to control IPv4 and/or IPv6 services, depending on which IP versions are enabled on the **Network > Network settings** page.

1. Check the boxes next to the service names you want to enable, or clear the boxes to disable services.
2. Edit the port numbers for the services if necessary.

   (Commonly used port values are entered by default).
3. Click **Apply changes**.

Defining the ephemeral port range

Note: The lowest ephemeral port must be greater than the highest configured TCP or UDP service port. For example, if HTTPS was set to port 20000 then the lowest ephemeral port allowable is 20001.

1. Enter the Minimum port number in your preferred ephemeral port range.

   The default is 49152. The minimum port cannot be set to be below 10000.
2. Enter the Maximum port number in your preferred ephemeral port range.

   The default is 65535 which is the maximum possible setting, giving a default range of about 15000 ports. The TelePresence Server will not allow you to reduce the range below 5000 ports because this would potentially hamper conferencing functionality.
3. Click **Apply changes**.
4. If you want to reset the values to their default settings, click **Reset to default** and then click **Apply changes**.

Resetting to the default configuration

1. Click **Reset to default**.

   The TelePresence Server replaces any changed settings with the page defaults. These do not take effect immediately.
2. Click **Apply changes**.

   The default settings take effect.

Table 15 Network > Services field descriptions

Field	Field description	Usage tips
HTTP	Enable/disable web access on the appropriate port.	Web access is required to view and change the TelePresence Server web pages and read online help files.
HTTPS	Enable/disable secure (HTTPS) web access on the specified interface or change the port that is used for this service.	By default, the TelePresence Server has its own SSL certificate and private key. However, you can upload a new private key and certificates if required. For more information about SSL certificates, refer to Configuring SSL certificates.

Table 15 Network > Services field descriptions (continued)

Field	Field description	Usage tips
Incoming H.323	Enable/disable the ability to receive incoming calls to the TelePresence Server using H.323 or change the port that is used for this service.	Disabling this option will not prevent outgoing calls to H.323 devices being made by the TelePresence Server.
SIP (TCP)	Allow/reject incoming calls to the TelePresence Server using SIP over TCP or change the port that is used for this service.	Disabling this option will not prevent outgoing calls to SIP devices being made by the TelePresence Server.
Encrypted SIP (TLS)	Allow/reject incoming encrypted SIP calls to the TelePresence Server using SIP over TLS or change the port that is used for this service.	Disabling this option will not prevent outgoing calls to SIP devices being made by the TelePresence Server.
FTP	Enable/disable FTP access on the specified interface or change the port that is used for this service.	FTP can be used to upload and download TelePresence Server configuration. You should consider disabling FTP access on any port that is outside your organization's firewall. If you require advanced security for the TelePresence Server, disable FTP access.
SIP (UDP)	Allow/reject incoming and outgoing calls to the TelePresence Server using SIP over UDP or change the port that is used for this service.	Disabling this option will prevent calls using SIP over UDP.
Minimum	The lower limit of the ephemeral port range.	Defaults to 49152, though you can set it as low as 10000 or as high as 60535.
Maximum	The upper limit of the ephemeral port range.	Defaults to 65535, though you can set it as low as 15000. The minimum range is limited to 5000 ports.

Configuring QoS settings

To configure Quality of Service (QoS) on the TelePresence Server for audio and video, go to **Network > QoS**.

QoS is a term that refers to a network's ability to customize the treatment of specific classes of data. For example, QoS can be used to prioritize audio transmissions and video transmissions over HTTP traffic. These settings affect all outgoing audio and video packets. All other packets are sent with a QoS of 0.

The TelePresence Server allows you to set a 6-bit value for Type of Service (IPv4) or Traffic Class (IPv6), which can be interpreted by networks as either Type of Service (ToS) or Differentiated Services (DiffServ). Note that in terms of functionality, IPv6 QoS is identical to IPv4 QoS.

CAUTION: Do not alter the QoS settings unless you need to do so.

To configure the QoS settings you need to enter a 6-bit binary value.

Further information about QoS, including values for ToS and DiffServ, can be found in the following RFCs, available on the Internet Engineering Task Force web site www.ietf.org:

- RFC 791
- RFC 2474

- RFC 2597
- RFC 3246

On this page:

About QoS configuration settings

The tables below describe the settings on the **Network > QoS** page.

Click **Update QoS settings** after making any changes.

Table 16 IPv4 configuration

Field	Field description	Usage tips
Audio	Six bit binary field for prioritizing audio data packets on the network.	Do not alter this setting unless you need to.
Video	Six bit binary field for prioritizing video data packets on the network.	Do not alter this setting unless you need to.

Table 17 IPv6 configuration

Field	Field description	Usage tips
Audio	Six bit binary field for prioritizing audio data packets on the network.	Do not alter this setting unless you need to.
Video	Six bit binary field for prioritizing video data packets on the network.	Do not alter this setting unless you need to.

ToS configuration

ToS configuration represents a tradeoff between the abstract parameters of precedence, delay, throughput, and reliability.

ToS uses six out of a possible eight bits. The TelePresence Server allows you to set bits 0 to 5, and will place zeros for bits 6 and 7.

- Bits 0-2 set IP precedence (the priority of the packet).
- Bit 3 sets delay: 0 = normal delay, 1 = low delay.
- Bit 4 sets throughput: 0 = normal throughput, 1 = high throughput.
- Bit 5 sets reliability: 0 = normal reliability, 1 = high reliability.
- Bits 6-7 are reserved for future use and cannot be set using the TelePresence Server interface.

You need to create a balance by assigning priority to audio and video packets whilst not causing undue delay to other packets on the network. For example, do not set every value to 1.

DiffServ configuration

DiffServ uses six out of a possible eight bits to set a codepoint. (There are 64 possible codepoints.) The TelePresence Server allows you to set bits 0 to 5, and will place zeros for bits 6 and 7. The codepoint is interpreted by DiffServ nodes to determine how the packet is treated.

Default settings

The default settings for QoS are:

- **Audio** *101110*:
  - For ToS, this means IP precedence is set to 5 giving relatively high priority. Delay is set to low, throughput is set to high, and reliability is set to normal.
  - For Diff Serv, this means expedited forwarding.
- **Video** *100010*:
  - For ToS, this means IP precedence is set to 4 giving quite high priority (but not quite as high as the audio precedence). Delay is set to normal, throughput is set to high, and reliability is set to normal.
  - For DiffServ, this means assured forwarding (codepoint 41).

To return the settings to the default settings, click **Reset to default**.

Configuring SSL certificates

If you enable HTTPS on the **Network > Services** page (enabled by default), you will be able to access the web interface of the TelePresence Server using HTTPS.

Note: A certificate and key are also required if you select to use the *Encrypted SIP (TLS)* service in **Network > Services**.

The Cisco TelePresence Server has a local certificate and private key pre-installed that it uses to authenticate itself to the browser when you access the unit using HTTPS. However, we recommend that you upload your own certificate and private key to ensure security because all Cisco TelePresence Servers have identical default certificates and keys. We recommend a key length of between 2048 bits and 8192 bits.

The TelePresence Server uses DTLS to negotiate encryption parameters with TIP endpoints—this requires a certificate to be used. The TelePresence Server's implementation of DTLS handles customer-supplied certificates in the following way:

- Opportunistic DTLS always uses the default certificate for DTLS negotiation, even if a customer-supplied certificate is uploaded.
- Negotiated DTLS uses the customer-supplied certificate if one is uploaded (this is the preferred procedure).

Negotiated DTLS will be used if the endpoint supports RFC 5763; otherwise, in a TIP call, opportunistic DTLS will be attempted.

To upload your own certificate and key, go to **Network > SSL certificates**.

Note: DTLS is only negotiated if your TelePresence Server has the *Media encryption* feature key.

Complete the fields using the table below for help and click **Upload certificate and key**. Note that you must upload a certificate and key simultaneously. You must restart the Cisco TelePresence Server after uploading a new certificate and key.

Note: A certificate and private key must be in PEM format.

The store may contain multiple certificates. This can be achieved by uploading a single trust store file containing multiple PEM encoded certification authority certificates one after another within the normal BEGIN and END certificate tags.

You can remove your own certificate and key, if necessary, by clicking **Delete custom certificate and key**. You must restart the TelePresence Server after deleting a certificate.

The following table details the fields on the **Network > SSL certificates** page:

Table 18 Local certificate

Field	Field description	Usage tips
Subject	The details of the business to which the certificate has been issued: ■ **C**: the country where the business is registered. ■ **ST**: the state or province where the business is located. ■ **L**: the locality or city where the business is located. ■ **O**: the legal name of the business. ■ **OU**: the organizational unit or department. ■ **CN**: the common name for the certificate, or the domain name.	
Issuer	The details of the issuer of the certificate.	Where the certificate has been self-issued, these details are the same as for the **Subject**.
Issued	The date on which the local certificate was issued.	
Expires	The date on which the local certificate will expire.	
Private key	Whether the private key matches the certificate.	Your web browser uses the SSL certificate's public key to encrypt the data that it sends back to the Cisco TelePresence Server. The private key is used by the Cisco TelePresence Server to decrypt that data. If the **Private key** field shows 'Key matches certificate' then the data is securely encrypted in both directions.

Table 19 Local certificate configuration

Field	Field description	Usage tips
Certificate	If your organization has bought a certificate, or you have your own way of generating certificates, you can upload it. Click **Choose File** to find and select the certificate file.	A certificate and private key must be in PEM format.
Private key	Click **Choose File** to find and select the private key file that accompanies your certificate.	A certificate and private key must be in PEM format.
Private key encryption password	If your private key is stored in an encrypted format, you must enter the password here so that you can upload the key to the Cisco TelePresence Server.	

Table 20 Trust store

Field	Field description	Usage tips
Subject	The details of the trust store certificate; usually a certificate issued by the authority that is used to verify the local certificate.	
Issuer	The details of the issuer of the trust store certificate.	These are the details of the trusted certification authority.
Issued	The date on which the trust store certificate was issued.	
Expires	The date on which the trust store certificate will expire.	

Table 21 Trust store configuration

Field	Field description	Usage tips
Trust store	The trust store is required for two reasons: ■ to verify the identity of the remote end of a SIP TLS connection (incoming call or outgoing call or registration) ■ to verify the identity of the remote end of an outgoing HTTPS connection (e.g. feedback receivers or API applications calling `participant.requestDiagnostics`)	Browse to and select the trust store certificate file, then click **Upload trust store**. The store may contain multiple certificates. When verification is required (see following setting) the certificate of the remote party is verified against the trust store: the remote certificate must either be in the trust store or in the trust chain of one of its certificates. Click **Delete trust store** if you need to remove it or replace it with an updated file.
Certificate verification settings	Determines the circumstances in which the remote certificate must be verified with the trust store.	Select one of the drop-down options below and click **Apply changes**. ■ *No verification*: The remote certificate is never verified against the trust store (remote end always trusted). ■ *Outgoing connections only*: The TelePresence Server attempts to verify the remote certificate for all outgoing SIP TLS and HTTPS connections. ■ *Outgoing connections and incoming calls*: The TelePresence Server attempts to verify the remote certificate for all incoming and outgoing SIP TLS connections, and for outgoing HTTPS connections. **Note**: A maximum of 12 subjectAltNames are supported if certificate verification is enabled.

Testing network connectivity

You can use the **Network connectivity** page to troubleshoot network issues between the TelePresence Server and a remote video conferencing device (host).

On this page you can ping another device from the TelePresence Server's web interface and trace the route to that device. The results show whether or not you have network connectivity between the TelePresence Server and the remote host.

To test connectivity with a remote device, go to **Network > Connectivity**. In the text box, enter the IP address or hostname of the device to which you want to test connectivity and click **Test connectivity**.

The results show the outbound interface for the query and the IP address of the remote host.

The ping results show the roundtrip time in milliseconds and the TTL (Time To Live) value on the echo reply.

For each intermediate host (typically routers) between the TelePresence Server and the remote host, the host's IP address and response time are shown.

Not all devices will respond to the messages from the TelePresence Server. Routing entries for non-responding devices are shown as *<unknown>*. Some devices are known to send invalid ICMP response packets (for example, with invalid ICMP checksums). Invalid ICMP responses are also not recognized by the TelePresence Server so these responses are also shown as *<unknown>*.

Note: The ping message is sent from the TelePresence Server to the IP address of the remote host. Therefore, if the TelePresence Server has an IP route to the given host, the ping will be successful. This feature allows the TelePresence Server's IP routing configuration to be tested, and it has no security implications.

Note: If you are unable to ping the remote host, then check your network configuration—especially any firewalls using NAT.

Viewing network statistics (netstat)

Go to **Network > Netstat** to view the current status of all TCP and UDP connections to the TelePresence Server.

The netstat data refreshes each time you load or refresh the UI page, or when you click **Refresh**, or when you check or clear the **Resolve names** checkbox.

Table 22 Netstat field descriptions

Field	Description
Resolve names	Check the box to perform a DNS lookup on the addresses and show hostnames if possible, or clear the box to show the IP addresses instead. The data refreshes when you toggle the checkbox.
Protocol	*tcp4*, *tcp6*, *udp4*, or *udp6*, indicating which internet protocol and addressing scheme the connection is using.
Recv-Q	Count of bytes queued on this connection because they have not yet been processed by the TelePresence Server.
Send-Q	Count of bytes queued on this connection because they have not yet been acknowledged by the remote party.
Local Address	The address of the TelePresence Server on this connection. If **Resolve names** is not checked this field shows the local socket as `address:port`. If **Resolve names** is checked it shows the socket as `hostname:servicename` if possible. Eg. `ts.example.com:http` or `127.0.0.1:80`

Table 22 Netstat field descriptions (continued)

Field	Description
Foreign Address	The address of the remote party on this connection. If **Resolve names** is not checked this field shows the foreign socket as `address:port`. If **Resolve names** is checked it shows the socket as `hostname:servicename` if possible. Eg. `browser.example.com:http` or `192.168.3.1:80`
State	The state of the connection. For more information, see http://tools.ietf.org/html/rfc793#section-3.2
Service	The name of the service that the TelePresence Server provides on this connection. The service name is hyperlinked to the **Network > Services** page so you can change the service configuration if necessary.

Configuration

Configuring system settings

To modify the system settings, go to **Configuration > System settings**, edit the fields (see table for details), and then click **Apply changes**.

The **System settings** page controls a number of defaults for the conferences hosted on the TelePresence Server.

Note: Endpoints and conferences assume the values you provide here. These settings apply to all calls and conferences on the unit and are not configurable elsewhere.

Table 23 Settings for all configured conferences

Field	Field description	Usage tips
Voice switching sensitivity	Determines how easy it is for a participant to replace the active speaker for a conference based on how loudly they are speaking.	A value of 0 means that it is very difficult for the active speaker to be replaced; a value of 100 means the active speaker can be replaced very easily. The default value is 60%.

Table 23 Settings for all configured conferences (continued)

Field	Field description	Usage tips
Packet loss threshold	Enter the threshold level for packet loss as a percentage. (Note that the setting is 10x the percentage, for example, a setting of '1' will trigger at 0.1% packet loss.) If greater packet loss occurs than this threshold, it will be reported: ■ in the Status page for the conference. ■ in the Statistics page for the endpoint whose call is experiencing the packet loss. ■ in the Event log, page 83.	The most suitable setting will depend on your network and its packet loss characteristics. The default value is 5.
ClearVision	When selected, the TelePresence Server will upscale video streams from participants who are sending low resolution video with the purpose of making best use of the TelePresence Server's HD video capabilities.	The TelePresence Server uses intelligent resolution upscaling technology to improve the clarity of low-resolution video. The default is enabled.
Enable 60 fps	Allows the TelePresence Server to support 60 frames per second video streams.	*HD* mode supports 60 fps at a maximum resolution of w448p. *Full HD* mode supports 60 fps at a maximum resolution of 720p. Lower resolution streams may also have 60 fps. The default is disabled.
HD mode	Defines the maximum video definition that the TelePresence Server will support. One of *HD* or *Full HD*. If you change this setting, your change will take effect as soon as there are no participants connected to the TelePresence Server.	*HD* mode supports a maximum definition of 720p at 30fps, or w448p at 60 fps. *Full HD* mode supports a maximum definition of 1080p at 30 fps, or 720p at 60 fps. The HD mode selection affects the maximum number of participants; see Understanding your TelePresence Server's conferencing capacity, page 103 for more details. The default is *HD*.
Call out using conference name	Allows the TelePresence Server to display the conference name to identify itself when calling out to participants.	The default is disabled (unchecked). May not be displayed by all endpoints.
Call out to grouped endpoints if one calls in	If this option is checked, if a call is received from an endpoint which forms part of a manually-configured group the TelePresence Server will call out to the other endpoints in that group.	You should make sure this option is unchecked if the endpoints which make up manually-configured groups are set to call in together - in this case the TelePresence Server will recognize the separate calls and group them automatically. The default is disabled (unchecked).

Table 23 Settings for all configured conferences (continued)

Field	Field description	Usage tips
Automatic content handover	Whether a participant is allowed to interrupt another participant's presentation in a conference by starting one of their own.	The default is disabled (unchecked). When checked, if an endpoint attempts to send content when another participant is already sending content, the endpoint will override or cancel any existing presentation.
Display video preview images	When checked, thumbnail preview images of conference participants' video streams are shown on the TelePresence Server user interface.	The default is enabled (checked).
Display icon when any participants are not encrypted	The encrypted participants in a conference, where encryption is optional, see an icon indicating that there are other participants who are not encrypted.	The default is enabled (checked).
Display icon to a participant when they are muted	Check the box to show the muted icon over a muted user's view of the conference.	
Indicate presence of additional participants	Whether an overlaid icon is shown on participants' screens to show the presence of additional participants in the conference.	The default is enabled (checked). When enabled, an icon displays in the bottom right-hand corner of the screen with a number below it showing the number of additional participants present that are not displayed. This number includes both video and audio-only participants. Grouped endpoints are counted as a single endpoint.
Participant switching mode	Select *Segment switching* or *Room switching* to change the display of multi-screen endpoints on other multi-screen endpoints.	*Segment switching* is the default, where only one of the viewed screens changes when one of the participants in the viewed room is loudest. Choose *Room switching* if you want to see all segments of a multi-screen endpoint when any of the participants using it is the loudest speaker.
Lobby screen date format	Select one of the date/time formats to display start and end times on the lobby screen.	Conference start and end times only display for scheduled conferences that you create via the TelePresence Server's web interface. The default format is *hh:mm MM/DD/YYYY*.

