Cisco TelePresence MCU Conference Director

Online help (printable format)

Contents

Introduction

Welcome

Cisco TelePresence MCU Conference Director is a tool for creating, scheduling and monitoring conferences on Cisco TelePresence MCUs. These can be part of the MCU 4200 Series, MCU 4500 Series, or a MCU MSE 8420 on an MSE 8000. The MCUs need to be running version 2.1(1) or later and have an MCU Conference Director feature key enabled.

Conference Director is not a replacement or substitute for the MCU's web interface, but rather a complementary tool for organizations that have one person monitoring several MCUs simultaneously or several people who schedule and monitor conferences on the same MCUs simultaneously on a Windows™ platform and who need to be able to work together.

Conference Director is not a complete MCU administration tool in the current release. There are functions in the web interface that are not available through the Conference Director and these are mentioned, where appropriate, with pointers to the web interface pages that you need to use for those functions.

Conference Director can be used by several people at the same time working with the same MCUs. Changes made by one user are seen by the other users the next time that the application refreshes. The same is true of changes made via the web interface on an MCU that you are monitoring through Conference Director.

A Windows application

Conference Director is a normal Windows application with two panes.

The left pane is a Tree View:

- When you open Conference Director for the first time the only entry is System . You can right-click to begin using the application but also see Getting started below
- Expand and close branches by clicking on the plus/minus signs
- Right-click on an entry to see its context menu

For more specific information, see What you see in the Tree View.

The right pane is the List View and what is displayed in this view depends on what you select in the Tree View. In the List View you can:

- Order columns by dragging the titles
- Sort entries by a column by clicking on the column title. Click again to reverse the order. The default is to sort on the Name
- To select an entry, click on the name. You can also right-click on an entry to display its context menu

You can access functions in more than one way; for example right-clicking on an entry and selecting an option from the context menu or by selecting an entry and using either the Toolbar icons or menu options. The instructions in this help aim to provide the easiest method, and alternatives are sometimes added.

Two views

In Conference Director the Tree View can present information in two ways and you can swap between them at any time by using the **View** menu: grouped by MCU (this is the default view that Conference Director opens in the first time that you use it) and grouped by conference. Both views allow you to access all the functionality - for more information see What you see in the Tree View.

Getting started

To start using Conference Director you may want to do one or more of the following:

- Connect to one MCU (MCU's have the ✥ icon.). Either right-click on System 🌐 and select **Connect to MCU** or use the **Connect** option from the MCU menu

- Open an MCU list that someone else has set up to connect to a number of MCUs in one step. Go to **File** > **Open MCU list**

- Set your preferences. You can set up defaults for a number of functions such as conference properties. This will save you time when you use these functions subsequently because these defaults are displayed also see the next point. You can also set levels for displaying alarms. Go to **Tools** > **Preferences**.

- Create or select a conference template list if the conferences you will be creating can be grouped in some way. Go to **Tools** > **Conference templates** > **Select template list**

  - Open the Conference template list and create a number of conference templates in the list. Go to **Tools** > **Conference templates** > **Open template list**

- Create or select an Address book. Go to **Tools** > **Address book** > **Select address book** and browse for the file to open

  - Open the Address book and add entries. Go to **Tools** > **Address book** > **Open address book**

The MCU list

The MCU list is optional. It can be used to store the connection information for the MCUs that you connect to frequently, so you can open the MCU list and connect to all these MCUs with one command each time you use Conference Director.

You can keep a number of MCU lists, and they can be stored locally or on a server so that they can be shared.

See the MCU list for details about how to create and use the MCU list.

The Address book

The Address book is also optional. You can create an Address book and add entries for the participants that you call in to conferences frequently.

You can also keep a number of Address books and then select the one to use at any time. If you are one of a team using Conference Director to monitor the same MCUs you can share (open) an Address book that someone else has set up already. See Creating and selecting the Address book.

You can also import configured endpoints from an MCU in to your open Address book. See Obtaining Address book entries from an MCU.

System tray icon

When Conference Director is running, an icon appears in the system tray. This can be used to display the preferences dialog and to close the application. But more usefully, it is used by the application to display pop-up warnings; for example, that a conference is about to end. See the Icon reference.

Troubleshooting

For more detailed information than is available in the Tree or List Views, display the Events log window.

What you see in the Tree View

When you open Conference Director for the first time, the only entry is System 🌐 and you are in the "grouped by MCU" view. You can right-click to connect to an MCU ✤ - or open an MCU list, if you have set one up, or you can use one that someone else has already set up. All these concepts are explained in this topic.

Two views: grouped by MCU and grouped by conference

In Conference Director the Tree View can display information in two ways and you can swap between them at any time with the **View** menu:

- The grouped by MCU view is the one you see when you open Conference Director for the first time. In this view entries in the Tree View are listed by MCU, with conferences as sub-categories. (When you open Conference Director subsequently, the application opens in the view that was displayed when you closed it)
- The grouped by conference view lists entries by conference name

Both views are explained more fully below.

Grouped by MCU view

Top level in the Tree View

In this view the top level in the Tree View is the MCUs that you are managing through Conference Director.

- For each MCU there are a number of branches: Active (live) conferences 🗓, Scheduled conferences ⚙ and Auto attendants 🗓A
- The auto attendant branch is for information only: you cannot create auto attendants using Conference Director. See the auto attendant branch
- Expand and collapse branches by clicking on the plus/minus signs

With the Active conference branch selected

This branch opens to show all the active (live) conferences. The number in brackets besides each conference name is the number of active participants. You can also expand the branch for each conference and the active and disconnected participants are then listed for the selected conference.

When you click on the Active conferences branch, the List View displays each conference name with a colored background and lists the participants under each name. The following information (columns) are displayed for each participant: Name, Address, Type, Audio (incoming), Outgoing audio, Video (outgoing), Important, Call state, Connect time, Disconnect time and Disconnect reason. (Remember that you can reorder the columns if required by clicking on the column title.) This provides the connection history for ad hoc participants: if an ad hoc participant connected, disconnected and reconnected there is more than one entry for that participant in both views.

ⓘ   You can clear the entries for disconnected participants by right-clicking on the conference in the Tree View and selecting **Remove disconnected**.

With the Scheduled conferences branch selected

This branch opens to show all the conferences scheduled on the MCU. The number in brackets besides each conference name is the number of configured participants. The List View also shows these conferences with a colored background. For each conference the Name, Status, Start and End time are displayed.

When you select the name of a conference configuration in the Tree View, each configured participant is displayed in the List View. There is only one entry per participant and the following information (columns) are displayed: Name, Address, Type, Audio and Video.

ⓘ   If you select an auto attendant in the Tree View, the List View clears.

Cascaded conferences

A cascaded conference is listed under each MCU that it occurs on. You see which MCU is the master MCU, highlight any of the conference entries and change to the Grouped by conference view: the master MCU is the first one listed for this conference,

Grouped by conference view

Top level in the Tree View

In this view the top level in the Tree View has three branches: Active (live) conferences 🔄, Scheduled conferences ⚙ and Auto attendants 🔄. Expand and collapse branches by clicking on the plus/minus signs.