Table 23 Settings for all configured conferences (continued)

Field	Field description	Usage tips
Use custom conference ending notification text	Allows the TelePresence Server to use a custom message to warn participants that the conference is ending.	The TelePresence Server uses a default message unless you enable and enter a custom message. The default message is `This conference is about to end.` Does not apply to Cisco CTS endpoints. See the endpoint interoperability reference for details. The default is disabled (unchecked).
Custom conference ending notification text	Enter a message that the TelePresence Server will use instead of the default message.	This message can be a maximum of 100 characters. The default is blank.
Use custom muting notifications	Allows the TelePresence Server to display a custom message when a user is muted.	Muting notifications are sent when: ■ an endpoint mutes their own audio using *6 (enabled via **Use *6 to mute audio** on Default endpoint settings) ■ an administrator mutes their audio using the UI or API. The TelePresence Server uses a default message unless you enable and enter a custom message. The two default messages controlled by **Use *6 to mute audio** on Default endpoint settings are: ■ when *6 muting is enabled: *Your audio has been muted. Press *6 to unmute.* ■ when *6 muting is disabled: *Your audio has been muted.* The default is disabled (unchecked).
Custom muting notification when unmute is available	Enter a message that the TelePresence Server will use instead of the default message.	This message can be a maximum of 100 characters. The default is blank.
Custom muting notification when unmute is not available	Enter a message that the TelePresence Server will use instead of the default message.	This message can be a maximum of 100 characters. The default is blank.

Table 23 Settings for all configured conferences (continued)

Field	Field description	Usage tips
Show event log messages on console	Check the box to enable event log output to the serial console, or clear the box to disable event log output to the serial console. Your selection persists if the TelePresence Server restarts. When the checkbox is cleared, the TelePresence Server will still output event log messages to the serial console from the time it powers up until the media resources are available. After this time, the TelePresence Server stops sending event log messages to the console.	The checkbox is cleared by default which means that serial output of the event log is disabled. This default helps to improve the TelePresence Server's performance, so there may be a performance impact If you enable this setting. We recommend that you use a syslog server to capture event log messages. See Logging using syslog, page 85.
Disable serial console input during startup	Check the box to prevent the TelePresence Server from interpreting anything from the console while it is starting up.	We recommend that you check this box to prevent console users from interrupting the normal boot sequence .
Require administrator login for serial console commands	Check the box to prevent the TelePresence Server from interpreting console commands unless the user has been identified.	We recommend that you check this box to secure the serial console against unauthorised users who have gained physical access. **Note:** The TelePresence Server's console cannot accept all Unicode characters. Accounts used for console access are limited to ASCII characters for username and password.
Idle serial console session timeout	Number of minutes that the TelePresence Server will maintain an open console session after the last input.	We recommend that you use a short value to avoid leaving unattended console sessions open to unauthorised users.

Configuring H.323 settings

The H.323 settings page allows you to enable the TelePresence Server to use an H.323 gatekeeper.

To access this information, go to **Configuration > H.323 settings**.

To update the defaults, or change the configuration at any time, edit the fields referring to the table below for details and click **Apply changes**.

Table 24 H.323 gatekeeper

Field	Field description	Usage tips
Use gatekeeper	Enables the TelePresence Server to register numeric IDs for its conferences with an H.323 gatekeeper. Check the box to enable this feature.	When disabled, no gatekeeper registrations are attempted (and existing registrations are removed), regardless of other gatekeeper or per-conference settings. When enabled, registrations with the gatekeeper are attempted, and the gatekeeper is contacted for incoming and outgoing calls. If the gatekeeper does not respond, calls are still connected if possible.

Table 24 H.323 gatekeeper (continued)

Field	Field description	Usage tips
Address	The network address of the gatekeeper to which TelePresence Server registrations should be made.	Can be specified either as a host name or as an IP address. This field will have no effect if **Use gatekeeper** is disabled.
H.323 ID to register	Specifies a server-wide identifier that the TelePresence Server can use to register itself with the H.323 gatekeeper.	The TelePresence Server must make a server-wide registration before it can register any IDs with the H.323 gatekeeper. This field is required for the gatekeeper registration, but has no effect if **Use gatekeeper** is disabled.
Password	If the configured gatekeeper requires password authentication from registrants, enter the password.	The password is used, in association with the **H.323 ID to register** as the username, to authenticate the TelePresence Server to the gatekeeper (only if the gatekeeper is configured to require authentication).

Configuring SIP settings

The SIP settings page allows you to control the TelePresence Server SIP settings.

To access this information, go to **Configuration > SIP settings**.

To update the defaults, or change the configuration at any time, edit the fields referring to the table below for details and click **Apply changes**.

Table 25 SIP

Field	Field description	Usage tips
Outbound call configuration	This setting affects outgoing SIP calls and registration. The options are: *Use registrar* enables SIP registration and routes outbound SIP calls via the registrar. *Use trunk* disables SIP registration and tears down existing registrations. Routes outbound calls to the trunk destination, e.g. VCS or CUCM. *Call direct* disables SIP registration and tears down existing registrations. Outbound SIP calls go directly (not via registrar or trunk).	*Use registrar*: ■ Enables SIP registrations, on a system-wide basis, with the registrar address you provide. ■ Outgoing calls always go through the registrar, unless you explicitly choose **Call direct** for a pre-configured endpoint or ad hoc call. ■ An outbound call will fail if the registrar does not respond. ■ Incoming calls should come through the registrar and will fail if the registrar does not respond. *Use trunk*: ■ Directs outbound SIP calls via the trunk to the SIP server address you provide. ■ The SIP server, for example Cisco Video Communication Server (VCS) or Cisco Unified Call Manager (CUCM), is responsible for the onward routing of outbound SIP calls from the TelePresence Server. *Call direct*: ■ The TelePresence Server will connect SIP calls directly if possible. It does not use the **Outbound address** or **Outbound domain** parameters. ■ The TelePresence Server does not attempt to use either the registrar or trunk.
Outbound address	The hostname or IP address of the SIP registrar or trunk destination.	The TelePresence Server ignores this field if **Outbound call configuration** is set to *Call direct*.

Table 25 SIP (continued)

Field	Field description	Usage tips
Outbound domain	The domain of the SIP registrar or trunk destination.	The TelePresence Server ignores this field if **Outbound call configuration** is set to *Call direct*. The TelePresence Server uses this value in the following ways: ■ `username@outbounddomain` to register a user with a SIP registrar (if SIP registration is enabled) ■ `numericId@outbounddomain` to register a conference's numeric ID with a SIP registrar (if conference has SIP registration enabled) ■ Any outbound SIP calls where the supplied address does not contain an @ symbol. If you do not specify an outbound domain, the TelePresence Server uses the outbound address instead.
Username	The TelePresence Server uses this name if it registers with a SIP registrar. The TelePresence Server uses this name to authenticate with the SIP device (registrar, trunk destination, or endpoint) if that device requires authentication.	The TelePresence Server will use this name to register itself with the SIP registrar if you have enabled SIP registration. It will not register itself if you do not provide this, but it will still be able to register individual conferences (assuming they are enabled to register and have numeric IDs). If a conference does not have a numeric ID, then it cannot register. Calls out from such a conference will appear to come from the TelePresence Server's own SIP registration (`this_username@outbounddomain`). It is impossible for a participant to call into such a conference because it does not have a numeric ID. If you enter a full URI here (e.g. `host@domain`), then the TelePresence Server will ignore the **Outbound domain** setting.
Password	The TelePresence Server uses this password to authenticate with the SIP device (registrar, trunk destination, or endpoint) if that device requires authentication.	The SIP destination may not require authentication; if it does, you need to configure it to accept a log in from this username and password combination.

Table 25 SIP (continued)

Field	Field description	Usage tips
Outbound transport	Select the protocol that the TelePresence Server will use for outbound calls (and registrations, if enabled). One of *TCP*, *UDP*, or *TLS*.	The TelePresence Server uses this protocol for communicating with the SIP registrar or trunk destination. If you have the encryption feature key installed and want to encrypt signaling, select *TLS*. The TelePresence Server accepts incoming connections on whichever protocol the connection uses (TCP, UDP or TLS), and will respond using the same protocol, irrespective of this **Outbound transport** setting. Make sure that you enable those services on the **Network > Services** page.
Advertise Dual IPv4/IPv6	Select *Use ANAT* if you want the TelePresence Server to support SIP calls in a mixed IPv4 and IPv6 network.	Default is *Disabled*. When configured to use ANAT (Alternative Network Address Types), the device supports ANAT syntax in the session description. See http://tools.ietf.org/html/rfc4091 for more information.
Negotiate SRTP using SDES	Select whether the TelePresence Server will negotiate SRTP using SDES for either of the following options: ■ *For secure transports (TLS) only* ■ *For all transports*. (Note: this parameter only displays with the *Media encryption* feature key.)	The TelePresence Server supports the use of encryption with SIP. When encryption is in use with SIP, the audio and video media are encrypted using Secure Real-time Transport Protocol (SRTP). When using SRTP, the default mechanism for exchanging keys is Session Description Protocol Security Description (SDES). SDES exchanges keys in clear text, so it is a good idea to use SRTP in conjunction with a secure transport for call control messages. You can configure the TelePresence Server to also use Transport Layer Security (TLS) which is a secure transport mechanism that can be used for SIP call control messages. The default setting is *For secure transports (TLS) only*.
Use local certificate for outgoing connections and registrations	Check this option to allow the TelePresence Server to present its local certificate when registering with the SIP registrar (via TLS) or making outgoing TLS calls. With this option unchecked, the TelePresence Server will never present its local certificate, even if requested to do so.	This option should be checked if TLS is in use.

Configuring default conference settings

The **Default conference settings** page allows you to configure the TelePresence Server default conference settings.

To access this information, go to **Configuration > Default conference settings**.

To update the defaults, or change the configuration at any time, edit the fields referring to the table below for details and click **Apply changes**.

Note: Configuration changes in the Default conference settings page affect active calls unless the call or conference has already been manually changed via the Advanced settings and Configuration pages for the appropriate conference.

Table 26 Default conference settings

Field	Field description	Usage tips
Show lobby screen	Enable the TelePresence Server to display lobby screens to participants. Participants see this screen when they join a conference or when there is no video to display (all other participants are either audio-only or have video muted, and self-view is disabled.)	The lobby screen shows the conference name, start and end times (if applicable), and an optional lobby message. The message is set on a per conference basis.
Conference ending notification	Check so the TelePresence Server warns participants that the conference is ending soon.	Participants see a notification, two minutes prior to the end of the conference, that the conference is ending soon. Cisco CTS endpoints display an icon instead of a notification message. Other endpoints see the message overlaid on their displays. See the endpoint interoperability reference for details.
Automatic gain control	Check the box to apply automatic gain control, by default, to all conferences on this TelePresence Server. This is the 'boxwide' default AGC setting for all conferences. There is a corresponding setting on the conference configuration that can inherit or override this setting. Similarly, there is a corresponding setting on the endpoint configuration that can inherit or override the conference's AGC setting.	If the box is checked, the TelePresence Server will dynamically adjust outgoing audio to account for large variations in level between different endpoints, thereby trying to ensure a similar audio level for all participants. If the box is unchecked, the TelePresence Server will not attempt to dynamically adjust the gain of audio to all participants.

Configuring default endpoint settings

The **Default endpoint settings** page allows you to configure the TelePresence Server settings for the default endpoint.

To access this information, go to **Configuration > Default endpoint settings**.

To update the defaults, or change the configuration, edit the fields referring to the table below for details and click **Apply changes**.

Note: Configuration changes in the Default endpoint settings page affect active calls unless the call or conference has already been manually changed via the Advanced settings and Configuration pages for the appropriate endpoint.

Table 27 Default endpoint settings

Field	Field description	Usage tips
Allow stereo audio	This option enables stereo audio in calls with compatible endpoints.	The default is enabled. However, some endpoints do not support stereo echo cancellation and in some circumstances this can cause echo. If necessary, disable this option to prevent the use of stereo audio, either for a specific endpoint or by default.
Use *6 to mute audio	Check the box to enable endpoints to mute or unmute their audio using the *6 keypad combination.	
Full screen view of single-screen endpoints	This option determines how single-camera endpoints are viewed on the conference display sent to multi-screen endpoints. Select a setting from the drop-down list to set as the default for new endpoints: ■ *Allowed*: The stream from a single-camera endpoint is allowed to display in a full screen pane when the conference is viewed on a multi-screen endpoint. ■ *Dynamic*: As for *Allowed* if there are no grouped endpoints to display on the multi-screen endpoint. When there are grouped endpoints to show on the multi-screen endpoint, the stream from a single-camera endpoint will be restricted to displaying as a smaller, continuous presence pane. ■ *Disabled*: The stream from a single-camera endpoint will never be shown as a full screen pane on a multi-screen endpoint.	This setting can be overridden by the equivalent **Full screen view** setting in single-screen endpoints' Configuration page. We recommend using the default setting, which is *Allowed*.
Show borders around endpoints	Check this option to show borders around participants displayed in the conference view sent to new endpoints/endpoint groups by default.	For more information, see Understanding how participants display in layout views. The default is enabled.
Show endpoint names as panel labels	The TelePresence Server will label panes in the conference layout sent to new endpoints/endpoint groups by default, with the names of the participants shown in those panes. Check the box to show display names by default.	The default is disabled.

Table 27 Default endpoint settings (continued)

Field	Field description	Usage tips
Self view	If you uncheck this option, the TelePresence Server will never show the video stream sent from this endpoint or endpoint group to the participants using this endpoint or endpoint group by default i.e. they will not see themselves.	For more information, see Understanding how participants display in layout views. The default is disabled.
Default layout type for single-screen endpoints	This option controls the default layout single-screen endpoints see when they connect. Select a setting from the drop-down list to be used as the default: ■ *Single*: Endpoints will be shown in one full screen pane. ■ *ActivePresence*: Endpoints will be shown in one full screen pane with additional participants appearing in up to six equally sized overlaid panes at the bottom of the screen. ■ *Prominent*: Endpoints will be shown in one large pane with additional participants appearing in up to six equally sized panes at the bottom of the screen. ■ *Equal*: Endpoints will be shown in a grid pattern of equally sized panes on the screen, up to 4x4.	The default setting is *ActivePresence*. Participants can change their layout using Far End Camera Control, DTMF keys 2 and 8, or ActiveControl if supported in the deployment. **Note:** Multi-screen systems that do not send the TelePresence Server a loudest panel/screen indication will be composed into a single pane unless Equal layout is selected. See the endpoint interoperability reference for a list of the multi-screen systems that reveal the loudest panel information.
Default layout type for multi-screen endpoints	This option controls the default layout multi-screen endpoints see when they connect. Select a setting from the drop-down list to be used as the default: ■ *Single (Full screen)*: Endpoints will be shown in full screen panes. A single participant displays per screen. ■ *ActivePresence*: Endpoints will always be shown in full screen panes with additional participants appearing in up to six equally sized overlaid panes at the bottom of each screen (up to four panes for 2 and 4 screen endpoints).	Participants can change their layout using Far End Camera Control or via DTMF keys 2 and 8, or ActiveControl if supported in the deployment. The default is *ActivePresence*.
Force default layout	Check the box to force the default layout. The default is disabled.	

Table 27 Default endpoint settings (continued)

Field	Field description	Usage tips
Allow content in main video	This option allows the TelePresence Server to send a conference's content channel in the main video channel of endpoints that do not support the extra channel. Endpoints that would otherwise be unable to see the content channel can see it if you enable this feature. In these cases, the content channel video is shown in the largest pane of a composed layout. The content layout replaces the main video while the content channel is active (audio is unaffected).	Content does not entirely replace the main video; the content displays in the largest pane of a composed layout that also shows the other participants' streams across the bottom of the screen (more about layouts). The default is enabled. For more information about the content channel, see Content channel video support.

Table 28 Default advanced endpoint settings

Field	Field description	Usage tips
Video format	The format to be transmitted by the TelePresence Server to an endpoint or endpoint group. Select a setting from the drop-down list: ■ *PAL - 25fps*: The TelePresence Server will transmit video at 25 frames per second (or a fraction or multiple of 25, for example: 50 or 12.5fps) ■ *NTSC - 30 fps*: The TelePresence Server will transmit video at 30 frames per second (or a multiple or fraction of 30, for example: 60 or 15fps)	NTSC is typically used in North America, while PAL is typically used in the UK and Europe. The default is *NTSC - 30 fps*.
Transmitted video resolutions	This setting is for transmitted video resolutions from the TelePresence Server to an endpoint or endpoint group. Select a setting from the drop-down list to set as the default : ■ *4:3 resolutions only* ■ *16:9 resolutions only* ■ *Allow all resolutions*	Endpoints advertise the resolutions that they are able to display. The TelePresence Server then chooses the resolution that it will use to transmit video from those advertised resolutions. However, some endpoints do not display widescreen resolutions optimally. Therefore, you might want to use this setting to restrict the resolutions available to the TelePresence Server for transmissions to this endpoint or endpoint group. (4:3 and 16:9 are the preferred options–avoid using *Allow all resolutions* if possible.) The default is *16:9 resolutions only*.

Table 28 Default advanced endpoint settings (continued)

Field	Field description	Usage tips
Motion/sharpness tradeoff	This setting controls the preference for which resolutions the TelePresence Server will transmit to the endpoint for motion (frames per second) and sharpness (frame size or resolution). The setting controls how the TelePresence Server will determine its preference of the settings to be used. Select a setting from the drop-down list to be used as the default: ■ *Favor motion*: the TelePresence Server will try and use a high frame rate. That is, the TelePresence Server will strongly favor a resolution of at least 25 frames per second ■ *Balanced*: the TelePresence Server will select settings that balance resolution and frame rate (where the frame rate will not be less than 12 frames per second) ■ *Favor sharpness*: the TelePresence Server will use the highest resolution that is appropriate for what is being viewed	The default is *Balanced*.
Default bandwidth (both to and from the server)	The maximum network capacity used by the media channels established by the TelePresence Server to unknown endpoints and to new pre-configured endpoints for which a value has not been set.	When the TelePresence Server makes a call to an endpoint, it chooses the maximum bandwidth that is allowed to be used for the media channels which comprise that call. This field sets that maximum bandwidth, and is the total bandwidth of the audio, video, and content channels combined. For endpoint groups, this is the maximum bandwidth per endpoint. The bandwidth available may also be limited by the configuration of the endpoint or other devices through which the call passes. The default is 4.00 Mbit/s.