With the Active conference branch selected

This branch opens to show all the active (live) conferences. Expand a conference to display the MCU it is running on: the number in brackets is the number of active participants. You can also expand the branch further and the active and disconnected participants are then listed.

When you click on the Active conferences branch the List View is empty. If you click on an conference the List View displays the MCU name with a colored background and lists the participants underneath. The following information (columns) are displayed for each participant: Name, Address (if known), Type, Audio (incoming), Outgoing audio, Video (outgoing), Important, Call state, Connect time, Disconnect time and Disconnect reason. (Remember that you can reorder the columns if required by clicking on the column title.) This provides the connection history for ad hoc participants: if an ad hoc participant connected, disconnected and reconnected there is more than one entry for that participant in both views.

ⓘ   You can clear the entries for disconnected participants by right-clicking on the conference in the Tree View and selecting **Remove disconnected**.

With the Scheduled conferences branch selected

This branch opens to show all the scheduled conferences in alphanumerical order and the List View is empty. Expand a conference to display the MCU it is scheduled to run on: the number in brackets is the number of configured participants. Expand the branch further to see the participants in the Tree View.

When you select the name of a conference configuration in the Tree View, the MCU that it is scheduled to run on is displayed in the List View with a colored background. Each configured participant is also displayed in the List View. There is only one entry per participant and the following information (columns) are displayed: Name, Address, Type, Audio and Video.

With the Auto attendant branch selected

Expand this branch to see the MCUs on which a participant is connected to an auto attendant.

Cascaded conferences

A cascaded conference is listed once: under the conference name. The master MCU is listed first, then the slave MCUs with participants being listed under the MCU that they are connected to or will be connected to when the conference starts.

Icon reference list

Conference Director uses a number of icons in the Tree View, List view and toolbar. This topic lists them all.

Icon	Usage
Conference Director application	
	Icon on your desktop for opening the application and in the system tray.
	System icon in Tree View.
MCU icons	
	MCU icon.
	MCU warning icon. Expand the branch for this MCU to see what the issue is.
	Cascaded MCU icon. If you are using the grouped by conference view, then under the conference name you see all the MCUs involved in the conference. The master MCU has the normal MCU icon, the slave MCUs have this icon. This icon turns orange if there is a problem with a cascaded conference on this MCU.
Conference icons	
	Active conference branch in Tree View. This icon turns orange if a problem is cascaded up the branch. Expand it to see the issue.
	Scheduled conference branch in Tree View. This icon turns orange if a problem is cascaded up the branch. Expand it to see the issue.
	Conference Tree View icon. This icon turns orange if there is a problem with the conference - or with a particular participant in the conference.
	Completed conference Tree View icon.
	Create conference toolbar icon.
	Remove conference toolbar icon.
	Cascaded conference icon, shown when one conference is configured as a slave in another conference.
Participant icons	
	Connected participant icon.
	Connect participants toolbar icon.
	Disconnect participants toolbar icon.
	Add participants toolbar icon.
	Remove participants toolbar icon.
	The participant is configured in a scheduled conference.
	Cascade link icon appears in the Tree View when a cascaded conference is active showing that the conference is an active link to a master MCU.
	The participant has been disconnected from an active conference. The reason is shown in the Disconnect reason column in the List View.
	The participant has been disconnected from an active conference because of an error. The reason is shown in the Disconnect reason column in the List View.
	Waiting for the participant to connect.
	There is a problem with this participant. There are a number of reasons why you may see this icon; for example, this may be an alert that one of audio or video warning and critical packet loss levels set in the preferences have been reached.

Icon	Usage
	As a toolbar icon: Make this participant important.
	As a status symbol: This participant has been made important and therefore has been given priority in the layout views - see [Making a participant important/have normal importance](#).
	Make this participant of normal importance toolbar icon
	As a toolbar icon: Unmute audio
	As a status symbol: Indicates the active speaker
	As a status symbol: This participant's audio is unmuted see [Muting/unmuting the audio or video for one or more participants](#). Other participants can hear what this participant is saying.
	As a toolbar icon: mute participant's audio
	As a status symbol: If the icon is blue the participant's audio has been muted i.e. the participant does not contribute audio to the conference - see [Muting/unmuting the audio or video for one or more participants](#). If the icon is orange, there is an error on the participant's audio.
	As a toolbar icon: unmute outgoing audio
	As a status symbol: The participant is receiving audio from the MCU.
	As a toolbar icon: mute outgoing audio (i.e. the participant will not hear other participants)
	As a status symbol: The Outgoing audio mute check box has been selected in General page of the [participant's properties dialog](#).
	As a toolbar icon: Unmute video from participant
	As a status symbol: This participant's video is unmuted see [Muting/unmuting the audio or video for one or more participants](#). This icon turns orange if there is a problem with the participant's video stream.
	As a toolbar icon: mute video from participant
	As a status symbol: If the icon is blue the participant's video has been muted - see [Muting/unmuting the audio or video for one or more participants](#). If the icon is orange, there is an error on the participant's video.
Auto attendant icons	
	Auto attendant branch in the Tree View. This icon turns orange if a problem is cascaded up the branch. Expand it to see the issue.

Preferences

Setting preferences

You can set preferences for a number of functions such as alert levels and conference configuration default settings — and this is useful for values that you use all the time. Any settings you define will display as defaults in the appropriate dialogs - including the Create conference template dialog, which takes time saving a step further by allowing you to have a set of preferences for conference configuration.

Defining the preferences

1. Go to Tools > Preferences.

    The Preferences dialog is displayed with the General page open.

2. Select the options you require on the General and Conferences pages. (See Preference dialog fields.)

3. Click OK.

Preferences are stored in the \Documents and Settings\<name>\Application Data\Codian\Codian Director folder in a file called preferences.xml. This stores the location of the current Address book and current Conference template list.

Preferences dialog fields

This topic describes the fields in the Preferences dialog.

General preferences

Field	Description
Minimize application to system tray	Select this check box if you do not want a button for the Conference Director when you minimize it in the main part of the task bar - only a notification area (system tray) icon. Alerts will be displayed as normal.
Show confirmation before participant drag/drop	Select this check box if you want a confirmation dialog to be displayed when you drag and drop a participant from one conference to another (see Dragging and dropping participants). This may prevent you accidentally moving a participant to the wrong conference.
Specify default messaging parameters	Select this check box and then: • the default position of the message on participants' endpoints, top, middle or bottom of their screen. See Sending a message during a conference • the length of time a message is displayed on participants' endpoints. If you do not select the check box, the default is 30 seconds. See Sending a message during a conference
Alerts options	
Packet loss alerts	When selected, if either audio or video packet loss is experienced between an MCU and a participant, this is reported. There are two levels of alerts: a warning and a critical alert. If a warning is received from the MCU the participant for which packet loss has occurred is displayed with the warning icon . If a critical alert is received, then in addition to the participant warning icon: • a message is displayed above the system tray icon • the critical warning is cascaded up the tree in the Tree View. In this way, if you have collapsed the view for an MCU, you will still see the critical warning and be able to expand the view again to see which conference and participant the critical warning applies to
Alert when conferences	To be alerted when conferences are approaching their end time, select the

Field	Description
are about to expire	check box and set the time beforehand that you want to be alerted. When this time is reached, a dialog is displayed which you should acknowledge. In addition, so that you are reminded even after the dialog is closed, the conference, active conference and MCU icons change in the Tree View to their alert equivalents until the conference completes.
Play audio indication on alerts	If selected, an audio alert will sound when an alert occurs to prompt you to investigate the issue. A default sound is provided but you can select a different audio sound if you prefer.