Table 28 Default advanced endpoint settings (continued)

Field	Field description	Usage tips
Maximum transmitted video packet size	Sets the maximum size (bytes) of video packets sent by the TelePresence Server, including IP headers. **Note:** In TelePresence Server 3.1 and earlier versions, this setting did not include IP headers. When upgrading to 4.0 or later, the TelePresence Server retains the previous setting which effectively reduces the maximum video data size by the size of the IP headers. If you want to set the maximum possible size for the video packets, use 1428 for an IPv4 network or 1448 for an IPv6 network.	This setting can be overridden by the corresponding setting on an individual endpoint's Advanced settings page. Video streams generally contain packets of different lengths. This parameter only sets the *maximum* size of the packet. The TelePresence Server optimally splits the video stream into payloads of this size or smaller, and most will not reach this maximum size. We recommend using the default (1400), or higher, unless there is a known packet size restriction in the path. This allows the TelePresence Server to make the most efficient use of the available bandwidth. If the packets are too large for a network that requires a smaller maximum transmission unit (MTU), network elements may fragment and reintegrate the packets which can impair performance.
Received video: flow control on video errors	Allows the TelePresence Server to request that the endpoint or endpoint group send lower speed video if it fails to receive all the packets which comprise the far end's video stream. Note that flow control is only supported for some endpoints.	The TelePresence Server can send these messages to endpoints requesting that the bandwidth of the video that they are sending be decreased based on the quality of video received by the TelePresence Server. If there is a bandwidth limitation in the path between the endpoint/endpoint group and the TelePresence Server, it is better for the TelePresence Server to receive every packet of a lower rate stream than to miss some packets of a higher rate stream. The default is enabled.
Received video: flow control based on viewed size	Allows the TelePresence Server to request that the endpoint or endpoint group send lower speed video if the use of the video from that endpoint does not require as high a speed as the channel allows. Note that flow control is only supported for some endpoints.	Typically the TelePresence Server would send a flow control message because of this setting if the video from that endpoint was not being seen by other conference participants. The default is enabled.

Table 28 Default advanced endpoint settings (continued)

Field	Field description	Usage tips
Video transmit size optimization	Allows the TelePresence Server to vary the resolution, or resolution and codec, of the video being sent to a remote endpoint within the video channel established to that endpoint. Select a setting from the drop-down list: ■ *None*: Do not allow video to be optimized during transmission ■ *Dynamic resolution only*: Allow video size to be optimized during transmission ■ *Dynamic codec and resolution*: Allow video size and codec to be changed during transmission	With this option enabled, the TelePresence Server can, for instance, decide to send CIF video within a 4CIF channel if this will increase the viewed video quality. The circumstances under which decreasing the video resolution can improve the video quality include: ■ if the original size of the viewed video is smaller than the outgoing channel ■ if the remote endpoint has used flow control commands to reduce the bandwidth of the TelePresence Server video transmission Typically, lowering the resolution means that the TelePresence Server can transmit video at a higher frame-rate. The default is *Dynamic codec and resolution*.

Operation mode

You can set the TelePresence Server to be locally or remotely managed (by a device such as Cisco TelePresence Conductor) on the Operation mode page.

When the TelePresence Server is set to remotely managed mode its resources can be optimized dynamically. This means that calls can connect and only use the resources they require, giving the most efficient use of blade resources across the different media types (i.e. audio, video, content) of different participants.

To set the operation mode, go to **Configuration > Operation mode**.

To add or change the Operation mode at any time, edit the field referring to the table below for details and click **Apply changes**.

Caution:

- Changing the operation mode requires the TelePresence Server to be rebooted.
- In remotely managed mode, configured endpoints and conferences are not available.
- Any conferences configured on the TelePresence Server in remotely managed mode are lost when the unit reboots.

The two operation modes are supported by two separate APIs. When using remotely managed mode the Flexible API is operational and when using locally managed mode the Standalone API is operational.

For more information on using the APIs, please refer to the Cisco TelePresence Server API documentation.

Table 29 Operation mode setting

Field	Field description	Usage tips
Operation mode	This selection determines the operation mode for the TelePresence Server. The options are: ■ *Locally managed* ■ *Remotely managed*	In locally managed mode the TelePresence Server will manage all conferences. In remotely managed mode all conference create and participant management are managed externally to the TelePresence Server, by a device such as Cisco TelePresence Conductor and so resources will be optimized dynamically. Default is locally managed mode.

Displaying and resetting system time

You can manually set the system date and time for the TelePresence Server or let it use the Network Time Protocol (NTP) to synchronize its time.

To configure Time settings, go to **Configuration > Time**.

System time

Current time displays the time according to the TelePresence Server.

To manually set the system date and time, type the new values and click **Change system time**.

NTP

The TelePresence Server supports the NTP protocol. If you want the TelePresence Server to automatically synchronize with an NTP server, enter the NTP settings and then click **Update NTP settings**.

The TelePresence Server synchronizes with the NTP server every hour.

If the NTP server is local to either of the TelePresence Server's enabled Ethernet interfaces, the TelePresence Server automatically uses the port to communicate with the NTP server.

If the NTP server is not local, the TelePresence Server will use the port that is configured as the default gateway to communicate with the NTP server, unless a specific IP route to the NTP server's network/IP address is specified (see **Network > Routes**).

If there is a firewall between the TelePresence Server and the NTP server, configure the firewall to allow NTP traffic to UDP port 123.

Table 30 Device time settings

Field	Field description	Usage tips
Enable NTP	Check the box to enable NTP protocol on the TelePresence Server.	
UTC offset	The offset of the time zone that you are in from UTC.	You must manually update this offset to account for regional changes to time zone, such as British Summer Time and other daylight saving schemes.
NTP host	The IP address or hostname of the server that is acting as the time keeper for the network.	

Using NTP over NAT (Network Address Translation)

No extra configuration is required if the NAT is local to the TelePresence Server's network.

If NAT is used on the NTP server's local network, you must configure the NAT forwarding table to forward NTP data from the TelePresence Server to UDP port 123 on the NTP server.

Backing up and upgrading the TelePresence Server

On this page:

Upgrading the main TelePresence Server software image

The main TelePresence Server software image is the only firmware component that you will need to upgrade.

To upgrade the main TelePresence Server software image:

1. Go to **Configuration > Upgrade**.
2. Check the **Current version** of the main software image to verify the currently installed version.
3. Log onto the support pages to identify whether a more recent image is available.
4. Download the latest available image and save it to a local hard drive.
5. Unzip the image file.
6. Log on to the TelePresence Server web browser interface.
7. Go to **Configuration > Upgrade**.
8. Locate the unzipped file on your hard drive.

   The button may be **Browse...** or **Choose File** or similar, depending on your browser.
9. Click **Upload software image**. The browser begins uploading the file to the TelePresence Server, and a new browser window opens to indicate the progress of the upload. When finished, the browser window refreshes and indicates that the "Main image upgrade completed."
10. The upgrade status displays in the **TelePresence Server software upgrade status** field.
11. Shut down and restart the TelePresence Server.

Upgrading the loader software image

Typically, upgrades for the loader software image are not available as often as upgrades to the main software image.

Note: You should not do this unless you are advised by customer support.

To upgrade the loader software image:

1. Go to **Configuration > Upgrade**.
2. Check the **Current version** of the loader software to verify the currently installed version.
3. Go to the software download pages of the web site to identify whether a more recent image is available.
4. Download the latest available image and save it to a local hard drive.
5. Unzip the image file.

6. Locate and select the unzipped file on your hard drive.

   The button may be **Browse...** or **Choose File** or similar, depending on your browser.
7. Click **Upload software image**. The browser begins uploading the file to the TelePresence Server, and a new browser window opens to indicate the progress of the upload. When finished, the browser window refreshes and indicates that the "Loader image upgrade completed."
8. The upgrade status displays in the **Loader upgrade status** field.
9. Shut down and restart the TelePresence Server.

Backing up and restoring the configuration

The Back up and restore section of the **Configuration > Upgrade** page allows you to back up and restore the configuration of the TelePresence Server using the web interface. This enables you to either revert to a previous configuration or to effectively clone a unit by copying its configuration to another.

To back up the configuration, click **Save backup file** and save the resulting configuration.xml file to a secure location.

To restore configuration at a later date:

1. Go to **Configuration > Upgrade**.
2. Locate and select a previously-saved configuration.xml file.

   The button may be **Browse...** or **Choose File** or similar, depending on your browser.
3. Select whether you want the saved configuration to overwrite the current *Network settings*, *User settings*, or both.

   The overwrite controls are not selected by default; the software assumes you want to preserve existing network settings and user accounts.
4. Click **Restore backup file**.

When restoring a new configuration file to a TelePresence Server you can control which parts of the configuration are overwritten:

- If you check **Network settings**, the network configuration will be overwritten with the network settings in the supplied file.

  Typically, you would only select this check box if you are restoring from a file backed up from the same TelePresence Server or if you are intending to replace an out of service TelePresence Server.

  If you copy the network settings from a different, active, TelePresence Server and there is a clash (for instance, both are now configured to use the same fixed IP address) one or both devices may become unreachable via IP. If you do not check **Network settings**, the restore operation will not overwrite the existing network settings, with the one exception of the QoS settings. QoS settings are overwritten regardless of the **Network settings** check box.
- If you check **User settings**, the current user accounts and passwords will be overwritten with those in the supplied file.
- If you overwrite the user settings and there is no user account in the restored file corresponding to your current login, you will need to log in again after the file has been uploaded.

Enabling TelePresence Server features

The TelePresence Server requires activation before most of its features can be used. (If the TelePresence Server has not been activated, the banner at the top of the web interface will show a prominent warning; in every other respect the web interface will look and behave normally.)

If this is a new TelePresence Server it should already be activated; if it is not, or if you have upgraded to a newer firmware version, or if you are enabling a new feature, contact your supplier to obtain the appropriate activation key.

Each key is unique to a particular TelePresence Server. Ensure that you know the device's serial number when you request the key, so that the supplier can give you a valid key.

Applying the key is the same process whether you are activating the TelePresence Server or enabling an advanced feature.

To apply a key to the TelePresence Server:

1. Read the **Feature management** list to check whether the feature is already active.

   The product activation key is also in this list.
2. Enter the key given to you by your supplier into the **Add key** field *exactly as you received it*, including any dashes.
3. Click **Add key**.

   The browser window refreshes to list the newly added feature and the key you entered.

   If the key is not valid, you are prompted to re-enter it.

   Keys may be time-limited. If this is the case, an expiry date will be displayed, or a warning that the feature has already expired. Expired keys remain in the list even though the corresponding features disabled.
4. Record the key in case you need to re-enter it in the future.

Successful TelePresence Server or feature activation has immediate effect and will persist even if the TelePresence Server is restarted.

Note that you can remove some types of features. Click **remove**, next to the key, to remove a feature.

Applying screen licenses

To license a TelePresence Server MSE 8710, you must log in to the Supervisor and allocate screen licenses to the blade slot. The screen licenses are linked to the chassis serial number. See the Supervisor documentation for details.

For the TelePresence Server 7010, the screen license key is linked to the TelePresence Server's hardware serial number. You enter the License key directly on the TelePresence Server in the same way as you add feature keys (the procedure detailed above).

Shutting down and restarting the TelePresence Server

You may need to shut down the TelePresence Server to restart it as part of an upgrade or to switch off its power.

Caution: Shutting down the TelePresence Server will disconnect all active calls.

To shut down the TelePresence Server:

1. Go to **Configuration > Shutdown**.
2. Click **Shut down TelePresence Server**.

   The button changes to **Confirm TelePresence Server shutdown**.
3. Click the button again to confirm.

   The TelePresence Server will begin to shut down. The banner at the top of the page will change to indicate this.

   When the shutdown is complete, the button changes to **Restart TelePresence Server**.
4. Click this button a final time to restart the TelePresence Server.

Changing the administrator password

This page allows you to change the administrator password used to log in to this TelePresence Server. This applies to the current user who needs to be an 'administrator'. To access this page, go to **Configuration > Change password.**

We recommend that you change the administrator password regularly. You may want to make a note of the password and store it in a secure location.

To change the password, type in the new password twice and click **Change password**.

Backing up and restoring the configuration via FTP

You can back up and restore the configuration via the web interface of the TelePresence Server or via File Transfer Protocol(FTP). You need to have the FTP service enabled on the TelePresence Server (on the **Network > Services** page) before you can connect to it using FTP.

To back up the configuration via FTP:

1. Connect to the TelePresence Server using an FTP client and the administrator credentials you use to log in to the web interface.

   You will see a file called **configuration.xml** that contains the configuration of your TelePresence Server.
2. Download this file and store it somewhere safe.

To restore the configuration using FTP:

1. Locate the copy of **configuration.xml** that you want to restore.
2. Connect to the TelePresence Server using an FTP client and the administrator credentials you use to log in to the web interface.
3. Upload your **configuration.xml** file to the TelePresence Server, overwriting the existing version of the file.

Note: The same process can be used to transfer a configuration from one TelePresence Server blade to another. However, before doing this, be sure to keep a copy of the original feature keys from the blade whose configuration is being replaced.

If you are using the configuration file to configure a duplicate blade, be aware that you will need to reconfigure any static IP addresses on the duplicate blade(s).

Conferences

Adding and updating conferences

There are a two ways to start a conference with the TelePresence Server:

- Using the TelePresence Server's web interface, as described in this topic.
- Calling directly into a conference from an endpoint. This is only possible if the conference has a numeric ID. If the numeric ID is registered with the gatekeeper/SIP registrar, you can dial the numeric ID on its own; if not, you can dial by TelePresence Server IP address plus numeric ID.

Adding a conference

To add a conference:

1. Go to **Conferences > Add new conference**.
2. Complete the fields, referring to the table below for more information.
3. Click **Add new conference**.

Notes:

- You can add pre-configured endpoints to a conference to be automatically invited into the conference by the TelePresence Server. This is useful if you regularly invite the same participants into a conference. This is done on the conference configuration page after the conference has been created–see Updating a conference for more information.
- If a pre-configured endpoint is busy when the conference starts, the TelePresence Server will retry the endpoint five times and connect it if it becomes available.
- You can schedule the conference timing, or return to the conference configuration subsequently and start the conference as an ad hoc conference using **Start now**.
- The TelePresence Server supports a maximum of 200 conferences. This limit also applies to cluster of TelePresence Servers.

Updating a conference

When updating a conference's configuration you can select endpoints to dial and then dial out and start an ad hoc conference using an existing conference configuration.

To update an existing conference:

1. Go to **Conferences**.
2. Click a Conference name. That conference's status page is shown.
3. Go to **Configuration**.
4. Edit the fields referring to the table below.
5. If required, add pre-configured endpoints to the conference configuration:
   a. Click **Add pre-configured participants**.
   b. Select from the list of pre-configured participants.

      Note: If you have scheduled a time for the conference, then you cannot select any endpoints or endpoint groups that are already configured for a conference during that period. This avoids clashing commitments for endpoints and endpoint groups.

   c. Click **Update**.

      The participants are displayed in the **Pre-configured participant** section.
6. Click **Update conference**.

Starting an ad hoc conference with pre-configured participants

An ad hoc conference is one that is started from the web interface with the **Start now** button. This can be:

- based on a conference that was configured without a schedule.
- an additional ad hoc instance of a scheduled conference: in this case, the conference continues to its scheduled end time, if there is one, unless you disconnect the participants manually.

1. Go to **Conferences**.
2. Click the name of the conference whose configuration you want to use for this conference.
3. Go to **Configuration**.
4. If required, select pre-configured endpoints:
   a. Click **Add pre-configured participants**.
   b. Select the endpoints to be dialed and click **Update**.
5. Click **Start now** to start the conference immediately.

Conference configuration reference

Table 31 Conference

Field	Field description	Usage tips
Name	The name of the conference.	Conference names do not need to be unique.

Table 31 Conference (continued)

Field	Field description	Usage tips
Numeric ID	The unique identifier used for dialing in to the conference.	Participants can only join a conference by dialing its numeric ID if the conference's numeric ID is registered with the H.323 gatekeeper or SIP registrar (depending on which protocol the endpoint is using). If the conference has a numeric ID that is not registered, you can join the conference if the TelePresence Server is receiving a call through an H.323/SIP trunk. This is the method Cisco recommends. It is possible to call into a non-registered conference by dialing the IP address of the TelePresence Server that is running the conference plus the numeric ID, however, this method is not recommended. Conferences do not have to have a numeric ID, but numeric IDs must be unique.
PIN	Enter the unique PIN for the conference.	Setting a PIN allows you to restrict access to the conference. Up to 40 digits are supported for a PIN. When entering the conference participants will be presented with a PIN entry screen and an audio prompt. The PIN can be entered via DTMF. Press * to delete the entire PIN. A PIN is only valid for incoming calls–no outgoing calls will ever need to enter it. As a result of this, a conference PIN can only be set when the conference has a numeric ID. Trying to set a PIN without a numeric ID will return a fault.
Register numeric ID with H.323 gatekeeper	Whether to register the conference with the Numeric ID as the H.323 ID.	Select this check box to register the conference's numeric ID with the gatekeeper (if H.323 registration is enabled on the **Configuration > H.323 Settings** page).
Register numeric ID with SIP registrar	Whether to register the conference's Numeric ID with the SIP registrar.	Check the box to register the conference's numeric ID with the registrar (if SIP registration is enabled on the **Configuration > SIP Settings** page)
Conference locked	Locks a conference.	Check the box to lock the conference. You can still add pre-configured participants before the conference starts, but no participants will be able to join (call in) when the conference is active. You can call out to invite participants in to a locked conference.

Table 31 Conference (continued)

Field	Field description	Usage tips
Encryption	Whether encryption is optional or required for this conference.	If encryption is *Required*, only endpoints that support encryption can join this conference. Encryption requires a feature key. Feature keys are installed in the **Configuration > Upgrade** page. See Upgrading and backing up the TelePresence Server.
Use OneTable mode when appropriate	If your multi-screen endpoints support the OneTable feature you can select whether to use OneTable mode automatically when the correct combination of endpoints or endpoint groups is in a conference (three or four OneTable endpoints plus less than six other endpoints or endpoint groups). Select a setting from the drop-down list: ■ *Disabled* ■ *4 person mode*	In OneTable mode each screen shows an entire view of a single remote site (as opposed to one third of the remote site in a normal, point-to-point TelePresence setting). This allows the center four participants in three remote TelePresence rooms to be seen simultaneously, as if they were seated at one table if *4 person mode* is selected. For more information, see Understanding how participants display in layout views. Not all multi-screen endpoints support OneTable mode. See the endpoint interoperability reference for a list of supporting endpoints.
Content channel	If *Enabled*, this conference is able to support an additional video stream, sent potentially to all connected endpoints, intended for showing content video. This content video is typically high resolution, low frame rate data such as a presentation formed of a set of slides. Such presentation data can be sourced by an endpoint specifically contributing a separate content video stream.	For more information, see Content channel video support.
Automatic gain control	Controls the AGC setting for this conference. One of *<use default>*, *Disabled*, or *Enabled*.	*<use default>*: This conference inherits the default setting from the 'boxwide' setting made on the **Default conference settings** page, which could be either enabled or disabled. *Disabled*: The TelePresence Server will not attempt to dynamically adjust the gain of audio to all participants. *Enabled*: The TelePresence Server will dynamically adjust outgoing audio to account for large variations in level between different endpoints, thereby trying to ensure a similar audio level for all participants.

Table 32 Port limits and lobby settings

Field	Field description	Usage tips
Video	Enable a limit on the video ports allowed for this conference	Check the box and enter the maximum number of video ports you want this conference to use. The TelePresence Server cannot guarantee to provide this number of ports. However, if more than this number are requested and available, the TelePresence Server will supply ports until the limit is reached.
Audio only	Enable a limit on the number of audio-only ports allowed for this conference	Check the box and enter the maximum number of audio-only ports you want this conference to use. The TelePresence Server can not guarantee to provide this number of ports. However, if more than this number are requested and available, the TelePresence Server will supply ports until the limit is reached.
Show lobby screen	Enable a lobby screen for this conference.	The lobby screen can be enabled/disabled on a server-wide basis. If you select *<Use default>* here, the conference will inherit the setting from the **Configuration > Default conference settings** page. Otherwise, you can select *Enable* or *Disable* to override the server-wide setting.
Lobby message	Display a custom message on the lobby screen.	Enter some text to display on the lobby screen. If **Show lobby screen** is enabled—either because it is enabled by the server-wide setting or enabled for this conference only—participants will see this text when they see the lobby screen.

Table 33 Scheduling

Field	Field description	Usage tips
Schedule	Select the check box to enable the settings in this section.	Conferences can be scheduled using the fields in this section, but you may also want to create a conference without a set start time (in this case, leave this setting unselected). Subsequently, when you want the conference to start, open the conference configuration, add endpoints and click **Start now**. You can also create an unscheduled conference by going to the **Conference > Status** page and select the endpoint(s) you wish to add to the conference and click **Call endpoint**.

Table 33 Scheduling (continued)

Field	Field description	Usage tips
Start time	The date and time at which the conference will begin.	The default start time is 10 minutes from the current time.
Permanent	Allows you to schedule a conference with no specified end time.	Select this option if you want a meeting to go on indefinitely.
End time	The date and time at which the conference will finish.	These fields are not available or necessary for permanent conferences.
Conference ending notification	Send a message to all participants when the conference is coming to an end.	This notification can be enabled/disabled on a server-wide basis. If you select *<Use default>* here, the conference will inherit the setting from the **Configuration > Default conference settings** page. Otherwise, you can select *Enable* or *Disable* to override the server-wide setting. You can edit the message on a server-wide basis on the **Configuration > System settings** page.

Displaying the conference list

The **Conferences** page lists all the conferences that are configured on this TelePresence Server, regardless of their status (e.g. *Active* or *Inactive*).

Go to **Conferences** to access this list.

Conferences are sorted alphabetically by name by default. To change sort order, or sort the list by Status or Numeric ID instead, click the relevant column heading.

On this page you can:

- Add or delete pre-configured conferences.
- Click a conference name to display its status (for a pre-configured conference, you can also edit its configuration).
- Click the cog icon next to a conference name to display its configuration.

The list contains the following information for each conference:

Table 34 Conference list details

Field	Field description	Usage tips
Name	The name of the pre-configured conference.	Click the conference name to display conference status and participants.

Table 34 Conference list details (continued)

Field	Field description	Usage tips
Numeric ID	The numeric ID assigned to the conference.	This is the ID that the TelePresence Server uses to register the conference with a gatekeeper or registrar. The TelePresence Server will not attempt to register the ID with the gatekeeper unless the **Use gatekeeper** option is selected. This setting is on the **Configuration > H.323 settings** page. It will not try to register with a SIP registrar unless **Outbound call configuration** is set to *Use registrar*. This setting is on the **Configuration > SIP settings** page.
Status	The status of the conference: ■ *Scheduled* ■ *Enabled* ■ *Active* ■ *Permanent* ■ *Inactive* ■ *Completed* This field may also display warnings about the conference's configuration. A conference is considered *Active* if one of the following is true: ■ The conference has at least one participant ■ The conference has a numericID that is registered with the H.323 gatekeeper or SIP registrar Having a numeric ID alone is not enough for the conference to be considered active; if registration is disabled, a conference with a numeric ID is considered inactive unless it has at least one participant.	Conferences can be: ■ A *Scheduled* conference shows the scheduled start and end times. ■ An *Enabled* conference is one that an endpoint user can call into with a numeric ID to start the conference. It must have a numeric ID. Its status will change to *Active (<X> endpoints, <N> screens)* while there are active participants (or *Active (<X> endpoints)* if all endpoints are audio-only). ■ An *Active* conference may also display the number of participants and the scheduled end time. ■ If a status is appended with *Permanent* it means the conference has no configured end time. ■ An *Inactive* conference is one that is neither *Scheduled* nor *Enabled*. You can only start the conference from its **Status** or **Configuration** pages. ■ A *Completed* conference had a scheduled end time which has passed. The status may have additional information about the conference duration, and whether it is locked and for how long. For example, *Inactive - Due to end in 5 hours and 27 minutes [Locked - will be unlocked in 2 hours and 7 minutes]*. Conference configuration warnings examples that may display are: *[No participants allowed - all port limits 0], [Requires encryption, but encryption not supported]*, and so on.

Displaying conference status

A conference's **Status** page displays the live status of the conference. Go to **Conferences** then click a conference name to see the **Status** page.

From this page you can tell whether the conference:

- is active and how many endpoints are in the conference
- is registered to an H.323 gatekeeper or SIP registrar
- is locked
- has port limits, and what they are
- includes a content channel
- has participants and the status of each
- had previous participants and who they were

On the **Conference > *Conference Name* > Status** page you can:

- Click **Call endpoint** to invite participants to join this conference
- Click an endpoint name to see the endpoint's status or configure its individual settings.

For active conferences you can also:

- Select and then **Disconnect selected** participants
- **Disconnect all** participants, effectively ending the conference
- Send a message to one or all endpoints
- Click **More...** to see additional status information for a participating endpoint, or click **Expand all** to see this information for all active endpoints (see the following table for more details)

Conference status reference

Table 35 Status

Field	Field description	Usage tips
Status	The status of the conference: ■ *Scheduled* ■ *Enabled* ■ *Active* ■ *Inactive* ■ *Completed* This field may also display warnings about the conference's configuration.	Conferences can be: ■ *Active (<X> endpoints) - due to end <time>*: this conference is in progress and has a scheduled end time. ■ *Active - permanent*: this is a permanent conference which has past its start time but may or may not have any active participants. ■ *Inactive*: this conference is one that is neither *Scheduled* nor *Enabled*. You can only start the conference from its **Status** or **Configuration** pages. ■ *Enabled*: this conference is one that an endpoint user can call into with a numeric ID to start the conference. It must have a numeric ID. Its status will change to *Active (<X> endpoints, <N> screens)* while there are active participants (or *Active (<X> endpoints)* if all endpoints are audio-only). ■ *Completed*: this conference had a scheduled end time which has passed. The status may have additional information about the conference duration, and whether it is locked and for how long. For example, *Inactive - Due to end in 5 hours and 27 minutes [Locked - will be unlocked in 2 hours and 7 minutes]*. Conference configuration warnings examples that may display are: *[Duplicate numeric ID - not registered]*, *[No participants allowed - all port limits 0, [Requires encryption, but encryption not supported]*, and so on.
Numeric ID	The numeric ID assigned to this conference and an indication if it is PIN protected.	

Table 35 Status (continued)

Field	Field description	Usage tips
H.323 gatekeeper status	The status of a conference with respect to its H.323 gatekeeper.	One of: ■ *Numeric ID registered* ■ *Numeric ID failed to register* ■ *Not registered:* conference is not configured to register with the gatekeeper ■ *Registering*: conference is in the process of registering If the TelePresence Server can connect to an H.323 gatekeeper, the name and numeric ID of a conference can be registered with that gatekeeper as a different directory number (i.e. different to the one that the TelePresence Server is registered with). This allows H.323 users to dial directly into a particular conference. To configure a H.323 gatekeeper, go to **Configuration > H.323 settings**.
SIP registrar status	The status of a conference with respect to its SIP registrar.	One of: ■ *Numeric ID registered* ■ *Numeric ID failed to register* ■ *Numeric ID unable to register (registration settings not configured)* conference is configured to try and register but it cannot because the system's SIP call configuration is set to *Use trunk* or *Call direct* instead of *Use registrar* ■ *Not registered:* conference is not configured to register with the registrar ■ *Registering*: conference is in the process of registering If the TelePresence Server can connect to a SIP registrar, the name and numeric ID of a conference can be registered with that registrar as a different directory number (i.e. different to the one that the TelePresence Server is registered with). This allows users to dial directly into a particular conference. To configure a SIP registrar , go to **Configuration > SIP settings**.
Conference lock status	Indicates whether the conference is locked.	

Table 35 Status (continued)

Field	Field description	Usage tips
Port limits	Indicates whether the conference has port limits, and what those limits are.	
Content	Whether the content channel is currently in use.	One of: ■ *Disabled*: content sharing is disabled for the conference. To enable content for this conference, go to **Conferences > *conference name* > Configuration** ■ *No current presentation:* content sharing is enabled for the conference but there is no active contributor ■ *Presentation from <endpoint display name>*: there is an active contributor of content For more information, see Content channel support.
Enter/Leave OneTable mode	Allows you to force the conference's layout into or out of OneTable mode.	This option displays if there are three or four multi-screen endpoints in the conference supporting OneTable mode. It displays (with different options) for both values of **Use OneTable mode when appropriate**. Not all multi-screen endpoints support OneTable mode. See the endpoint interoperability reference for a list of supporting endpoints.

Table 36 All participants

Field	Field description	Usage tips
Endpoint	The names of the endpoints currently participating in the active conference.	If the conference is not active, this section shows *No endpoints*. To remove a participant from the conference: select the appropriate check box and select **Disconnect selected**. Click on the endpoint's name to go to its **Status** page.
Type	The endpoint type.	

Table 36 All participants (continued)

Field	Field description	Usage tips
Status	The status of the endpoint.	One of: ■ *Joining conference*: the endpoint is joining this conference ■ *In conference*: the endpoint is currently participating in this conference. ■ *Attempting to re-establish call*: the endpoint is busy and a retry is occurring. Additional status information may be displayed, for example, *xx failed to join* (grouped endpoints), *packet loss detected*, *video to muted*, *video from muted*, *video muted* (and the equivalent for audio), *important*, and *audio-only*. If a pre-configured endpoint is busy when the conference starts, the TelePresence Server will retry the endpoint up to five times throughout the conference and connect if and when it becomes free. The retry intervals are 5, 15, 30, 60 and 120 seconds.
More...	Click **More...** to see previews of the transmit and receive streams. You can also control the endpoint's contribution to the conference. Click **[Expand / Collapse All]** to show more status information for all endpoints in the list.	You can: mute  and unmute  audio mute  and unmute  video make a participant important (transmit stream only)  or unimportant 

Table 37 Previous participants

Field	Field description	Usage tips
Endpoint	The names of endpoints that were previously in this conference.	To reconnect participants to the conference: select the appropriate check boxes and select **Retry connection**. Click on the endpoint's name to go to its **Status** page.
Type	The endpoint type.	

Table 37 Previous participants (continued)

Field	Field description	Usage tips
Reason for disconnection	Why the endpoint is no longer part of the conference.	The TelePresence Server may have disconnected the endpoint for one of the following example reasons: ■ *requested by administrator*: the endpoint has been disconnected by an administrator. ■ *call rejected*: the far end rejected the call. ■ *left conference*: the endpoint has been disconnected at the end of a conference. ■ *requested via API*: the endpoint has been disconnected via the API. ■ *no answer*: the endpoint did not answer the call. ■ *busy*: the endpoint has failed to connect because it was busy (for SIP calls this could also mean that the endpoint rejected the call). ■ *gatekeeper error*: a gatekeeper error occurred whilst trying to establish call. ■ *destination unreachable* The endpoint was unreachable. ■ *DNS failure*: DNS lookup failed, or the H.323 gatekeeper could not find the alias requested. ■ *Encryption not supported by far end*: encryption required for the call but the far end does not support it or encryption forbidden for this call but far end requires encryption. ■ *timeout*: Connection timed out. ■ *insufficient free ports*: the endpoint has been disconnected because there are insufficient free ports. ■ *conference port limit reached*: the endpoint has been disconnected because the conference port limit has been reached. ■ *Conference locked*: the call could not connect to the conference as it is locked. ■ *Product not activated*: the call could not be made/accepted as there is no activation key installed on the TelePresence Server. ■ *Protocol error*: the endpoint has been disconnected due to a protocol error.

Table 37 Previous participants (continued)

Field	Field description	Usage tips
		■ *Network error*: the endpoint has been disconnected due to a network error. ■ *Unavailable*: the endpoint is unavailable. ■ *Capability negotiation error*: the endpoint and the TelePresence Server are unable to negotiate a mutually compatible call set up. ■ *Insufficient token allocation*: the token specification/allocation was not sufficient for TIP/MUX call. ■ *TIP/MUX negotiation failure*: the endpoint has been disconnected because TIP/MUX negotiation failed to complete successfully. ■ *No media received*: The TelePresence Server disconnected this endpoint because at least 30 seconds have passed since it unexpectedly stopped sending media. ■ *unspecified error*: the endpoint has disconnected, but the TelePresence Server does not know the reason.

Calling participants to join a conference

1. Go to the **Conference > Conference name > Status** page.
2. Click **Call endpoint** if you want to invite one or more participants to join.
3. The **Call endpoint** page displays.

   Here you can call endpoints that the TelePresence Server knows about as well as unknown endpoints.

Call known endpoints

The **Endpoints** list contains all the endpoints that are known to the TelePresence Server. This list may span more than one page, in which case there are links to all the pages near the bottom of each page.

1. Select the endpoints you want to call by checking the boxes next to the endpoint names.

   You can select all or clear all by checking the box in the heading row.
2. Click **Call selected**.

Call an unknown endpoint

If an endpoint you want to invite is not in the **Endpoints** list:

1. Enter its IP address, URI, or E.164 number in the **Address** field.
2. Select the **Call protocol** to use. (The default call out protocol is SIP.)

3. Check **Call direct** if necessary.

   You will have to enter the full IP address if you check this option. You should only need to do this if the endpoint is not registered with either the gatekeeper or registrar.
4. Select the **Bandwidth** you want to allow for this call, from 64 kbps up to 6 Mbps.
5. Enter a **Send DTMF** sequence if necessary.

   This is usually unnecessary. However, a DTMF sequence may be required by the endpoint, for example a numeric PIN, if so, enter the keypress sequence here.
6. Click **Call endpoint**.

Sending a message to participants

You can send a message to all endpoints in an active conference or to just one of the endpoints. The instructions to send the message are the same but you can access different pages to send the message:

- To send a message to one participant, go to **Conferences > *Conference Name* > Status** and click on the endpoint name under **All participants** to bring up the Endpoint status page. Then click **Send message**. (This method works on configured endpoints and unknown endpoints that are dialed directly by address.)
- To send a message to all participants: Go to **Conferences > *Conference Name* > Status** and click **Send message**.

The **Send message** page displays.

Note: Very long messages might not display properly on some screens so you should consider limiting your messages to a maximum of a few hundred characters.

On the **Send message** page:

1. Type your message in the **Message** field.
2. Click one of the nine radio buttons (the three by three grid labeled **Position**) to select where the message will display on the target system(s).
3. Enter a **Duration** (in seconds) for the message to stay on the endpoint screen(s).
4. Click **Send message**.

   The TelePresence Server displays your message on the screen(s) of the endpoint(s).

Adding a pre-configured participant

1. Go to **Conferences**.
2. Click the name of the conference whose configuration you want to use for this conference.
3. Go to **Configuration**.
4. Select pre-configured endpoints:
   a. Click **Add pre-configured participants**.
   b. Select the endpoints to be dialed and click **Update**.

Endpoints and endpoint groups

Displaying the list of endpoints

Go to **Endpoints** to display the list of endpoints. On this page you can view the list of pre-configured endpoints and endpoint groups. You can also edit endpoints and add new ones.

The term endpoints refers to the logical ends of a video conference and includes single- or multi-screen systems, immersive telepresence systems, Cisco CTS systems, endpoint groups and devices such as the Cisco TelePresence Content Server.

An endpoint group is a set of two or more endpoints that has one name and can be selected as the recipient of a call. The component endpoints are treated as one endpoint by the TelePresence Server.

Note: Multi-screen endpoints are not the same as endpoint groups. See Adding an endpoint group, page 67 for more about the differences.