Conference preferences

Field	Description
Set default conference start time to next hour	If selected, each new conference will be configured to start on the next hour by default. If do not tick this check box, the default configured will be to start immediately.
Default conference duration	You can specify the default length that new conferences will last for.
Automatically delete expired conferences	If selected, the conference configuration will be deleted after the conference has occurred for the last time. If this check box is not selected, the conference configuration will remain on the MCU and will be displayed in the Tree View. This may be useful; for example if the conference has a configuration that you want to copy, or you may want to "resurrect" the conference by updating its schedule.
Advanced conference options	
Register with gatekeeper	If selected, the MCU will try to register new conferences with the gatekeeper by default. The gatekeeper is set up on the MCU using the web interface.
Enable unicast streaming	If selected, unicast streaming will be allowed by default in new conferences. Streaming needs to be enabled MCU-wide using the web interface. See Streaming (of the main video channel).
Enable multicast streaming	If selected, multicast streaming will be allowed by default in new conferences. Streaming needs to be enabled MCU-wide using the web interface. See Streaming (of the main video channel).
Enable H.239	If selected, new conference will have the content (H.239) channel enabled by default.
Specify maximum participants	If selected, the fields to enter the maximum number of video and the maximum number of audio (voice) participants will be enabled in new conferences. What the maximum number of participants means depends on whether the MCU has port reservation enabled or not.

MCUs

The MCU list

The MCU list is optional and can be used to store the information that you need to connect to the MCUs that you work with frequently. By opening the MCU list, Conference Director attempts to connect to all the MCUs in the list. This saves time and means that you do not need to remember the IP address, username and password for each MCU unit or blade.

You can keep a number of MCU lists, and they can be stored locally, or on a server so that they can be shared.

> ⓘ Each MCU that you connect to must be running software version 2.0(1) or later and needs to have the Conference Director feature key installed. If you try to connect to one that does not have the feature key, you will see an error message that the Conference Director is not enabled on this MCU.

Opening the MCU List

1. Go to File > Open MCU list.

   If you are opening the MCU list for the first time a standard Windows File Open dialog is displayed. Go on to step 3.

2. If you have connected to other MCUs or disconnected from one or more MCUs in this session, you see the message "Save current MCU list?" If you want to add to, or remove MCUs from, the currently open MCU list, click Yes. Otherwise click No.

   A standard Windows File Open dialog is displayed.

3. Navigate to find the MCU list file to open. (It has a .cdn extension.)

4. Click OK.

> ⓘ When you save the MCU list, it will include all the MCUs that you have connected to or tried to connect to - even if a connection could not be established.
> Equally when you open an MCU list:
> - Any MCU that you were connected to, but that is not on the MCU list that you open, is disconnected
> - However, any active conferences on those disconnected MCUs continue

Saving the MCU List

At any time, you can save the list of MCUs displayed in the Tree View. Go to **File** > **Save MCU list** or **File** > **Save MCU list as**.

The MCU list that is opened on startup

Because you can have more than one MCU list, each containing details for several MCUs, when it starts, Conference Director automatically opens the MCU list that was in use when the application was closed.

Connecting to an MCU

If the MCU you want to connect to is in the MCU list, then you can connect to it by opening the MCU list. However, to connect to an MCU that is not in the list, or to connect and add it to the list, follow these instructions.

ⓘ Each MCU that you connect to must be running software version 2.0(1) or later and needs to have the Conference Director feature key installed. If you try to connect to one that does not have the feature key, you will see an error message that Conference Director is not enabled on this MCU.

To connect to an MCU

1. Either right-click on System 🌐 in the Tree View and select **Connect MCU,** go to **MCU** > **Connect** or select the ✤ icon from the toolbar.

2. If you have connected to this MCU before, select its Hostname or IP address from the drop-down list; otherwise type in the Hostname or IP address.

   The drop-down list includes all the MCUs you have connected to in the past.

3. Type in the username and password you use to connect to this MCU. (These are the same username and password you use to connect via the web interface with admin level privileges. See Access, user accounts and privilege levels for information about the MCU's default users and levels of access.)

4. Click **OK**.

Retrying a connection

If the connection is successful, then the conferences and auto attendants configured on that MCU are displayed.

If the connection could not be established, a message is displayed and you only see a top level entry for the MCU when you are using the grouped by MCU view. Conference Director will retry the connection three times and will display messages to keep you informed. (If you do not want this to happen, remove the MCU entry from the Tree View.) Thereafter it will not retry the connection unless you manually try to

To retry the connection at any time

1. If necessary go to View > Grouped by > MCU.

2. Right-click on the MCU entry in the Tree View and click Connect.

   The address, username and password are remembered and displayed.

3. Click **OK**.

Reasons for failure to connect

There are a number of reasons why Conference Director may not be able to connect to an MCU. These include:

Message	Reason
Software upgrade required on MCU	The MCU's software version is not compatible with the Conference Director.
Conference Director not enabled on MCU	The Conference Director feature key is not enabled on this MCU.
Conference Director upgrade required for MCU	You need to upgrade the version of Conference Director that you are running.
Authorization failed on MCU	Either the username or password that you entered in is incorrect for this MCU.

MCU is unreachable	Conference Director cannot establish a link with this MCU.
MCU not available	Conference Director could not find this address.
MCU insufficient privileges	You are trying to log in with a username and password that does not have admin privileges and this is not allowed.

Access, user accounts and privilege levels

An MCU is pre-configured with two user accounts ("admin" and "guest"). Using the web interface the admin user can display the list of all user accounts, modify these user accounts and add other users. (The web interface online help includes a number of topics that cover managing users.) However, you cannot modify any user accounts using the current version of Conference Director.

Every configured user has an associated privilege level. There are seven defined privilege levels which determine the amount of control the user has over the MCU and its settings. However, to use Conference Director you must log in to an MCU with a user account that has admin privilege level such as the admin user.

Disconnecting an MCU and removing it from the Tree View

You can disconnect from an MCU at any time whether you connected to it using an MCU list or manually. Disconnecting also removes the MCU entry from Tree View (with all its conferences, participants and auto attendants).

If the MCU is in the current MCU list, disconnecting from it does *not* remove it from the list - unless you go to **File** > **Save MCU list** after you disconnect.