When you pre-configure endpoints it is easier to add them to conferences; you can choose names from a list rather than manually entering names or addresses.

The interface displays the list in alphabetical order by default. Click on a column heading to order by that column instead.

On this page you can:

- See an endpoint's status or edit its settings; click on the endpoint name
- Add an endpoint; click **Add new endpoint**
- Add a legacy TIP endpoint; click **Add legacy TIP endpoint**
- Add an endpoint group (if activated); click **Add grouped endpoints**

  A feature key is required to activate the endpoint groups feature. The button only displays if the key is installed.
- Delete preconfigured endpoints; select the endpoints and click **Delete selected**.

Each item in the list has the following information:

Table 38 Endpoint list details

Field	Field description
Name	The name of the endpoint.

Table 38 Endpoint list details (continued)

Field	Field description
Type	The type of endpoint. The options are ■ *Standard* ■ *Group of N endpoints* ■ *Legacy TIP endpoint.*
Status	Whether the endpoint is in a conference and, if it is, the name of the conference.

Displaying endpoint and group status

The endpoint status is only available when the endpoint is part of an active conference in Remotely Managed mode. You can control the endpoint to some extent from here.

1. Go to **Endpoints**
2. Click on an endpoint or group name
3. Review or control the endpoint, with reference to the following table
4. Refresh the page in your browser to get the latest status.

Table 39 Endpoint-supplied information

Field	Field description	Usage tips
Country code/extension	These fields display information as returned by the endpoint. The details may not be supplied in a consistent manner between manufacturers.	This information is displayed after the endpoint has been connected for the first time (regardless of whether it is currently connected or not).
Manufacturer code		
Product		
Version		

Table 40 Status

Field	Field description	Usage tips
Connected to conference	Whether the endpoint is currently in a conference, and if so the name of the conference.	Click the conference name to go to the status page for that conference.
Call status	Whether the call is connected, and if so, if it is an incoming or outgoing call.	
Protocol	The protocol used in this call e.g. SIP.	
Endpoint advertised capabilities	The capabilities that the endpoint advertised when negotiating the call.	For example: Audio, Video, Video content, Encrypted traffic, Unencrypted traffic.

Table 40 Status (continued)

Field	Field description	Usage tips
Audio channels	Whether receive and transmit audio channels are open between the Cisco TelePresence Server and the far end.	
Video channels	Whether receive and transmit video channels are open between the Cisco TelePresence Server and the far end.	
Extended video channels	Whether receive and transmit extended video channels are open between the Cisco TelePresence Server and the far end.	
Received audio gain mode	The audio gain mode that is configured, on the endpoint, for audio received from the TelePresence Server. One of *<use default>*, *Automatic*, *Fixed*, or *Disabled*.	*<use default>*: This endpoint has inherited the Automatic Gain Control setting of the conference. *Automatic*: The TelePresence Server dynamically adjusts the gain of the audio received by this endpoint to approximate the levels received by the other participants. *Disabled*: Gain control is disabled for the audio received by this endpoint. *Fixed*: The TelePresence Server adjusts the endpoint's received audio by a fixed ratio. This is configured in the **Received audio gain** field on the endpoint's settings page.
Far end audio mute	Whether the audio from the far end has been muted by the remote device.	It is not reported for non-H.323 endpoints.
Bandwidth	The amount of network bandwidth used for this call's media in each direction.	For an endpoint group, this shows the bandwidth for each call rather than the total combined bandwidth.
Preview	Sample stills of the video stream (s).	The preview shows a still from each screen for both the receive stream and the transmit stream aligned under the appropriate direction and bandwidth used figure. You can click to refresh the preview.
Endpoint *X*	(Endpoint groups only) The connection status of each endpoint in an endpoint group.	
Duration	The time that the endpoint/endpoint group has been in this conference.	
Disconnect	Use this control to disconnect the endpoint or endpoint group from the conference.	

Table 40 Status (continued)

Field	Field description	Usage tips
Mute audio from / Unmute audio from	Use this control to start or stop muting audio from this endpoint. This changes whether other conference participants will be able to hear this endpoint.	
Mute audio to / Unmute audio to	Use this control to start or stop muting audio to this endpoint. If audio is muted *to* an endpoint, the endpoint will hear silence.	
Mute video from / Unmute video from	Use this control to start or stop muting video from this endpoint. This changes whether other conference participants will be able to see this endpoint.	
Mute video to / Unmute video to	Use this control to start or stop muting video to this endpoint. If video is muted *to* an endpoint, that endpoint will be sent blank video.	
Tidy view	Use this control to tidy the view layout being sent to this endpoint or endpoint group.	The TelePresence Server automatically centers the PiPs (pictures in picture) showing the video streams of other participants, and moves the PiPs between screens if doing so means it can display the PiPs slightly larger. This happens dynamically as participants join and leave the conference. Use the tidy view option if necessary to manually reset and center the participants' PiPs in the layout sent to this endpoint.
Send message	Click to send a message to the endpoint.The **Send message** page displays: 1. Enter your message, select its position on the target endpoint, and enter a duration (in seconds) for the message to display. 2. Click **Send message**.	

Adding an endpoint

1. Go to **Endpoints > Add new endpoint**.
2. Configure the endpoint with reference to the edit endpoint topic.

   Note: If you want to be able to call out to this endpoint from a conference, you must configure its **Call-out parameters**.
3. Click **Add new endpoint**.

Adding an endpoint group

You can configure individual endpoints to work as a single, immersive endpoint. To use this feature you must have the "Third party interop" feature key installed. You can install feature keys on the **Configuration > Upgrade** page. (See Upgrading and backing up the Cisco TelePresence Server.)

Note: A multi-screen endpoint is not the same as an endpoint group.

The TelePresence Server supports a maximum of 200 endpoints. Each member of an endpoint group counts as one endpoint towards this maximum, so a group could count as up to four endpoints, but a multi-screen endpoint only counts as one.

All group members will also share one of the endpoint's audio capabilities - unlike multi-screen endpoints which typically associate audio streams with video streams - which means that the TelePresence Server is unable to tell which camera is associated with the audio contribution. It cannot determine which camera is pointing at the person who is speaking, which in turn prevents the ActivePresence layout from working properly for grouped endpoints.

To add an endpoint group:

1. Go to **Endpoints > Add grouped endpoints**.
2. Enter the **Name** of the group and the addresses of its members. See the table below.
3. Click **Add grouped endpoints**.
4. Configure the endpoint group in the same way as you would configure an individual endpoint. Refer to the edit endpoint topic for details of the settings.

Endpoint group members

Table 41 Endpoint group settings

Field	Field description	Usage tips
Name	The name of the group.	
Comma-separated address list	The list of addresses to call out to when this group is in an active conference.	Enter a list of addresses separated by commas. **Note:** The order must be from left to right in terms of facing the endpoints' screens.
Call direct	Select this check box to call direct when calling this group.	

Adding a Legacy TIP endpoint

This feature only applies to a specific class of endpoints running particular versions of their operating software. Refer to the endpoint interoperability reference for details.

1. Go to **Endpoints > Add legacy TIP endpoint**.
2. Enter the **Name** and **Address** of the endpoint.

   This is the call-out address; the TelePresence Server uses this to place outgoing calls to the endpoint. For example, this may be the SIP URI of the endpoint.
3. Click **Add new endpoint**.
4. Configure the endpoint with reference to the settings in the edit endpoint topic.
5. Click **Update endpoint**.

Editing an endpoint's configuration

1. Go to **Endpoints**.
2. Click the name of the endpoint or group.
3. Go to **Configuration**.
4. Edit the configuration with reference to the following table.
5. Click **Update endpoint**.
6. You may also need to edit the advanced settings of the endpoint or group.

Endpoint settings reference

Note 1: Endpoints inherit the values for these settings from those defined in the TelePresence Server's **Configuration > Default endpoint settings** page. If you change a local setting to something other than the inherited value, the endpoint's local setting always takes precedence over the system-wide setting.

Note 2: Not all of these settings apply to all endpoint types or groups. These differences are detailed in the table.

Note 3: You can also change settings for endpoints currently in conferences by clicking the endpoint name on the conference status page, and accessing its configuration page from there.

Table 42 General settings

Field	Field description	Usage tips
Name	The name of the endpoint or endpoint group.	When you are updating an existing endpoint or endpoint group's configuration, its **Type** is also shown.
Type	The number of endpoints in the endpoint group is displayed.	The type of endpoint is shown in all cases. The **Type** field does not show when you are adding a new endpoint.
Display name override	The name that will be displayed in a conference as a label for this endpoint or group.	The name you enter here will override any default name configured on the endpoint. It will also override any other default name that might appear for an endpoint. For example, an endpoint's default name can be the name of the gateway through which the call was placed, or if the endpoint is called-in via a gatekeeper, its E.164 number.
Minimum screen layout	When choosing which conference layout to send to a participant the Cisco TelePresence Server takes into account the number of screens used by other participants in the conference.	For more information, see Understanding how participants display in layout views.

Table 42 General settings (continued)

Field	Field description	Usage tips
Received audio gain mode	Select how the audio gain on the stream from the TelePresence Server is controlled. One of *<use default>*, *Automatic*, *Disabled*, or *Fixed*.	*<use default>*: This endpoint will inherit the Automatic Gain Control setting of the conference, which means that AGC will either be enabled or disabled. *Automatic*: The TelePresence Server dynamically adjusts the gain of the audio received by this endpoint to approximate the levels received by the other participants. *Disabled*: Gain control is disabled for the audio received by this endpoint. *Fixed*: Adjusts the received audio by a fixed ratio, entered in dB in the **Received audio gain** field.
Received audio gain	This field is inactive unless you select *Fixed* for the **Received audio gain mode**. In *Fixed* mode, you can enter a decibel value by which to adjust the amplification of the incoming audio signal.	A fixed audio gain of between -12 dB and +12 dB (in 3 dB steps) is applied to the endpoint's incoming audio.
Transmitted audio gain	Adjusts the amplification of the outgoing audio signal.	A fixed audio gain of between -12 dB and +12 dB (in 3 dB steps) is applied to an endpoint's outgoing audio.
Allow stereo audio	Select from the drop-down list to *<use default>*, *disable* or *enable* to allow stereo audio in calls with compatible endpoints.	**Allow stereo audio** should be enabled by default. However, some endpoints do not support stereo echo cancellation and in some circumstances this can cause echo. If necessary, disable this option to prevent the use of stereo audio, either for a specific endpoint or by default.
Use *6 to mute audio	Determines whether this endpoint is allowed to Mute/Unmute with the *6 combination on its keypad.	Select <use default> to inherit the default selection for this setting, or override the default by selecting either Enable or Disable
Auto reconnect	Select from the drop-down list to *disable* or *enable* auto reconnect.	If Auto reconnect is enabled and you call out to an endpoint and it drops out from the conference because of a network problem the TelePresence Server will automatically try to reconnect. Note that it will not reconnect if the endpoint hangs up the call in a normal way.
Always reconnect	Enables or disables persistent automatic reconnection.	The TelePresence Server will always attempt to reconnect the endpoint, even after deliberate disconnection. **Note:** This feature is intended for reconnecting integrated systems and should not be used with user endpoints.
Defer connection	Enables or disables defered connection of this endpoint.	When enabled, the TelePresence Server will wait for other participants to join before automatically connecting this endpoint. When disabled, the TelePresence Server connects this endpoint as soon as the conference starts.
Auto disconnect	Enables or disables automatic disconnection of this endpoint.	When enabled, the TelePresence Server automatically disconnects this endpoint from the conference when other participants disconnect. When disabled, the participant either manually disconnects or persists until the conference ends.

Table 42 General settings (continued)

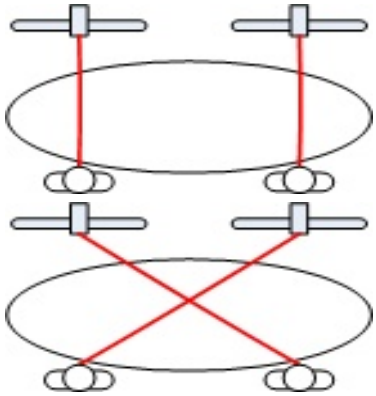
Field	Field description	Usage tips
Cameras are cross connected	Select this check box for endpoint groups whose outermost camera views cross. This option is only available for endpoint groups.	

Table 43 Call-out parameters

Field	Field description	Usage tips
Address	The IP address, host name, E.164 address, or URI of the endpoint.	The TelePresence Server uses this information to contact the endpoint when it invites the endpoint to join a conference. For H.323 calls, you can configure this endpoint or endpoint group as needing to be reached via an H.323 gateway. To do this, set this field to be *<gateway address>!<E.164>*.
Call protocol	Select either H.323 or SIP from the drop-down list.	Not applicable to TIP endpoints which always use SIP.
Call direct	Select this option to allow the TelePresence Server to call this endpoint directly, via its IP address, instead of using the H.323 gatekeeper or SIP registrar (or trunk).	If the box is unchecked, which is the default setting, the TelePresence Server attempts to call the endpoint via a gatekeeper, registrar or trunk (depending on the server-wide system settings and the protocol the endpoint uses). This option does not apply to legacy TIP endpoints, which must be called via a registrar or trunk.
Call-out DTMF	Enter a string of DTMF characters if required.	If the endpoint needs a sequence of tones after connection, the TelePresence Server will send the tones matching the string you enter. The TelePresence Server supports tones for the characters `0123456789ABCD*#` and inserts a two second pause for each comma in the string. The TelePresence Server ignores invalid ASCII characters but continues sending tones for valid DTMF characters until it reaches the end of the string. **Note**: On an endpoint group this field displays below **Transmitted audio gain**.

Table 44 Call-in match parameters

Field	Field description	Usage tips
Name	The name that the endpoint or endpoint group sends to the TelePresence Server.	These fields are used to identify incoming calls as being from the endpoint or endpoint group. The endpoint or endpoint group is recognized if any of this information matches the identification sent by the endpoint. The TelePresence Server ignores empty fields when it is trying to match the endpoint. When you configure ***Call-in match parameters***, an endpoint or endpoint group will be recognized as this pre-configured endpoint or endpoint group and the ***Initial status*** parameters will be applied to a call from this endpoint or endpoint group. **Note:** For CTS systems, Cisco recommends using the CTS directory number (DN) in the E.164 field.
Address	The IP address of the endpoint or endpoint group.	
E.164	For H.323 calls, the E.164 address with which the endpoint or endpoint group is registered with the gatekeeper. For SIP calls, the SIP username with which the endpoint or endpoint group is registered with the SIP registrar.	

Table 45 Initial status

Field	Field description	Usage tips
Audio from	Whether the initial audio from the endpoint or endpoint group is either *Active* or *Muted*.	If set to *Muted*, when the endpoint or endpoint group joins a conference, it will not be able to contribute audio to the conference. For example, you can mute audio from an endpoint or endpoint group if somebody wants to be seen in the conference, but does not want to contribute verbally. You can mute both audio and video if required. This can be altered during the course of the conference either in the endpoint's or endpoint group's status page, or from the relevant conference's status page.
Audio to	Whether the initial audio to this endpoint or endpoint group is either *Active* or *Muted*.	If set to *Muted*, when the endpoint or endpoint group joins a conference, the participant using this endpoint or endpoint group will not be able to hear the other participants. This can be altered during the course of the conference either in the endpoint's or endpoint group's status page, or from the relevant conference's status page.
Video from	Whether the initial video from this endpoint or endpoint group is either *Active* or *Muted*.	If set to *Muted*, when the endpoint or endpoint group joins a conference, it will not be able to contribute video to the conference. For example, you can mute video from an endpoint or endpoint group if somebody wants to see the conference, but not be seen themselves. You can mute both audio and video if required. This can be altered during the course of the conference either in the endpoint's or endpoint group's status page, or from the relevant conference's status page.
Video to	Whether the initial video to the endpoint or endpoint group is either *Active* or *Muted*.	If set to *Muted*, when the endpoint or endpoint group joins a conference, the participant using this endpoint or endpoint group will but not see the other participants, but will be seen themselves. This can be altered during the course of the conference either in the endpoint's or endpoint group's status page, or from the relevant conference's status page.

Table 46 Display parameters

Field	Field description	Usage tips
Display parameters	Clear the checkbox if you want to enable the grayed-out display parameters.	The checkbox is checked by default, which means the endpoint uses the TelePresence Server's default endpoint display parameters (on **Configuration > Default endpoint settings**). After clearing the box, any changes you make to the display parameters will apply to this endpoint only.
Full screen view	This option controls the conditions under which this endpoint will be displayed full screen. Select a setting from the drop-down list: ■ *Allowed*: The stream from a single-camera endpoint is allowed to display in a full screen pane when the conference is viewed on a multi-screen endpoint. ■ *Dynamic*: As for *Allowed* if there are no grouped endpoints to display on the multi-screen endpoint. When there are grouped endpoints to show on the multi-screen endpoint, the stream from a single-camera endpoint will be restricted to displaying as a smaller, continuous presence pane. ■ *Disabled*: The stream from a single-camera endpoint will never be shown as a full screen pane on a multi-screen endpoint.	This option is only available for single-camera endpoints. We recommend using the default setting, which is *Allowed*.
Show borders around endpoints	Select this option to show borders around participants displayed in the conference view on this endpoint or endpoint group.	For more information, see Understanding how participants display in layout views.
Show endpoint names as panel labels	If you select this option, the Cisco TelePresence Server will label view panes in the conference layout sent to this endpoint or endpoint group with the names of the participants shown in those panes.	Disabled by default.
Self view	If this option is not selected, the Cisco TelePresence Server will never show the video stream sent from this endpoint or endpoint group to the participants using this endpoint or endpoint group i.e. they will not see themselves.	For more information, see Understanding how participants display in layout views.