You can reconnect to the MCU by going to **MCU** > **Connect** and then selecting the MCU from the drop-down list.

To disconnect an MCU and remove it from the Tree View

1. Either right-click on the MCU entry and select **Disconnect and remove MCU**, or from the MCU menu select **Disconnect and remove**.

2. Click **Yes**.

ⓘ   You can also remove an MCU entry from the Tree View when the connection has failed to establish or if a connection was made but in this case the context menu option is simply **Remove**.

Displaying MCU properties

You can display the MCU properties either from the Tree View or from the MCU menu. (You cannot edit an MCU's properties using Conference Director but you can edit the time zone adjustment that Conference Director applies. See MCU properties fields.)

Displaying the properties of an MCU

1. Right-click on the MCU and select **Properties**.

   The Properties dialog is displayed with the General page open. See MCU properties fields.

2. If required open the Network status, Ethernet status and Health status pages to display the information you need to find.

3. When you have finished, click **OK**.

MCU properties fields

This topic describes the fields in each page of the MCU properties dialog.

General page

Field	Description
System status	
Model	Specific MCU model from the MCU series e.g. MCU 4215.
Serial number	Unique serial number of the MCU.
Software version	Installed software version.
Build version	Build version of the installed software.
Up time	The hours, minutes and seconds since the MCU was last restarted.
CPU load	The load on the CPU as a percentage.
Media processing load	An overview of the current media loading of the MCU. If the total load is consistently high, you might need to add an additional MCU to better handle your video conferencing needs. Also, the total load may increase during periods of peak conference use. A low video load with high audio load implies that most of the conference participants have connected with audio-only endpoints.
Port reservation	Whether port reservation mode is enabled or disabled. See Port reservation.
System time	
Current time	The time now. This may be the time according to the MCU's clock or adjusted by the Time zone offset value (see below).
Time zone offset	The time zone difference between where you are using the Conference Director and the time zone that the MCU is in (see the note below). Select the offset from the drop down list. This version of Conference Director can "translate" times on the MCU in to local times so that you always see conference start and end times etc in your local time. This makes sense if a number of users are monitoring a number of MCUs in different time zones. The Conference Director simply adds the offset that you enter here to any times sent by the MCU before displaying them - and subtracts it before sending time information to the MCU. **Note**: You need to adjust the offset manually when the clocks go forward or backwards for Daylight saving.

ⓘ You can see the local time on the MCU in the bottom right hand corner of the Conference Director window, when you select any part of the MCU branch in the Tree View.

Network status page

This page opens showing details for Port A: if you have Port B enabled you can select it from the drop down list.

Field	Description
Port status	Whether the port is enabled or disabled. When enabled, the port will allow IP traffic to flow; when disabled, IP traffic will not pass into or out of the MCU on this port. Port A will never be disabled because it is the primary interface of the MCU.
MAC address	The fixed hardware MAC (Media Access Control) address of this port.
Host name	The host name assigned to the MCU.

Field	Description
IP address	The port's IP address in the dot-separated IPv4 address, for example 192.168.4.45.
Subnet mask	The subnet mask required for the IP address, for example 255.255.255.0.
Default gateway	The IP address of the default gateway on this subnet, for example 192.168.4.1.
Name server	Identifies the IP address of the name server.
Secondary name server	Identifies an optional second name server.
Domain name	Specifies an optional suffix to add when performing DNS lookups.
	This can allow you to use non-fully qualified host names when referring to a device by host name instead of IP address. For example, if the domain name is set to cisco.com, then a request to the name server to look up the IP address of host endpoint will actually lookup endpoint.cisco.com.
Speed	Identifies the connection speed: 10, 100 or 1000 Mbit/s. The connection speed must match that of the device to which this port is connected.
Full duplex	Identifies the connection duplex mode: **Enabled** (Full duplex: both devices can send data to each other at the same time) or **Disabled** (Half duplex: only one device can send to the other at a time). The duplex setting must match that of the device to which this port is connected.

Ethernet status page

This page opens showing details for Port A: if you have Port B enabled you can select it from the drop down list.

Field	Description
Link status	Whether this Ethernet port is connected to or disconnected from the network.
Packets sent	The total number of packets sent from this port by the MCU. This includes all TCP and UDP traffic. When troubleshooting connectivity issues, this information can help you confirm that the blade is transmitting packets into the network.
Packets received	The total number of packets received by this port of the MCU. This includes all TCP and UDP traffic. When troubleshooting connectivity issues, this information can help you confirm that the blade is receiving packets from the network.
Multicast packets sent	Use these fields for advanced network diagnostics, such as resolution of problems with Ethernet link speed and duplex negotiation.
Multicast packets received	
Total bytes sent	
Total bytes received	
Receive queue drops	
Collisions	
Transmit errors	
Receive errors	

Health status page

Field	Description
System component	
Fan status	One of: **OK** - component is functioning properly, **Out of spec** - Check with your

Field	Description
Voltages status	support provider; component might require service, **Critical** - requires immediate attention, or **Unknown** if the status cannot be ascertained.
RTC battery status	If the Worst Seen column displays "Out of spec", but Current Status is "OK", monitor the status regularly to verify that it was only a temporary condition.
Temperature status	One of: **OK** - MCU's temperature 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, or **Critical** - temperature of MCU 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 Seen column displays "Out of spec", but Current Status is "OK", monitor the status regularly to verify that it was only a temporary condition.
System log	
Restart time & reason	A log of all the system restarts and the reason why they occurred.

Conferences

About conferences

The Tree View shows both active and scheduled conference branches and includes conferences that were set up using an MCU's web interface or Conference Director whether they were based on a conference template or not. Conferences in both branches have the icon and the displays for cascaded conferences while they are active.

Active vs scheduled conferences

Active conferences are currently in progress. These may be scheduled or ad hoc conferences. (Ad hoc conferences are those created using an auto attendant and therefore you cannot create an ad hoc conference with Conference Director - but you can monitor them in the Active conferences branch.)

Scheduled conferences are those that are set up using the Conference Director or the web interface.

- A scheduled conference does not necessarily occur more than once - the default setting is *No repeat*

- A scheduled conference that is going on now will have two entries in the Tree View: one each under the Active conferences and Scheduled conferences branches

- A completed conference (one that will not repeat again) can still be a scheduled conference. Whether the entry remains in the Tree View depends on the setting in the Automatically delete completed conferences check box on the Conferences page of the Preferences dialog

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When adding and removing participants from conferences, you need to be aware that there is a difference between active conferences and scheduled but inactive conferences. See Adding a participant to a conference and Removing a participant from a conference.

What you see in the List View

If you select a conference in the Tree View, its details are displayed in the List View. The information that is displayed depends on whether it is a scheduled or an active conference:

- Scheduled conferences: the Name, Status, Start time and End time (or Permanent) of the conference and each participant is listed below the conference entry

- Active conferences: each participant is listed and for each one the following details are provided: Name, Address, Type, (incoming) Audio, Outgoing audio, (incoming) Video, Important, Call State, Connect time, Disconnect time and Disconnect reason. See Understanding participant status for an explanation of the icons

Cascaded conferences

A cascaded conference is a single conference occurring over more than one MCU. These MCUs may be located at different locations. The cascade occurs between a single master MCU and one or more slave MCUs. Endpoints can be connected to either the master or to one of the slave MCUs. Each slave communicates with the master over a H.323 connection. These connections use up a port on each slave MCU and one port per slave on the master MCU.

There is an automatic delay of one minute between the conference starting on the master MCU and the slave MCUs calling to the master.

Cascaded conferences are listed in the Tree View in different ways depending on the grouping chosen:

- If you are using grouped by MCU, then the conference is listed under each MCU that it occurs on. To see the master MCU change to the Group by conference view

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- If you are using grouped by conference, then under the conference name you see all the MCUs involved in the conference. The master MCU has the normal MCU icon ![icon], the slave MCUs have the two crossing arrows ![icon]

Layout views and video streams

During a cascaded conference the video from the active speaker on a slave MCU is sent to the master MCU. On the master MCU, the video from all slave MCUs and the directly attached endpoints are mixed according to the conference layout. This view is then sent back to each slave MCU, which then forwards this to its endpoints. Each of these endpoints receives a separately encoded copy of the stream based on their capabilities

Conference templates

Creating and selecting the conference template list

A Conference template takes the idea of conference preferences a step further. The conference preferences determine the default settings that are displayed for a number of conference configuration fields when you create a conference or a conference template. However, you may wish to have a number of default sets, particularly if you can group conferences; for example those that happen weekly or those that you always want to start with the same layout. Conference templates let you do this.

Conference templates are stored in a conference templates list. You must chose the folder that the Conference template list is stored in. This can be locally or on a server. You can also share the Conference template list with other users of Conference Director.

You can have more than one Conference template list and then select the one to use at any time. The Conference template list that is selected when you close Conference Director will also be the one automatically selected when the application reopens. Conference template lists have a filename extension of .cconf.

Leaving the Conference template list open

The Conference template list can be left open (displayed) while you work with other dialogs. This can be useful because dragging and dropping Conference templates is one way to create conferences, for example. See Creating a conference.

Creating/Selecting a Conference template list

Creating a Conference template list also selects it as the current Conference template list but you can change this at any time.

To select a Conference template list:

1. Go to Tools > Conference templates > Select template list.

2. Either type in a file name, or use Browse.
   Select a folder for the Conference template list. If you want to use the same folder that has the preferences file, this is \Documents and Settings\<name>\Application Data\Codian\Codian Director.

3. Click OK.
   If the file does not exist, Conference Director asks you if you want to create it, both creating a new Conference template list and selecting it.

Creating and working with conference templates

You can create a number of templates for your conferences; then, when you create a conference, you can choose whether to use one of the templates as the basis for the conferences configuration or to enter each field manually. See Creating a conference.

ⓘ The Conference template is added to the currently selected Conference template list. As there can be more than one Conference template list, make sure it is the one you want to work with.

Leaving the Conference template list open

The Conference template list can be left open (displayed) while you work with other dialogs. This can be useful because dragging and dropping Conference templates is one way to create conferences, for example. See Creating a conference.

Adding a Conference template

1. Go to **Tools** > **Conference templates** > **Open template list**.
   The Conference templates dialog opens with a list of the templates currently in the select Conference template list.

2. Click **Add**.
   The Create conference template dialog opens with the General page open. The settings in individual fields reflect what you set in the Preferences dialog.

3. Type in the name for the new template.

4. Complete the dialog pages as appropriate. See *conference configuration fields*.

5. Click **OK**.

6. Click **Close**.

ⓘ　You can also create a template from an existing conference: right-click on the conference name in the Tree View and select **Add to templates**. Then enter the details as prompted. Note that configured participants are added to the template but ad hoc participants are not.

Editing a Conference template

1. Go to **Tools** > **Conference templates** > **Open template list**.
   The Conference templates dialog opens with a list of the templates currently in the select Conference template list.

2. Select the template to edit and click **Edit**.
   The Edit conference template dialog opens with the General page open.

3. Modify the dialog pages as appropriate. See conference configuration fields.

4. Click **OK**.

5. Click **Close**.

Duplicating a Conference template

1. Go to **Tools** > **Conference templates** > **Open template list**.
   The Conference templates dialog opens with a list of the templates currently in the select Conference template list.

2. Select the template to copy and click **Duplicate**.
   The Conference template dialog opens with the General page open and a default name of Copy of <name>. The settings in individual fields are those from the template that you are copying.

3. Name the new template.

4. Open the different dialog pages modifying the settings as appropriate. See conference configuration fields.

5. Click **OK**.

6. Click **Close**.

Removing a conference template

1. Go to **Tools** > **Conference templates** > **Open template list**.
   The Create templates dialog opens with a list of the templates currently in the select Conference template list.
2. Select the template to remove and click **Remove**.
3. Click **Yes** to confirm.
4. Click **Close.**

Creating a conference template from a configured conference

You can create a conference template from either a scheduled or active conference by right-clicking on the conference and selecting **Add to templates**.

Creating a conference

You can create a conference either by right-clicking on an MCU in the Tree View, from the Conference

menu or by using the Create conference toolbar icon 🔒 when it is active. You can start "from scratch" or you can use a conference template. You can also drag a conference template anywhere within the MCU's entries in the List View (either active or scheduled branch) and then edit the configuration to create a new conference. Both options are described in this topic.

ⓘ   If you require more than one MCU for your conference, see Creating a cascaded conference.

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Creating a conference using menu options

1. Click on the MCU that you want to create a conference on and go to **Conference** > **Create** or **Conference** > **Create from template**. (You can also right-click on the Active conferences or Scheduled conference headings and click **Create conference** or **Create from template**.)

2. If you selected **Create from template** the Create from conference template dialog opens. Select the template to use and click **OK**.
   The Create conference dialog is displayed with the General page open and with fields reflecting either the conference preferences or, if you used a template, the template you used.

3. Type in a Name for the new conference.

4. Complete the General, Repeat, Layout, Participants and Advanced pages as required. (See Conference configuration fields.)

   • To choose a custom layout that participants will see when they join a conference, go to the Layout page

   • The Layout page also lets you use pane placement i.e. decide which participant will appear on in which pane

5. Click **OK**.

Creating a conference by dragging and dropping

1. Select an entry from the Conference templates list and drag it in to the List View - anywhere within the entries for the MCU that you want to create the conference on.

   The Create conference dialog is displayed with the General page open and with fields reflecting the template you used.

2. Type in a Name for the new conference.

3. Complete the General, Repeat, Layout, Participants and Advanced pages as required. (See Conference configuration fields.)

   • To choose a custom layout that participants will see when they join a conference, go to the Layout page

   • The Layout page also lets you use pane placement i.e. decide which participant will appear on in which pane

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4.   Click **OK**.

ⓘ   For both methods, it does not matter whether you click on the MCU, Active conferences or Scheduled conferences headings, when you create a new conference — this is a scheduled conference. If you select a start time of "now", then you also create an active conference.