Table 46 Display parameters (continued)

Field	Field description	Usage tips
Default layout type for single-screen endpoints	This option controls the default layout single-screen endpoints see when they connect. Select a setting from the drop-down list to be used as the default: ■ *Single*: Endpoints will be shown in one full screen pane. ■ *ActivePresence*: Endpoints will be shown in one full screen pane with additional participants appearing in up to nine equally sized overlaid panes at the bottom of the screen. ■ *Prominent*: Endpoints will be shown in one large pane with additional participants appearing in up to four equally sized panes at the bottom of the screen. ■ *Equal*: Endpoints will be shown in a grid pattern of equally sized panes on the screen, up to 4x4.	The default setting is *ActivePresence*. Participants can change their layout using Far End Camera Control, DTMF keys 2 and 8, or ActiveControl if supported in the deployment. **Note**: multiscreen endpoints without loudest pane information will be composed into a single pane in the main pane, or replaced with the grouped endpoint placeholder in the pip strip. See the endpoint interoperability reference for a list of the multi-screen systems that reveal the loudest panel information.
Default layout type for multi-screen endpoints	This option controls the default layout multi-screen endpoints see when they connect. Select a setting from the drop-down list to be used as the default: ■ *Single (Full screen)*: Endpoints will be shown in full screen panes. A single participant displays per screen. ■ *ActivePresence*: Endpoints will always be shown in full screen panes with additional participants appearing in up to six equally sized overlaid panes at the bottom of each screen (up to four panes for 2 and 4 screen endpoints).	Participants can change their layout using Far End Camera Control or via DTMF keys 2 and 8, or ActiveControl if supported in the deployment. The default is *ActivePresence*.
Force default layout	This option forces the default layout. The default setting is disabled.	

Table 47 Content parameters

Field	Field description	Usage tips
Content Video contribution	Whether this endpoint or endpoint group is permitted to contribute content to the conference via content channel.	To use the content channel, the content channel must be enabled for the conference in its configuration page.

Table 47 Content parameters (continued)

Field	Field description	Usage tips
Allow content in main video	Whether the Cisco TelePresence Server should send content channel video to this endpoint in its main video channel if it is not able to receive a separate video channel.	This option is only available for standard single-screen endpoints. This option can be configured to match the Cisco TelePresence Server system settings (**Configuration > System settings**) or to be specifically *Enabled* or *Disabled* just for this endpoint.

Configuring endpoints and groups advanced settings

1. Go to **Endpoints**
2. Click the endpoint or group name
3. Go to **Advanced settings**
4. Configure the advanced settings with reference to the following table
5. Click **Update endpoint**.

Note: These settings override the settings from the **Default endpoint settings** page.

Table 48 Video settings

Field	Field description	Usage tips
Video format	The format to be transmitted by the TelePresence Server to an endpoint or endpoint group. Select a setting from the drop-down list: ■ *PAL - 25fps*: The TelePresence Server will transmit video at 25 frames per second (or a fraction or multiple of 25, for example: 50 or 12.5fps) ■ *NTSC - 30 fps*: The TelePresence Server will transmit video at 30 frames per second (or a multiple or fraction of 30, for example: 60 or 15fps)	NTSC is typically used in North America, while PAL is typically used in the UK and Europe.

Table 48 Video settings (continued)

Field	Field description	Usage tips
Transmitted video resolutions	The setting for transmitted video resolutions from the Cisco TelePresence Server to this endpoint or endpoint group. Select a setting from the drop-down list: ■ *4:3 resolutions only* ■ *16:9 resolutions only* ■ *Allow all resolutions*	Endpoints advertise the resolutions that they are able to display. The TelePresence Server then chooses the resolution that it will use to transmit video from those advertised resolutions. However, some endpoints do not display widescreen resolutions optimally. Therefore, you might want to use this setting to restrict the resolutions available to the TelePresence Server for transmissions to this endpoint or endpoint group. (4:3 and 16:9 are the preferred options—avoid using *Allow all resolutions* if possible.)
Motion / sharpness trade off	This setting controls the preference for which resolutions the TelePresence Server will transmit to the endpoint for motion (frames per second) and sharpness (frame size or resolution). The setting controls how the TelePresence Server will determine its preference of the settings to be used. Select a setting from the drop-down list to be used: ■ *Favor motion*: the TelePresence Server will try and use a high frame rate. That is, the TelePresence Server will strongly favor a resolution of at least 25 frames per second ■ *Balanced*: the TelePresence Server will select settings that balance resolution and frame rate (where the frame rate will not be less than 12 frames per second) ■ *Favor sharpness*: the TelePresence Server will use the highest resolution that is appropriate for what is being viewed	

Table 49 Network settings

Field	Field description	Usage tips
Default bandwidth (both to and from the endpoint)	The maximum network capacity used by the media channels established by the TelePresence Server to and from this endpoint or endpoint group.	When the TelePresence Server makes a call to an endpoint, it chooses the maximum bandwidth that is allowed to be used for the media channels which comprise that call. This field sets that maximum bandwidth, and is the total bandwidth of the audio, video, and content channels combined. The bandwidth available may also be limited by the configuration of the endpoint or other devices through which the call passes. This setting overwrites (for this endpoint) the **Default bandwidth (both to and from the server)** setting made for all endpoints on the **Configuration > Default endpoint settings** page.
Maximum transmitted video packet size	Sets the maximum size (bytes) of video packets sent by the TelePresence Server, including IP headers. **Note:** In TelePresence Server 3.1 and earlier versions, this setting did not include IP headers. When upgrading to 4.0, the TelePresence Server retains the previous setting which effectively reduces the maximum video data size by the size of the IP headers. If you want to set the maximum possible size for the video packets, use 1428 for an IPv4 network or 1448 for an IPv6 network.	This setting overrides the corresponding setting on the Default endpoint settings page. Video streams generally contain packets of different lengths. This parameter only sets the *maximum* size of the packet. The TelePresence Server optimally splits the video stream into payloads of this size or smaller, and most will not reach this maximum size. We recommend using the default (1400), or higher, unless there is a known packet size restriction in the path. This allows the TelePresence Server to make the most efficient use of the available bandwidth. If the packets are too large for a network that requires a smaller maximum transmission unit (MTU), network elements may fragment and reintegrate the packets which can impair performance.

Table 50 Optimization settings

Field	Field description	Usage tips
Optimization	Clear the checkbox if you want to enable the grayed-out Optimization settings.	The checkbox is checked by default, which means the endpoint uses the TelePresence Server's default endpoint optimization parameters (on **Configuration > Default endpoint settings**). After clearing the box, any changes you make to the optimization parameters will apply to this endpoint only.

Table 50 Optimization settings (continued)

Field	Field description	Usage tips
Received video: flow control on video errors	Allows the TelePresence Server to request that the endpoint or endpoint group send lower speed video if it fails to receive all the packets which comprise the far end's video stream. Note that flow control is only supported for some endpoints.	The TelePresence Server can send these messages to endpoints requesting that the bandwidth of the video that they are sending be decreased based on the quality of video received by the TelePresence Server. If there is a bandwidth limitation in the path between the endpoint/endpoint group and the TelePresence Server, it is better for the TelePresence Server to receive every packet of a lower rate stream than to miss some packets of a higher rate stream.
Received video: flow control based on viewed size	Allows the TelePresence Server to request that the endpoint or endpoint group send lower speed video if the use of the video from that endpoint does not require as high a speed as the channel allows. Note that flow control is only supported for some endpoints.	Typically the TelePresence Server would send a flow control message because of this setting if the video from that endpoint was not being seen by other conference participants.
Video transmit size optimization	Selecting this check box allows the TelePresence Server to vary the resolution, or resolution and codec, of the video being sent to a remote endpoint within the video channel established to that endpoint. Select a setting from the drop-down list: ■ *None*: Do not allow video size to be changed during transmission ■ *Dynamic resolution only*: Allow video size to be optimized during transmission ■ *Dynamic codec and resolution*: Allow video size to be optimized during transmission and/or dynamic codec selection	With this option enabled, the TelePresence Server can, for instance, decide to send CIF video within a 4CIF channel if this will increase the viewed video quality. The circumstances under which decreasing the video resolution can improve the video quality include: ■ if the original size of the viewed video is smaller than the outgoing channel ■ if the remote endpoint has used flow control commands to reduce the bandwidth of the TelePresence Server video transmission Typically, lowering the resolution means that the TelePresence Server can transmit video at a higher frame-rate.

Table 51 Audio settings

Field	Field description	Usage tips
Screen receiving/transmitting audio	(For grouped endpoints only) Select the member endpoint that will contribute and receive the audio channel when this endpoint group is in a conference. Click **Update endpoint**.	

Table 52 Content settings

Field	Field description	Usage tips
Screen receiving/transmitting content	(For grouped endpoints only) Select the member endpoint that will contribute and receive the content channel when this endpoint group is in a conference. Click **Update endpoint**.	For more information about the content channel, see Content channel video support.

Viewing endpoint or endpoint group statistics

1. Go to **Endpoints**.
2. Click on the endpoint or group name. The endpoint's **Status** page displays.
3. Click **Statistics** to view the **Endpoint Statistics** page.

   The information is displayed in up to four sections: **Audio**, **Auxiliary audio**, **Video**, and **Content channel**.

   The statistics for each channel are grouped into two lists; **Receive stream** statistics and **Transmit stream** statistics.
4. The data automatically updates every 3 seconds. However, you can also manually update the data by refreshing the page in your browser, or click **Refresh**, to get the latest statistics.

For multiscreen endpoints you are directed to the **Multiscreen Stream Selection** page. Select the desired stream to go to the **Endpoint Statistics** page where you will see data for all the streams associated with that channel.

Table 53 Receive stream statistics

Field	Field description
Receive stream	The codec used in the received stream. For video and content channels, this also shows the dimensions of the video stream.
Encryption	Whether this stream is encrypted.
Channel bit rate	The negotiated available bandwidth for the endpoint to send audio/video/content to the Cisco TelePresence Server.
Receive bit rate	This field applies to the Video and Content channel receive streams only. It is the bit rate (in bits per second) that the Cisco TelePresence Server has requested the endpoint sends. The most-recently measured bit rate displays in parentheses.
Received jitter	Represents the variation in timing between packets on this channel when they arrive at the Cisco TelePresence Server. Smaller numbers mean that the packets are arriving more predictably.
Receive energy	This field applies to the audio receive stream only and is a measure of the audio signal strength. The units are in millidecibels, with bigger negative numbers like -34000 being very quiet and negative numbers closer to zero being louder.
Packets received / errors	The number of audio/video/content packets that have been received by the Cisco TelePresence Server. The second number indicates the audio/video/content packet-level errors, for example, sequence discontinuities or incorrect RTP details. This is not the same as packets in which the video (the actual video data) is somehow in error.
Packets total / missing	The number of audio packets destined for the Cisco TelePresence Server from this endpoint. The second number indicates the number of packets that have been received but are corrupt.

Table 53 Receive stream statistics (continued)

Field	Field description
Frames received / errors	The frame rate of the audio/video/content stream currently being sent to the endpoint and the number of frames with errors versus the total number of audio/video/content frames received.
Frame rate	This field applies to the video and content receive streams. It is the number of frames per second in the transmitted / received streams between the endpoint and the TelePresence Server.
Fast update requests sent	The number of fast update requests (FURs) sent by the TelePresence Server on this channel. For example, if packets are lost, the TelePresence Server sends a FUR to the endpoint.
ClearPath FEC	Statistics on the Forward Error Correction (FEC) used in this stream. The value is *Not supported* if the endpoint cannot apply FEC to the stream, or cannot negotiate ActiveControl with the TelePresence Server. Otherwise, there are two statistics: the percentage overhead and the number of packets recovered. The percentage overhead measures how many FEC packets are inserted compared to the original stream. If the endpoint inserts a copy of every packet in the stream, the overhead is 100%. If the endpoint inserts a copy of every second packet, the overhead is 50%, and for every fourth packet, 25%. The real statistics will not always perfectly match these levels, owing to the counting interval and timing of RTCP reports. The number of packets recovered is a simple count of packets recovered by the TelePresence Server from the endpoint's FEC packets because the originals were lost.
ClearPath LTRF	Reports *N repair frames received* if LTRF (Long Term Reference Frames) is enabled. This indicates the number of times LTRF has been used in the stream.

Table 54 Transmit stream statistics

Field	Field description
Transmit stream	The codec used in the transmitted stream. For video and content channels, this also shows the dimensions of the video stream.
Encryption	Whether this stream is encrypted.
Channel bit rate	The negotiated available bandwidth for the Cisco TelePresence Server to send audio/video/content to the endpoint.
Transmit bit rate	This field applies to the video and content transmit streams only and is the bit rate the Cisco TelePresence Server is attempting to send at this moment. The actual bit rate, which is simply the measured rate of video data leaving the Cisco TelePresence Server, displays in parentheses.
Packets sent / reported lost	The number of audio/video/content packets destined for the endpoint. The second number is the number of those packets that the endpoint did not receive, as reported by the endpoint.
Frame rate	This field applies to video and content streams. It is the number of frames per second in the transmitted / received streams between the endpoint and the TelePresence Server.

Table 54 Transmit stream statistics (continued)

Field	Field description
Fast update requests received	The number of fast update requests (FURs) received by the TelePresence Server on this channel from the endpoint.
ClearPath FEC	Statistics on the Forward Error Correction used in this stream. There are two statistics: the percentage overhead and the number of packets reported recovered. The percentage overhead measures how many FEC packets are inserted compared to the original stream. If the TelePresence Server inserts a copy of every packet in the stream, the overhead is 100%. If the TelePresence Server inserts a copy of every second packet, the overhead is 50%, and for every fourth packet, 25%. If the TelePresence Server is not currently applying FEC to this stream, then the overhead is 0%. The figure is the number of packets reported recovered by the endpoint from the TelePresence Server's FEC packets because the originals were lost.
ClearPath LTRF	Whether Long Term Reference Frames are used in this stream. The value is *Not supported* if the endpoint cannot negotiate ActiveControl with the TelePresence Server. Otherwise, the value is *Enabled*, which means that LTRFs are sent to the endpoint and can be used if necessary.

Users

Displaying the user list

The **Users** page provides an overview of all the user accounts that exist on the TelePresence Server.

Table 55 User list details

Field	Field description
User ID	The user name needed to access the web interface of the TelePresence Server. You can enter text in whichever character set you require, however, note that some clients do not support Unicode characters.
Name	The name of the user (optional, so may not be present).
Access rights	The role and associated permissions granted to this user. There are three levels: *Administrator*, *API access*, and *None*. *None*: this user is locked out of the TelePresence Server. *API access*: this user may run API commands at this TelePresence Server's XML-RPC interface. *Administrator*: has API access and administrative access to the web interface.

Deleting users

Select the users and then click **Delete selected users**. You cannot delete the *admin* user.

Adding and updating users

You can add, edit, and delete user accounts on the TelePresence Server by accessing the list of users (go to **Users**.)

Most of the information that you use when adding or editing user accounts is identical; any differences are explained in the following reference table.

Adding a user

1. Go to **Users**.
2. Click **Add new user**.
3. Supply the user account details, referring to the following table if necessary.
4. Click **Add user**.

Updating a user

1. Go to **Users**.
2. Click a User ID.
3. Modify the user account details, referring to the following table if necessary.
4. Click **Modify user**.
5. If you need to change the password, click **Change password**.

User details reference

Table 56 User details

Field	Field description	More information
User ID	Identifies the log-in name or ID number of the user. This value is the username required to access the TelePresence Server.	Although you can enter text in whichever character set you require, note that some clients do not support Unicode characters. **Note:** The TelePresence Server's console cannot accept all Unicode characters. Accounts used for console access are limited to ASCII characters for username and password.
Name	The name of the user.	Optional.
Password	Type a password for this user.	Although you can enter text in whichever character set you require, note that some clients do not support Unicode characters.
Re-enter password	Retype the password.	The password entry fields are only active by default when you add a new user. If you are updating an existing user, click **Change password** to enable editing in these fields.
Access rights	Choose a role for the user from the dropdown. The roles grant permissions as follows: *None*: this user is locked out of the TelePresence Server. *API access*: this user may run API commands at this TelePresence Server's XML-RPC interface. *Administrator*: has API access and administrative access to the web interface.	

Logs

Working with the event logs

If you are experiencing complex issues that require advanced troubleshooting, you may need to collect information from the TelePresence Server logs. Typically, you will be working with customer support who can help you obtain these logs.

Event log

The TelePresence Server stores the 2000 most recently captured messages generated by its sub-systems. It displays these on the **Event log** page (**Logs > Event log**). In general these messages are provided for information, and occasionally *Warnings* or *Errors* may be shown in the Event log.

Customer support can interpret logged messages and their significance for you if you are experiencing a specific problem with the operation or performance of your TelePresence Server.

You can:

- Click the column headers to sort the events.
- Click the page numbers to jump through the displayed log in steps of 100 events.
- Download all the system logs in a single zip file: click **Download system logs**.
- Download the event log as text: go to **Logs > Event log** and click **Download event log**.
- Change the parameters of the display to limit the information to your area of interest (**Logs > Event display filter**).
- Change the level of detail collected in the traces by editing the **Logs > Event capture filter** page.

Note: Only modify the event capture filter if instructed to do so by customer support. Modifying these settings can impair the performance of your TelePresence Server.

- Send the event log to one or more syslog servers on the network for storage or analysis. The servers are defined in the **Logs > Syslog** page.
- Empty the log by clicking **Clear event log**.

Event capture filter

The event capture filter defines which events the TelePresence Server will keep in the log. By default this filter is configured to capture *Errors, warnings and information* from all the TelePresence Server sub-systems.

Note: Only modify this filter if doing so with advice from Customer Support.

For example, when troubleshooting a TelePresence Server issue, a support representative may ask you to capture detailed trace for the video sub-system:

1. Go to **Logs > Event capture filter**.
2. Select *Detailed trace* from the **VIDEO** drop-down list.

   The TelePresence Server warns you that performance may be affected.
3. Click **OK** (this is a temporary elevation in detail that you can reverse after your issue is resolved).
4. Click **Update settings**.

   The TelePresence Server will capture detailed trace information from the video sub-system, as well as the default information for all other sub-systems.

Event display filter

You can use the event display filter to view a subset of the event log or highlight particular entries. This filter works on stored entries, it does not affect which events are captured.

To modify the event display filter, go to **Logs > Event display filter**.

Message text filtering

1. Enter a **Filter string** to display only the stored events that contain that string.
2. Enter a **Highlight string** if you want to easily see the string within the filtered results.
3. Click **Update display**.

   The TelePresence Server displays the filtered and highlighted event log.