Creating a cascading conference

You can create a cascaded conference (one that requires one MCU to call one or more additional MCUs in to the conference) either by right-clicking on an MCU in the Tree View, from the Conference menu or by using the Create conference toolbar icon 🖼 when it is active. You can start "from scratch" or you can use a conference template. You can also drag a conference template anywhere within the MCU's entries in the List View (either active or scheduled branch) and then edit the configuration to create a new cascaded conference. Both options are described in this topic.

Finally you can drag one conference on to another to create a cascade. The conference that you dragged and dropped is the slave conference; the one you dragged it on to is the master conference. The slave conference is configured to dial the master conference. If the master conference is an active conference, a confirmation dialog is displayed before the cascade is created.

Scheduling a cascaded conference

To create a cascaded conference using Conference Director, follow these instructions.

1.   Select which MCU will be the master MCU.

2.   If necessary go to **View** > **Group by MCU**.

3.   Do one of the following:

   a.   To create the cascaded conference "from scratch", right-click on the master MCU in the Tree View and select **Create conference**. (Alternatively, select the master MCU and then go to **Conference** > **Create conference** or click the **Create conference** toolbar icon.)

   b.   To create the cascaded conference from a template, drag the template from the Conference templates window onto the master MCU in the Tree View
   The Create conference dialog opens. Note that if the template had an MCU address completed, then this MCU address is overwritten by that of the MCU that you dropped the template on to. If this is also the address of one of the slave MCUs in the conference template, you will see an error message when you click **OK**.

4.   In the Participants page enter/update the details of any endpoints that will be called by the master MCU in the normal way. See Conference configuration fields.

5.   Enter/update the details of the conference: be sure to set a numeric ID for the conference on the master MCU in the General page because this is required to allow the slave MCUs to connect to the master MCU.

🔲▪ ⓘ   The start time for a cascading conference is set appropriately on all MCUs involved in the conference so long as you have set the time zone offsets; it does not matter if Conference Director, the master MCU and any slaves MCUs are in the same or different time zones. The time you set is your local time and is the adjusted for the time zone offset of the master MCU; the start time on each slave MCU is set to take into account the difference in time zone between the master MCU and that slave MCU.

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6.   To select the view seen by the endpoints on the slave MCUs, open the Layout page, select Enable conference custom layout and Make new participants see this view (see Layout page fields). Then select click **Set layout** and select the view. Click **OK**.

7.   Open the Cascading page.

8.   To add a new slave MCU, click **Add**.
   The Add cascaded conference dialog opens with the General page open. This dialog has the same pages as the Create conference dialog with the exception of the Repeat page.

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9. Enter the name of the conference as you want it to appear on the slave MCU and enter the MCU's IP address.

10. In the General page you can enter a Numeric ID if required, but we recommend that you do not use the Numeric ID entered for the conference on the master MCU.

11. In the Participants page add details of the participants that will be connected to this slave MCU.

12. Add any other information required on the other pages.

13. Click **OK**.

    The name of the MCU is displayed in the Cascading page.

14. Repeat from step 7 until all the slave MCUs have been configured.

15. To amend any details of conferences on slave MCUs, repeat from step 7 but highlight an MCU and click **Edit** in step 8.

16. If a template is required based on this cascading conference, select Add to conference templates.

17. Enter any remaining details for conference on master MCU not entered previously.

18. Click **OK**.

19. If you entered the IP address of an MCU that you are not already connected to The Connect to MCU dialog is displayed. Enter the username and password of a user with admin rights on that MCU and click **OK**.

The conference is created. When it is active, the ![icon] icon on the slave MCUs shows that it is a cascaded conference. If you have problems, see Possible issues below.

Possible issues

When configuring a cascade you will see an error message or experience problems in a number of circumstances, including:

- If you drag a template on to an MCU that is set in the template as a slave MCU, you will see an error message saying that the MCU is duplicated

- If you use the same Numeric ID for the conference on the master and slave MCUs, you may see an error message. The slave MCUs do not require a Numeric ID for the conference, although one can be set

Editing a cascading conference

When a cascaded conference has been configured, you can display and edit the conference configuration by right-clicking on the conference and selecting **Configuration**:

- If you right-click on the master conference and display its configuration, you see the same dialog as when you created the conference. For example, you can open the Cascade page and add another slave MCU to the configuration. You can also display any of the cascaded conferences and edit their properties also

- If you display the properties of a conference on a slave MCU, you see only the dialog that applies to the cascaded conference and you can edit the configuration of that conference. That is, there are no Repeat or Cascading pages because these are part of the master conference configuration. However, you can click the **Master configuration** button to open the master conference configuration and then edit that configuration. Equally you can access the configuration any of the cascaded conferences from there

For help when editing the conference configuration, see Conference properties fields.

Duplicating a conference

Use the **Duplicate conference** option to create new conferences quickly when the new conference configuration will be similar to an existing one in one or more aspects - for example it has the same schedule or a number of participants in common.

The dialog has the same pages and fields as the Create conference dialog but all the settings of the conference that you are duplicating (except its name) are displayed for you to edit as appropriate.

You can copy both active conferences and scheduled conferences. Choose which one to copy with care because the properties of the active conference may not be identical to the scheduled conference of the same name; for example all the configured participants currently in an active conference would be added to the new conference - even if they are not configured in the scheduled conference of the same name.

New conferences can be set to start immediately if required but obviously, if you copy the participants they cannot be called in to two conferences at the same time.

Duplicating a conference
1. Right-click on the conference that you want to copy and click **Duplicate**.
   The Duplicate conference dialog is displayed.
2. Type in a name for the new conference.
3. Edit the other fields in the General, Repeat, Participants, Layout, Cascading and Advanced pages as required. (See Conference configuration fields.)
4. Click **OK**.

Dragging and dropping conferences
You can now use drag and drop to move a conference from one MCU to another, but there are some consequences:

- **Active conferences**: this involves disconnecting all participants and redialing them from the new MCU, and is therefore not seamless

- **Scheduled conferences**: the conference is scheduled on second MCU and removed from the original one

ⓘ   If you drag a scheduled conference that is currently active to another MCU, only the scheduled participants are moved; ad hoc participants are disconnected.

ⓘ   You cannot create a cascaded conference by dragging and dropping.

Displaying and editing the conference configuration
You can display and edit the configuration of a conference. The dialog is the same as that opened when you create a conference but the title shows the conference that you are working with.

Displaying a conference's properties
1. Right-click on the conference and select **Configuration**.
   The Configuration dialog is displayed with the General page open.
2. Open the other pages to see different properties.
3. You can now:
   - Edit many of the fields in the General, Repeat, Layout and Advanced pages
   - Open the Participants page and:
     - Add new participants. Click **Add** and see Participant properties fields
     - Edit the properties of existing participants. Select the participant and then click **Edit**. See Participant properties fields
     - Remove a participant from the conference. Select the participant and then click **Remove**. Click **Yes** to confirm
4. When you have finished, click **OK**.