Current display levels

There are many sub-systems of the TelePresence Server which can all log events. You can modify the level of detail you want to see for each sub-system or for all sub-systems.

For example, if you were only interested in SIP errors:

1. Scroll to the bottom of the page where you can see the **Set all to:** button and the dropdown next to it.
2. Select *None* on the dropdown.
3. Click **Set all to:**.

   The display level changes to *None* for all sub-systems.
4. Select *Errors only* from the dropdown next to the SIP sub-system.
5. Click **Update settings**.

   The TelePresence Server displays only SIP errors.

Logging protocols messages

The **Protocols log** page records the messages received by or transmitted from the TelePresence Server for a variety of protocols.

Protocols logging is disabled by default because the volume of messages affects performance, but Customer Support may ask you to enable it to assist in troubleshooting.

If you wish to start logging protocols messages:

1. Select which protocols you wish to log.
2. Click **Enable protocols logging** to start recording these protocol messages.
3. Perform the tests required to reproduce the issue you are trying to resolve.
4. Click **Download as XML** to get the log as an XML file to send to support.

When you are satisfied that the issue is resolved, you should click **Disable protocols logging** and then **Clear log** to avoid impacting the performance of the unit in future.

Field	Description
Current status	*Enabled* or *Disabled*. *Disabled* by default.
Messages logged	Count of messages logged.
Protocol filters	■ *BFCP* ■ *H.323* ■ *SIP* ■ *XCCP* Check the boxes for the protocol messages you want to capture. These are capture filters, not display filters; when you uncheck a protocol and then enable protocols logging, the TelePresence Server does not capture any messages for the unchecked protocols. You cannot change which protocols are logged while logging is enabled. If you want to change the capture filters, disable logging, change the checkboxes, then enable logging again.

Remote logging of protocols messages

The protocols log is available over HTTP or HTTPS, thus allowing the log to be recorded to a remote device. The setting to enable or disable protocols logging does not disable sending the log to a remote device. A maximum of two simultaneous log streams are available at any time.

If you wish to start logging protocols messages to a remote device:

1. Send an HTTP POST request from the remote device to `http[s]://<ip address>/protocols_log_stream`. This POST request must include the following valid user and password parameters: `authenticationUser=username&authenticationPassword=password`.

   The following is an example using wget (for a Linux system):
   `wget https://<IP address>/protocols_log_stream --post-data=authenticationUser=username&authenticationPassword=password`

   (Users with API-only permissions are considered valid.)

2. The entire contents of the protocols log is then streamed back to the remote device using this TCP connection. The log stream continues until the remote device breaks the TCP connection.

Logging using syslog

You can send the Event log to one or more syslog servers on the network for storage or analysis.

To configure the syslog facility, go to **Logs > Syslog**.

Syslog settings

Refer to this table for assistance when configuring Syslog settings:

Table 57 Syslog settings

Field	Field description	Usage tips
Host address 1 to 4	Enter the IP addresses of up to four Syslog receiver hosts.	The number of packets sent to each configured host will be displayed next to its IP address.
Facility value	A configurable value for the purposes of identifying events from the Cisco TelePresence Server on the Syslog host. Choose from the following options: ■ *0 – kernel messages* ■ *1 – user-level messages* ■ *2 – mail system* ■ *3 – system daemons* ■ *4 – security/authorization messages (see Note 1)* ■ *5 – messages generated internally by syslogd* ■ *6 – line printer subsystem* ■ *7 – network news subsystem* ■ *8 – UUCP subsystem* ■ *9 – clock daemon (see Note 2)* ■ *10 – security/authorization messages (see Note 1)* ■ *11 – FTP daemon* ■ *12 – NTP subsystem* ■ *13 – log audit (see Note 1)* ■ *14 – log alert (see Note 1)* ■ *15 – clock daemon (see Note 2)* ■ *16 – local use 0 (local0)* ■ *17 – local use 1 (local1)* ■ *18 – local use 2 (local2)* ■ *19 – local use 3 (local3)* ■ *20 – local use 4 (local4)* ■ *21 – local use 5 (local5)* ■ *22 – local use 6 (local6)* ■ *23 – local use 7 (local7)*	Choose a value that you will remember as being the Cisco TelePresence Server. **Note 1:** Various operating system daemons and processes utilize Facilities 4, 10, 13 and 14 for security/authorization, audit and alert messages which seem to be similar. **Note 2:** Various operating systems utilize both Facilities 9 and 15 for clock (cron/at) messages. Processes and daemons that have not been explicitly assigned a Facility value may use any of the "local use" facilities (16 to 21) or they may use the "user-level" facility (1) – and Cisco recommend that you select one of these values.

Using syslog

The events that are forwarded to the syslog receiver hosts are controlled by the event log capture filter.

To define a syslog server, enter its IP address and then click **Update syslog settings**. The number of packets sent to each configured host is displayed next to its IP address.

Note: Each event will have a severity indicator as follows:

- 0 - Emergency: system is unusable (unused by the Cisco TelePresence Server)
- 1 - Alert: action must be taken immediately (unused by the Cisco TelePresence Server)
- 2 - Critical: critical conditions (unused by the Cisco TelePresence Server)
- 3 - Error: error conditions (used by Cisco TelePresence Server *error* events)
- 4 - Warning: warning conditions (used by Cisco TelePresence Server *warning* events)
- 5 - Notice: normal but significant condition (used by Cisco TelePresence Server *info* events)
- 6 - Informational: informational messages (used by Cisco TelePresence Server *trace* events)
- 7 - Debug: debug-level messages (used by Cisco TelePresence Server *detailed trace* events)

Working with Call Detail Records

The TelePresence Server web interface can display up to 1000 Call Detail Records. However, the TelePresence Server is not intended to provide long-term storage of Call Detail Records. If you wish to retain CDR logs, you must download them and store them elsewhere.

When the CDR log is full, the oldest logs are overwritten.

Note: The TelePresence Server can store up to 2000 Call Detail Records and these can be viewed by downloading the XML. See below.

To view and control the CDR log, go to **Logs > CDR log**. Refer to the tables below for details of the options available and a description of the information displayed.

- Call Detail Record Log Controls, page 87
- Call Detail Record Log, page 88

Call Detail Record Log Controls

The CDR log can contain a lot of information. The controls in this section help you to select the information for display that you find most useful. When you have finished making changes, click **Update display** to make those changes take effect. Refer to the table below for a description of the options:

Table 58 Status and display

Field	Field description	Usage tips
Messages logged	The current number of CDRs in the log.	
Filter records	The list of CDR record types that the TelePresence Server logs.	Leave the boxes blank to display all records, or check the boxes of the record types you are interested in.
Filter string	Use this field to limit the scope of the displayed Call Detail Records. The filter string is not case-sensitive.	The filter string applies to the **Message** field in the log display. If a particular record has expanded details, the filter string will apply to these as well.
Expand details	By default, the CDR log shows only brief details of each event. When available, select from the options listed to display more details.	Selecting *All* will show the greatest amount of detail for all messages, regardless of which other options are selected.

Call Detail Record Log

The Call Detail Record log displays as a long table on a single page and includes up to 1000 rows. In addition to the filtering described above, you can navigate the log in the following ways:

- To sort ascending or descending by any of the columns, click the column header.
- To filter the log for all records related to a particular conference or participant GUID, click the GUID (click **Show all** to reverse this filter).

Click **Download as XML** to process the log in your text editor, archive it for future reference, or view up to 2000 Call Detail Records. This button *downloads all the records* currently stored; it ignores any display filters you have set on the web page.

Note: Avoid downloading CDR logs when the unit is under heavy load; performance may be impaired.

Click **Clear all records** to empty the log memory.

Caution: **Clear all records** *permanently removes all records* from the TelePresence Server. You cannot retrieve cleared records.

CDR Log Reference

The following table describes the fields in the CDR log:

Table 59 CDR log details

Field	Field description	Usage tips
# (record number)	The unique index number for this Call Detail Record.	
Time	The time at which the Call Detail Record was created.	Records are created as different conference events occur. The time the record was created is the time that the event occurred. Incoming CDR log events are stored with the local time stamp (not UTC). Changing the time (either by changing the system time or via an NTP update) causes new events in the CDR log to show the new time. No change will be made to the timestamp of existing records.
Conference	The GUID of the conference to which this record applies.	Each new conference is created with a globally unique identifier (GUID). All records relating to a particular conference display this identifier, which can make auditing conference events much simpler. Click the GUID to see only those records that relate to this conference.
Participant	The GUID of the participant to which this record applies.	Each participant is represented by a globally unique identifier (GUID), which can simplify your record management. Click the GUID to see only those records that pertain to this participant.

Table 59 CDR log details (continued)

Field	Field description	Usage tips
Message	The type of the Call Detail Record, and brief details, if available.	Click **>>** to expand the details of all messages of this type. You can do this for all messages by selecting *All* and clicking **Update display**, which can be useful in combination with the **Filter string** to find records where the message contains a particular word.

API clients

The TelePresence Server logs the ten most recent API clients that have made requests to the unit. To see this list, click **Logs > API clients**.

Clients that have not made an API request for more than five minutes will appear greyed out.

Click **Refresh** to update the list of API clients. To clear all data, click **Reset statistics**. This clears the current list of API clients. As clients send new commands, they will reappear in this list.

By default the page is sorted by the **Time since last request** column.

Table 60 API client details

Field	Field description	Usage tips
Client IP	The IP address of the client sending the request.	
Time since last request	The time since the last request was sent by that client.	
Last request method	The last API request method sent by that API client.	
Last request user	The username that the client used in their API request.	Clients whose last API request failed authentication will be flagged up here with *(authentication failed)*.
Requests received since last reset	The number of requests received since the last reset.	If more than one request is received per second then the average number of requests per second is displayed in (). The current threshold is 1.8 requests per second. 'Overactive' clients are only flagged up if they are currently communicating with the TelePresence Server. The elapsed time since the last reset is shown below the table, beside the buttons.

Feedback receivers

The TelePresence Server publishes feedback events so that any receivers listening to it can take action when something changes. To see the list of feedback receivers, click **Logs > Feedback receivers**.

You can clear all configured feedback receivers by clicking **Delete all**. You cannot undo this action.

Each receiver in the list has the following details:

Table 61 Feedback receiver details

Field	Field description	Usage tips
Index	The position of the receiver in the list of receivers.	
Receiver URI	The fully qualified URI of the receiver.	The receiver may be a software application, for example Cisco TelePresence Management Suite, that can respond to the feedback events with an appropriate API call to retrieve the list of changes from the feedback source.

Using Call Home

Note: The TelePresence Server currently only supports anonymous reporting.

The TelePresence Server can submit reports about its status and any faults that it has experienced to the Cisco Call Home service. The TelePresence Server always uses a secure connection (HTTPS) to transmit reports to Call Home.

When Call Home is disabled (default setting), the device will not send a report of any type until you select a **Call Home mode**. When you have enabled Call Home, you can manually submit a report or configure the feature to work automatically.

When you use *Anonymous Call Home*, you will not be able to view anonymously submitted reports; they are only available to Cisco engineers and are only used to diagnose potential issues.

Note: If you have any questions about a Call Home report please contact Cisco TAC.

After choosing the Call Home mode *anonymous*, you can check **Automatic Call Home enabled** if you want the TelePresence Server to automatically submit reports. The device sends any pending reports as soon as you apply this change. After that, it will automatically send diagnostic reports about any unexpected device restarts or media resource restarts without further manual intervention.

If you prefer not to use automatic Call Home, you can click **Call Home now** to manually send reports at any time.

The *Device inventory* report is always available; its presence does not indicate any special condition or fault. If automatic Call Home is enabled, the TelePresence Server always sends these reports on startup.

To configure Call Home:

1. Go to **Logs > Call Home**.
   The **Status** section shows whether this feature is enabled and what reports are currently available.
2. Select the **Call Home mode,** *Anonymous Call Home*.
3. (Optional) Check **Automatic Call Home enabled** if you want the TelePresence Server to submit reports without manual intervention.
4. Click **Apply changes**.
   A dialog displays asking **Are you sure you want to apply configuration changes?**
5. Click **OK** to proceed or **Cancel** to abandon the configuration changes.
   If Automatic Call Home is enabled, the TelePresence Server sends any pending reports now.
6. (Optional) Click **Call Home now** to manually submit the **Current reports**

Table 62 Status fields

Field	Description

Table 62 Status fields (continued)

Call Home status	Indicates the Call Home status as one of: ■ *Automatic – Anonymous Call Home* – **Call Home mode** is enabled and **Automatic Call Home enabled** is checked. ■ *Enabled – Anonymous Call Home* – **Call Home mode** is enabled and **Automatic Call Home enabled** is unchecked. ■ *Disabled* (default) On start up, if **Call Home mode** is disabled, the TelePresence Server logs this in the event log during start up. The TelePresence Server also logs a message if **Call Home mode** is enabled (*Anonymous Call Home*) but is not configured to automatically submit reports.
Current reports	A list of available reports.
Submission status	Indicates the status of the latest reports submission, including date and time. Status is *Not sent* if no reports have been submitted.
Last submitted report reference	This field only displays if an **Unexpected media resource restart diagnostics** or an **Unexpected device restart diagnostics** report has been sent. This reference number can be provided to Cisco TAC so they can analyze the report.
Call Home now	Manually submits **Current reports**. A confirmation pop-up displays when manually submitting a report or enabling automatic reporting to indicate that data will be transmitted to Cisco. Report submissions are retried 3 times. If a submission fails after the third attempt, a banner displays on the web interface.

Table 63 Configuration fields

Field	Description
Call Home mode	Enables *Anonymous Call Home*. (*Disabled* by default, no reports can be submitted.)
Automatic Call Home enabled	Allows the TelePresence Server to send diagnostic reports when necessary; also allows the TelePresence Server to send inventory reports when it starts up.

Reference

Content channel support

Most telepresence endpoints support the use of a second video channel known as the content channel. Typically this is used for presentations running alongside live video.

- H.323 systems use a protocol called H.239 to receive and send the content channel video.
- SIP systems use a protocol called BFCP for content.
- Cisco CTS systems and other TIP systems use TIP to control content sharing.

Although the content channel is enabled system-wide by default, the TelePresence Server caters for endpoints that do not support the second video channel. Go to **Configuration > Default endpoint settings** and under **Content** select **Allow content in main video**. With this feature selected, the TelePresence Server sends the content in the main video channel to those endpoints. The content channel is composed with the normal video while the content channel is active (content is displayed in largest pane and other participants' video streams are centered continuous presence panes across the bottom of the display).

Content sharing is enabled by default. To edit this setting for a conference, go to **Conferences > *conference name* > Configuration** and find the **Content channel** setting.

In each conference, only one participant can send a content channel video stream at a time. To enable another participant to become the presenter, either the active presenter must stop sending content or the TelePresence Server must allow participants to take over the content channel.

Content channel configuration settings

When you add a new conference or configure an existing conference, you can choose whether the content channel is allowed in that conference with the **Content channel** setting.

The **Content channel** is *Enabled* for conferences by default, which means that participants are able to contribute content channel video for the other conference participants to see.

If the conference's **Content channel** is *Disabled*, content sharing is not allowed and no participants can contribute content.

For a participant to contribute a content channel requires the following:

- That participant's endpoint must be configured to allow content channel video contribution:
  a. Go to **Endpoints** and then click the participant's endpoint.
  b. Click **[Configuration]**
  c. Under **Content** check **Content video contribution**.
- Either the participant must be the only active presenter or the TelePresence Server must allow automatic content handover:
  a. Go to **Configuration > System settings**.
  b. Check **Automatic content handover**.

For a participant to see the shared content on a single-screen endpoint, the endpoint must support content sharing, or have **Allow content in main video** enabled.

The TelePresence Server sends the content channel to one endpoint in an endpoint group; that endpoint must support the content channel:

To choose which endpoint in the group receives the content channel video:

1. Go to **Endpoints** and click the endpoint group name.
2. Click **[Advanced settings]**.
3. Select the endpoint number from the drop-down labeled **Screen receiving/transmitting content**.
4. Click **Update endpoint**.

Understanding how participants display in layout views

On this page:

Conference layouts

The layout chosen by the TelePresence Server for a system depends on the number of screens that the system has and the characteristics of the other conference participants. Endpoints can also choose a layout with far-end camera control or DTMF keys 2 and 8 or can be preconfigured to one of the choices below. The TelePresence Server is capable of working with one-, two-, three- and four-screen regular and immersive endpoints, and displaying any combination of those systems participating in a conference to any other type of system in the conference.

In general, the behavior of the TelePresence Server is to display the "loudest" participants in the most prominent layout panes. If there are more contributors than panes available, then the "quietest" participants are not shown.

Layouts sent to single-screen systems

The default layout can be configured either boxwide or per participant. This default setting can be overridden by a participant changing the layout selection using far end camera control or via DTMF keys 2 and 8.

In ActivePresence layout, the loudest participant appears full screen with additional participants appearing in up to six equally sized overlaid panes at the bottom of the screen. Any additional participants are indicated by the Participant Overflow Icon.

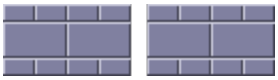
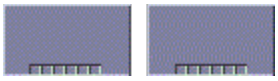
The TelePresence Server composes the layout for single-screen endpoints according to the setting of the **Default layout type for single-screen endpoints**:

Table 64 Layouts sent to single-screen endpoints

	*Single*: Endpoints will be shown in one full screen pane.
	*ActivePresence*: Endpoints will be shown in one full screen pane with additional participants appearing in up to six equally sized overlaid panes at the bottom of the screen. Any additional participants are indicated by the Participant Overflow Icon in the bottom right-hand corner together with the number of unshown participants.
	*Prominent*: Endpoints will be shown in one large pane with additional participants appearing in up to six equally sized panes at the bottom of the screen. Any additional participants are indicated by the Participant Overflow Icon in the bottom right-had corner together with the number of unshown participants.
	*Equal*: Endpoints will be shown in a grid pattern of equally sized panes on the screen, up to 4x4. Each row of panes can either show screens of a remote multi-screen system or a combination of remote systems with fewer screens.