ⓘ   Any participant added by opening the conference configuration is a scheduled participant who is added to the conference configuration. This means that if the conference is scheduled to repeat, the new participant will be called in to that conference (unless you set Use manual connect for that participant).

To add a participant to an active conference for just the current conference session, see Adding a participant to a conference.

Conference configuration fields

The fields displayed in the Conference template, Create conference, Duplicate conference and Conference configuration dialogs are the same. This topic describes those fields.

General page

Field	Description	Explanation
Name	The name of the conference. Conference names must be unique on each MCU.	(This is the name users will see on auto attendants, in this interface and also on the MCU's web interface.
Description	You can add the description when creating or cloning a conference.	Use the description to provide more detailed information about the conference than the name alone conveys.
MCU address	The MCU's IP address.	
Numeric ID	The unique identifier used for dialing the conference using an auto attendant or through a gatekeeper.	When connected to an auto attendant, users can join a conference by typing its numeric identifier. This field is required if you plan to allow audio-only participants. If gatekeeper registration is enabled for a conference (see below), the MCU attempts to register the conference with an E.164 telephone number, which is comprised of the Registration Prefix and the ID. The ID must be unique; conferences on the same MCU cannot share this number. Additionally, because the ID is used in gatekeeper registration, conferences and auto attendants cannot share a ID value.
PIN	The conference PIN, if required. A PIN provides a level of security to conference access.	If a conference has a PIN, the PIN number must be entered before a participant can successfully call in and connect to the conference.
Guest ID Guest PIN	There are two types of conference participant on an MCU: chairperson and guest. Chairperson participants use the Numeric ID and optionally, the PIN fields.	A conference will not begin until the first chairperson joins. This means that guests will see a black screen/hear silence with on screen text 'Waiting for conference chairperson' and an audio prompt after five seconds and then every minute thereafter. Streaming viewers will see a black screen/hear silence although mark-up and text chat will work. **Note**: Participants dragged and dropped into a conference on the web interface will be chairperson participants. Using the web interface you can control the behavior when the last chairperson leaves the conference.

Start time and duration

Start time	The start time for the conference in the format HH:MM.	If the conference preferences set the default conference start time to the next hour, a time is entered for you. Conference Director can make adjustments for time zones. If you have set the Time zone offset in the MCU properties dialog, then the Start time for a conference entered here is your local time and is adjusted to local time

Field	Description	Explanation
		on the MCU that the conference is running on. For example, if you are an hour ahead of the MCU's local time and want a conference to start at 2pm your time, enter 14:00. This will be 13:00 on the MCU if the Time zone offset was set correctly as -1:00.
		If you are setting the start time for a cascading conference Conference Director will adjust the time on all MCUs involved in the conference so long as you have set the time zone offsets; it does not matter if Conference Director, the master MCU and any salves MCUs are in the same or different time zones. The time you set here is your local time and is the adjusted for the time zone offset of the master MCU; the start time on each slave MCU is set to take into account the difference in time zone between the master MCU and that slave MCU.
Start date	The start date for the conference.	This is today by default.
Permanent	If selected, the conference will not end. You can only set a Start time and Start date.	If a conference is permanent, then you should set Repeat page to a Frequency of *No repeat* and a Termination of *Never*. If you try to use any other settings, Conference Director will reset them for you.
Scheduled	If selected, you can specify the Start Date, Start time and the Duration for the conference.	The default settings depend on your conference preferences. A conference can be scheduled to be up to 24 hours long: the Start, End and Duration fields are connected so that changing one of the fields automatically updates the others, as appropriate. Click **Set to current time** to set the Date and Start time to now. This does not change the Duration, which is one hour by default, unless you changed the setting in the conference preferences. You can also set the Repeat fields if you want the conference to repeat.
Duration	The duration of the conference	This field is disabled for Permanent conferences.

Repeat page

Field	Description
Interval	A conference can be scheduled to run once (*No repeat*), *Daily*, *Every week* or *Monthly* on a particular day of a particular week.
Termination	The conference can be permanent (ending *Never*), or it can occur a specified number of times, or finish by a fixed date.

Permanent conferences

Permanent conferences should have a Frequency of *No repeat* and a Termination of *Never*.

Layout page

This page shows you the currently selected layout in the preview pane. Using this page you can select custom layouts to use for conference participants instead of one of the default family views.

Field	Description
Set layout	Click **Set layout** to display the Set layout dialog in which you can select a standard or widescreen layout. The current layout is shown with a blue border.
Enable conference custom layout	Selecting this check box means that this custom layout will be the default when the conference starts.
Make new participants see this view	Selecting this check box means that all participants will see the selected view when they join the conference, even if it is already in progress. Note that you can make all connected participants in an active see the conference layout at any time by right-clicking on the conference in the active branch and selecting **Apply conference layout**.
Enable pane placement	Selecting this check box allows you to decide which participant is displayed in which pane and then to make selections in as many of the drop-down lists as appropriate. For more details see Pane placement.

You can also set the layout for one or more active participants using the Layout page of the Participant properties dialog.

Participants page

This page lists the scheduled participants for this conference. These participants will be called in to the conference automatically when the conference starts.
- Click **Address book** to add new participants from the address book to the conference. The Add from Address book dialog opens. Select the participants you want and click **OK**.
- Click **Add** to open the Add new participant dialog and be able to select additional participants for this conference. See Adding a participant to a conference
- Select a participant and click **Edit** to edit the configuration of this participant. If the participant has an entry in the Address book, this does not change their entry in the Address book— only their settings for the conference
- Select a participant and click **Remove**. If the participant has an entry in the Address book, this does not remove the participant from the Address book

Cascading page

This page is only available for scheduled conferences and is only used if you are setting up a cascaded conference. It allows you to add slave MCUs in to the cascade. See Cascaded conferences and Creating a cascading conference.

The list shows the name and IP address of any MCUs that will be cascaded in to the conference. Click:
- **Add** to define a slave MCU. This opens the Add cascaded conference dialog which contains General, Layout, Participants and Advanced pages. These pages contain the same fields as those in the equivalent pages for the master MCU. See the descriptions above and below in this topic
- **Edit** to change any settings for a slave MCU such as adding additional participants on this MCU and changing the layout these participants will see when the conference starts
- **Remove** to remove an MCU from the cascade

Advanced page

Field	Description	Explanation
Advanced conference options		
Register with gatekeeper	If selected, the MCU will attempt to register the ID entered above (this conference) with the configured gatekeeper.	The gatekeeper is defined in the web interface. Go to **Settings** > **Gatekeeper**.
Enable unicast streaming	If selected unicast streaming is allowed for this conference. See Streaming (of the main video channel).	The default depends on your conference preferences.
Enable multicast streaming	If selected multicast streaming is allowed for this conference. See Streaming (of the main video channel).	The default depends on your conference preferences.
Enable H.239	If selected a content (H.239) channel can be transmitted during this conference. See the content (H.239) channel.	The default depends on your conference preferences.
Specify maximum video participants	If selected you can specify the maximum number of video participants that are allowed during this conference.	The default depends on your conference preferences. The effect of selecting this field and specifying the participant maximum depends on whether the MCU has port reservation enabled.
Specify maximum audio participants	If selected you can specify the maximum number of voice (audio-only) participants that are allowed during this conference.	The default depends on your conference preferences. The effect of selecting this field and specifying the participant maximum depends on whether the MCU has port reservation enabled.