Layouts sent to two-screen systems

Table 65 Layouts sent to two-screen systems

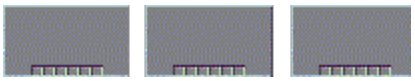
	When the TelePresence Server is in room-switched display mode, if there are any three- or four-screen TelePresence systems in a conference, the TelePresence Server sends this layout to two-screen systems in that conference. Each row of four panes can either show the four screens of a remote four-screen system or a combination of systems with fewer screens.
	If there are only one- and two-screen systems in the conference, the TelePresence Server uses this layout (if all of the video streams to show fit into the available panes). The overlaid panes (maximum of six) are automatically centered if possible.

Layouts sent to three-screen systems

Table 66 Layouts sent to three-screen systems

	Layout without pips is available, i.e. forced to be without pips. DTMF 2 and 8/ FECC can be used to select it.

Table 66 Layouts sent to three-screen systems (continued)

	When the TelePresence Server is in room-switched display mode, if there are any four-screen TelePresence systems in a conference, the TelePresence Server sends this layout to three-screen systems in that conference. The central row of four large panes can either show the four screens of a remote four-screen system or a combination of one-, two- and three-screen conference participants. In order for this row to be correctly centered, the TelePresence Server shows the panes in the center of the three screens and does not use the left side of the leftmost screen or the right side of the rightmost screen.
	If there are no four-screen TelePresence systems in a conference, the TelePresence Server uses this layout for three-screen systems in that conference.

Layout sent to four-screen systems

The TelePresence Server sends this layout to four-screen systems in a conference:

Each row of four panes (the row consisting of the four full-screen panes or one of the rows of six small overlaid panes) can either show a four-screen system or a combination of remote systems with fewer screens. The overlaid panes are automatically centered if possible.

OneTable mode

A TelePresence Server in OneTable mode contributes three different video streams of the participants in the call, and, therefore, the TelePresence Server no longer displays the three streams received from these systems side by side in three adjacent panes.

To enable OneTable mode, go to the configuration page of the conference and set **Use OneTable mode when appropriate** to *4 person mode*.

4 person mode: The TelePresence Server composes the participant video streams as if there were four people sitting next to each other on one side of a table, irrespective of their physical location.

The conference must have at least three participants present that support the OneTable feature.

The conference layout sent to connected systems varies based on how many screens those systems have as follows:

Table 67 OneTable mode layouts

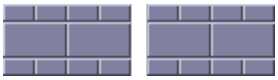
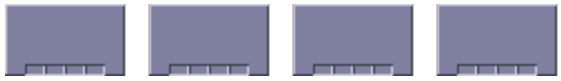
	Layout sent to single-screen systems. The overlaid panes are automatically centered if possible.
	Layout sent to two-screen systems.
	Layout sent to three-screen systems. The overlaid panes are automatically centered if possible.

Table 67 OneTable mode layouts (continued)

	Layout sent to four-screen systems. The overlaid panes are automatically centered if possible.

Endpoint configuration options that affect view layouts

Self view setting

The **Self view** setting for an endpoint determines whether the TelePresence Server ever displays its own video stream on that endpoint; that is, whether a participant may see himself/herself. If this setting is not selected, the endpoint will never display its own video stream.

If you do allow an endpoint to display its own video then the TelePresence Server always places the self view last when placing participants in the available view panes, even if the participant is one of the loudest in the call (i.e. even if he or she is shown prominently to the other conference participants).

Show full-screen view of single-screen endpoints

When placing participants within layout panes, the TelePresence Server places the "loudest" people first, in the most prominent panes, and the quietest people in the smaller panes. However, in conferences with a mixture of TelePresence systems (which typically use large, high resolution, displays) and systems capable of much lower quality video (for example, video-capable cellphones) it is not always desirable for the lower-resolution participants to be shown in the large full-screen panes.

For single-screen systems, the **Show full screen view of single-screen endpoints** setting determines if/how an endpoint is allowed to be shown in a large full-screen pane. Available settings are *Always*, *Dynamic* and *Disabled*.

- *Always*: Single screen endpoints will always be allowed to occupy a main pane of a multiscreen endpoint.
- *Dynamic*: Single screen endpoints will be visible in the main pane of a multiscreen endpoint if no other multiscreen endpoints are in the conference. If a multiscreen endpoint joins the conference, single screen endpoints will be demoted to the PiP strip.
- *Disabled*: Single screen endpoints will never be shown in the main pane of multiscreen endpoints.

This setting is not displayed for multi-screen endpoints and endpoint groups.

Minimum screen layout setting

As described above, when choosing which conference layout to send to a participant the TelePresence Server takes into account the number of screens used by other participants in the conference. For example, the following layout is sent to single-screen systems if there are any four-screen systems in the conference:

The **Minimum screen layout** applies to Equal layout only (and therefore it also only applies to single-screen endpoints as they are the only endpoints that can use Equal layout). It allows you to influence the layout used either because of personal preference or to avoid dynamic changes during the conference (for example, if you know that a four-screen endpoint will join the conference at some point, then using the *4 screens wide* setting tells the TelePresence Server to choose layouts based on its presence even before it has connected).

The default setting – *Auto detect* – causes the TelePresence Server to apply the choices described above based on the actual number of screens in use by the conference participants.

However, a setting of *3 screens wide* or *4 screens wide* causes the TelePresence Server to apply the layout choices described above based on the actual number of screens used by the conference participants **and** the virtual presence of a three- or four-screen endpoint. For example, *4 screens wide* would provide the following layout to all single screen endpoints in the conference even if all of the current participants are using single screen systems.

Allow content in main video

This feature allows the TelePresence Server to send a conference's content in the main video channel of endpoints that do not support the extra channel and would otherwise be unable to see the content.

The content channel stream is given the largest pane of this composed layout, which is shown in the main video channel. The continuous presence panes of up to six other participants are composed across the bottom of the layout below the content stream. The continuous presence panes are centered.

Show borders around endpoints setting

If **Show borders around endpoints** is enabled, the TelePresence Server draws borders around participants that are displayed in small panes; it does not draw borders around participants being shown in full-screen panes.

The TelePresence Server draws a blue border around the active speaker in the conference, and a grey border in all other cases. There may not always be an active speaker to highlight in a conference, for example if everyone is muted or no-one is talking.

Enabling this setting for an endpoint means that the video layout sent to that endpoint will use borders; it does not mean that this participant will always be shown within a border to other participants – those other participants' views will use their own **Show borders around endpoints** setting.

Marking a participant as " important"

For each conference, one active participant can be set as " important" . This means that the TelePresence Server considers this participant first when deciding which contributors to show in which layout panes, rather than their position in the list being set by how loudly they are speaking. See the endpoint control settings in Displaying conference status.

Muted participants

Audio mute

Participants who have had their audio muted from the web interface do not contribute audio to the conference. Additionally, muted participants are considered after participants who are not muted when the TelePresence Server places participants in view layout panes.

Note that other participants will not have an indication that a participant has been muted. They simply will no longer hear that participant speaking.

Video mute

Participants who have had their video muted from the web interface do not contribute video to the conference. They will continue to contribute audio as normal, unless it is muted separately.

Endpoint types

Table 68 Endpoint types

Endpoint type (shown in UI)	Hardware names / model numbers
Standard	Standard video endpoints, for example: ■ EX60 / EX90 ■ Any C-Series codec (C20, C40, C60, C90) ■ Cisco Jabber ■ Microsoft Lync ■ Any other non-TIP 3rd party endpoint Also displays if the endpoint type is unknown to the TelePresence Server
TANDBERG T1 or TANDBERG single screen TelePresence	Cisco TelePresence System T1 (formerly TANDBERG Telepresence T1)
TANDBERG T3 or TANDBERG three screen TelePresence	Cisco TelePresence System T3 (formerly TANDBERG Telepresence T3)
Cascade	A cascade call to another TelePresence Server (Media 310/320, MSE 8710, or Cisco TelePresence Server on Virtual Machine)
Group of N endpoints	A group of endpoints. The list does not contain the individual group members
Legacy TIP endpoint	■ An unknown type of Cisco CTS system, running legacy software (CTS 1.6 / 1.7 up to 1.7.3) ■ A Cisco CTS single screen system, running legacy software (CTS 1.6 / 1.7 up to 1.7.3) for example: – CTS 500 – CTS 1000 – CTS 1100 ■ A Cisco CTS three screen system, running legacy software (CTS 1.6 / 1.7 up to 1.7.3) for example: – Cisco TelePresence System 3000 series (CTS 30x0) – Cisco TelePresence System 3200 series (CTS 32x0)
SIP telepresence	An unknown type of Cisco CTS or other TIP-capable system running CTS 1.7.4 or later
SIP single screen telepresence	A Cisco CTS or other TIP-capable single screen system running CTS 1.7.4 or later, for example: ■ CTS 500 ■ CTS 1000 ■ CTS 1100

Table 68 Endpoint types (continued)

Endpoint type (shown in UI)	Hardware names / model numbers
SIP three screen telepresence	A Cisco CTS or other TIP-capable three screen system running CTS 1.7.4 or later, for example: ■ Cisco TelePresence System 3000 series (CTS 30x0) ■ Cisco TelePresence System 3200 series (CTS 32x0) ■ Cisco TelePresence TX9000 ■ Cisco TelePresence TX9200

Endpoint interoperability

Table 69 Endpoint feature support

Feature	Endpoints that support this	Notes
Reveal loudest participant for panel switched layout	T3, CTS 3200, CTS 3000, TX9000, TX9200	CTS 1300 and endpoint groups do not reveal the loudest participant. **Note**: Some T3 systems cannot provide positional audio, i.e. T3 Custom.
Add legacy TIP endpoint	■ CTS 500 ■ CTS 1000 ■ CTS 1100 ■ CTS 1300 ■ CTS 3000 ■ CTS 3010 ■ CTS 3200 ■ CTS 3210	You must add these endpoints using **Add legacy TIP endpoint** if they are running versions 1.6.x or 1.7.x (up to and including 1.7.3) of the CTS software. You may be able to add these endpoints using **Add new endpoint** if they are running CTS software versions 1.7.4 or higher. **Note**: endpoints can only be added in Locally Managed mode as Remotely Managed mode does not allow preconfigured endpoints.
Conference ending notification	■ CTS 500 ■ CTS 1000 ■ CTS 1100 ■ CTS 1300 ■ CTS 3000 ■ CTS 3010 ■ CTS 3200 ■ CTS 3210 ■ TX9000 ■ TX9200	These endpoints generate their own conference ending warning when they receive notification from the TelePresence Server. They show an icon instead of an overlaid message as seen by other types of endpoints.
OneTable mode	T3	If several participants in the conference are using these endpoints, and if OneTable mode is enabled, then the TelePresence Server will use the OneTable layout mode.

Understanding clustering

A cluster is a group of blades, hosted in the same Cisco TelePresence MSE 8000 chassis, that are linked together to behave as a single unit. You can configure and manage clusters using the Cisco TelePresence Supervisor MSE 8050.

A cluster provides the combined screen count of all the blades in the cluster. This larger screen count provides you with the flexibility to set up conferences with more participants or several smaller conferences. For more information about screen licenses, see Understanding your TelePresence Server's conferencing capacity, page 103.

Overview of a Cisco TelePresence Server MSE 8710 cluster

Cisco TelePresence Server MSE 8710 blades running software version 2 or later support clustering. Currently you can cluster up to four blades, with one blade being the master and the others being slaves.

The master can allocate the cluster's licenses as necessary, for example, all in one large conference, or distributed across several smaller conferences. See Understanding your TelePresence Server's conferencing capacity, page 103 for more information.

Master TelePresence Servers

The screen licenses allocated to each of the TelePresence Servers in a cluster are "inherited" by the master; all the capacity in the cluster is controlled by the master. You must control the cluster's functionality via the master, using either its web interface or its API.

All calls between the cluster and endpoints are made by the master.

Slave TelePresence Servers

Slave TelePresence Servers do not display the full web interface. Some settings pages are available, for example, to configure the network and logging settings, and to upgrade the software.

Similarly, a slave TelePresence Server will not respond to the full complement of API commands. For more information, refer to the relevant API documentation.

Upgrading clustered TelePresence Servers

When you need to upgrade the TelePresence Server software on all units in a cluster, first upload the new software images to each unit in the cluster and then restart the master. The slaves will automatically restart and the upgrade will be completed.

General points

Some points to note about clustering:

- The Supervisor must be running software version 2.1 or above to configure clustering.
- All TelePresence Servers in a cluster must be running identical software builds.
- Each blade in the cluster must have the *Cluster support* feature key.
- You can cluster TelePresence Server MSE 8710s with MCU MSE 8510s, provided that you have replaced the MCU software on the 8510 blades with the identical build of the TelePresence Server that is running on the 8710 blades. Visit the TelePresence Server installation guides site to get the appropriate guide for replacing the MCU software on the MCU MSE 8510.
- You can have more than one cluster in a chassis and the chassis can host different types of clusters.
- Blades that do not support clustering can be installed into an MSE 8000 chassis alongside a cluster.

- You must assign the cluster roles (master/slave) to the slots in the chassis (via Supervisor); if a blade fails, you can replace it and the cluster configuration will persist; however, the active calls and conferences are affected as follows:
  - If you restart or remove the master, the slaves will also restart: all calls and conferences end.
  - If a slave blade fails, the clustering configuration on the Supervisor and the blade may disagree. In this case, the Supervisor pushes the clustering configuration to the blade. The clustering configuration only includes clustering information; it does not configure network settings or anything else on the blade. If the Supervisor has pushed a configuration change to a blade, the Supervisor will prompt you to restart the blade.
  - If the Supervisor restarts or is removed, the cluster continues to function, conferences continue, and the cluster does not restart when the Supervisor reappears.
- Always keep a recent backup of the Supervisor.

Understanding your TelePresence Server's conferencing capacity

This topic includes information for all types of Cisco TelePresence Server. Look for the information that is relevant to your particular model.

License keys and screen licenses

The TelePresence Server's licensing model is based on "screen licenses", which are purchased and supplied in the form of a license activation key. Screen licenses activate the conferencing capacity for the TelePresence Server. The full capacity of a TelePresence Server is activated by applying the maximum number of licenses, which differs by hardware platform as follows:

Hardware platform	Maximum number of screen licenses
TelePresence Server MSE 8710	12
Cluster of two, three, or four TelePresence Server MSE 8710s	24, 36, or 48 respectively
TelePresence Server 7010	12
TelePresence Server on Media 310	6
Cluster of two TelePresence Servers on Media 310	12
TelePresence Server on Media 320	12
Mixed cluster of TelePresence Servers on Media 310 and Media 320	18
Cluster of two TelePresence Servers on Media 320	24
TelePresence Server on Virtual Machine (8-core)	4
TelePresence Server on Virtual Machine (8-core, HD)	5
TelePresence Server on Virtual Machine (30 vCPU / High Density VM)	10
TelePresence Server on Media 400v	18
TelePresence Server on Media 410v	27

When licensing TelePresence Server MSE 8710s you will apply the license key to the chassis via the Supervisor web interface, and then allocate the screen licenses to the slots that house those blades.

When licensing any of the other platforms, you will apply the license key via the TelePresence Server's own web interface, on the **Configuration > Upgrade** page.

Licensing clusters

When licensing a cluster of TelePresence Server MSE 8710 blades we recommend that you allocate licenses to each blade's slot. In practice, the activated screen licenses are effectively pooled and allocated to the master blade in the cluster so that the number of available screen licenses is the sum of screen licenses allocated to the blades in the cluster.

When licensing a cluster of TelePresence Servers on Media 310/320 platforms, we recommend that you apply a license key to each unit. In practice, the master will control all the licenses even if the slave is down; however, if you want to separate the units in future, or if one fails catastrophically, then you will have independent licensing to cover the units after the cluster is split.

Operation modes

There are two modes of operation for the TelePresence Server 7010 and MSE 8710: remotely managed mode and locally managed mode. The operation mode affects how the screen licenses translate into capacity to host concurrent calls.

Note: The TelePresence Server on Media 310/320, and Cisco TelePresence Server on Virtual Machine do not support locally managed mode; on these platforms, the TelePresence Server must be managed by a system like Cisco TelePresence Conductor or Cisco TelePresence Exchange System.

The information presented for remotely managed mode is relevant to the Media 310/320, and Virtual Machine platforms, even though their software has no concept of locally / remotely managed mode.

Locally managed mode (7010 and MSE 8710 only)

Each screen license translates to a fixed number of calls between the TelePresence Server and endpoints. This can be one call or two calls per screen license, depending on the HD mode:

- A license in 'Full HD' mode allows one call up to 1080p30 or 720p60 video, with associated audio and content channels
- A license in 'HD' mode allows two calls up to 720p30 or w448p60 video, with associated audio and content channels.

For example, a TelePresence Server 7010 in locally managed mode with 6 screen licenses can host a maximum of 6 calls up to 1080p30, or a maximum of 12 calls up to 720p30.

Each TelePresence Server unit has a limited number of video ports, audio-only ports and content ports. Each video port is allocated a corresponding content port regardless of whether content is used.

The concurrent call limits tables below detail how these ports are allocated for the two HD modes available for TelePresence Servers in locally managed mode.

Remotely managed mode (all models)

In remotely managed mode, the screen licenses are allocated to calls in a more granular way. Each screen license unlocks enough capacity for one full HD call (as in locally managed mode) or for a number of lower-resource calls.

For example, a single screen license provides enough capacity for one 1080, or two 720, or four 448, or eight 360 calls.

Call limits

The following tables illustrate the call capacity of the TelePresence Server in each of the modes of operation explained above.

Concurrent call limits in locally managed mode (7010 and MSE 8710 only)

Table 70 Port allocations by hardware type in HD Mode

Hardware arrangement	Video ports	Content ports	Audio-only ports
7010	24	24	10
8710	24	24	10
Cluster of two 8710s	48	48	20
Cluster of three 8710s	72	72	30
Cluster of four 8710s	96	96	40

Table 71 Port allocations by hardware type in Full HD Mode

Hardware arrangement	Video ports	Content ports	Audio-only ports
7010	12	12	10
8710	12	12	10
Cluster of two 8710s	24	24	20
Cluster of three 8710s	36	36	30
Cluster of four 8710s	48	48	40

Concurrent call limits in remotely managed mode

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation at: www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html.

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