Pane placement

Normally the MCU decides which participant will appear in which pane of any layout that is in use and this may change dynamically as a conference progresses (see Understanding layout views). To have more control over which participant appears in which pane, you can use the Pane placement function in the Layout page of a conference configuration. Pane placement works on a per conference basis.

Pane placement works on the selected custom layout in the Layout page which has the panes numbered. The largest (and therefore most important) panes have the lowest numbers. Because the largest number of panes in any custom layout is 20, there are twenty drop down lists, one per pane.

If you have not set pane placement for a conference all the panes are set to *<default>*. For each pane, you can select an alternative setting:

- *<blank>*: no participant appears in this pane
- *<default>*: the MCU chooses the participant for each pane; for example, the participant that is set to Important appears in pane 1
- *<loudest speaker>*: the participant who is speaking the loudest at any time appears in this pane
- *<H.329 content>*: this pane is reserved for the content channel (see the content (H.239) channel). If the content channel is not used in this conference, this pane will be blank
- *<name>:* for active conferences only: the name of each participant in this conference, whether configured or ad hoc. If you select a specific participant (endpoint), that participant appears in this pane at all times

To use pane placement:
1. Right-click on a conference and select **Configuration**.
2. Display the Layout page.

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3. Click **Set layout** and choose a layout to use. Click **OK** to return to the Layout page.
The Enable conference custom layout check box is selected automatically.
4. Select **Enable pane placement**.
5. For each pane that you want to control, select an entry from the drop down list.
6. For panes that you no longer want to control individually, select *<default>*.
7. Click **OK**.

When you use pane placement, bear in mind that:

- Pane placement only applies to conference custom layouts. If they are disabled, so is pane placement
- You can mix panes set to *<default>* with panes that have other settings
- Any panes that you configure keep their setting even if you change the custom layout view. Therefore if you configure all the panes in the 20 pane layout and then move to one with only five panes, panes 1 to 5 will have the same settings as before. Panes 6 to 20 will also keep their settings, it is just that they are not used. Therefore if you subsequently move to a layout with say 10 panes, all ten panes have their settings pre-configured
- This does mean that if you have participants who need to be seen at all times, you should configure them in the lower numbered panes
- You must set up pane placement for each conference that you want to use it with
- You can set up pane placement before a conference starts and configure important and the loudest participants and the data channel to particular panes. However, you can only configure participant by name when they are active participants in an active conference
- Pane placement persists over conference repetitions. If you set pane placement once, the same placements are ready to be used when the conference next repeats
- If you select a particular participant for a pane and they are disconnected for any reason, that pane appears blank
- After you set up pane placement, you can still change the layout for individual participants (see [Controlling a participant's endpoint camera](#)) - and they can change their layout using the far end camera controls unless you disable this for each participant individually (see [Participant properties fields](#)).
- The left and right controls on a participant's far end camera control do not work when pane placement is enabled

Streaming (of the main video channel)

Using the web interface you can configure an MCU to support unicast or multicast streaming or both (but see below):

- Unicast streaming involves a direct connection between the MCU and the individual user
- Multicast streaming involves transmitting a single copy of the video or audio stream to multiple recipients. When choosing to support multicast streaming, ensure that your network has been properly configured to avoid network flooding

Streaming sends conference audio and video to a remote computer, allowing the user to watch and listen to a conference. The media flows in just one direction, so it is not possible to contribute to a conference via streaming.

Streaming configuration is set up at two levels:

- MCU-wide using the web interface. Go to **Settings** > **Streaming**.
- Per-conference using Conference Director or the web interface. See [Setting preferences](#) and [Creating a conference](#). Conference configuration overrides the MCU-wide setting in that streaming must be enabled unit-wide for the per-conference setting to have an effect. If you enable streaming MCU-wide but disable it for the conference, that conference cannot be streamed

Streaming, whether unicast or multicast, only ever takes on one port: this is why all streaming participants see the same layout. For information about how port reservation affects streaming see [Port reservation](#).

Port reservation

MCUs can allocate available media ports in advance to specific conferences. This is called port reservation and we say that the MCU is in "reserved mode" see [Configuring the MCU](#) below. This means that it is able to guarantee that a certain number of participants will be able to join that conference, irrespective of how many other people are using the MCU for other conferences at the same time.

By default port reservation is disabled but you can enable it using the web interface. However, it is important to know whether an MCU is in reserved mode or not when setting up conference preferences (see Preference dialog fields) and when specifying the maximum number of participants for a conference when you create or duplicate a conference. This can be found on the General page of the MCU properties dialog.

Media port types

There are two types of media ports available on the MCU: video ports and audio-only ports and the number of both on a particular MCU can be found on the General page of the MCU properties dialog.

A video port is a port that can be used by a video conferencing endpoint for a call. Therefore, a video port includes both video and audio streams (bidirectionally) and the number of video ports available represents the number of "normal" video calls that the MCU is able to maintain simultaneously.

Participant port usage

In general, each endpoint in a conference is able to use either a video port or an audio-only port, though normally the MCU will assign video ports to video-capable devices and audio-only ports to audio-only devices.

- If a video-capable device joins a conference which just has audio-only ports available, the MCU will assign it an audio-only port. That participant will be able to listen to other people and contribute their own audio to the conference but the MCU will not transmit video to it — and will not use any video received from it

- If an audio-only device such as a simple telephone joins a conference which has just video ports available, the MCU will assign it a video port, which includes audio capability. The video capability of that allocation will not be used, but the audio device will be able to participate as normal in the conference. The exception to this is a VNC endpoint: because this is a video-only protocol, the MCU does not permit VNC connections to use audio-only ports

Streaming

Streaming a conference requires use of a video port. If a video port is unavailable (or not allocated in advance when in reserved mode), it will not be possible to stream that conference. If a video port has been allocated for the purpose of streaming a conference, any number of streaming viewers will be able to view that conference via streaming using that same one video port, at any combination of available bit rates.

Configuring the MCU

To enable port reservation mode go to **Settings** > **Conferences** in the web interface. (You cannot change port reservation mode using Conference Director.)

Unreserved mode

This is the default mode and the mode under which the device runs when the *Media port reservation* setting is Disabled.

You can specify a maximum value for the number of video and audio-only ports for each conference. These limits are optional, and by default there is no configured limit. These are strictly maximum values; in particular, setting such a limit does not guarantee that there will be enough ports available at the time for that many participants to join the conference. You can set these values such that the sum of the configured limits across all active conferences exceeds the total number of ports available on the MCU.

Reserved mode

When the *Media port reservation* setting is Enabled, each conference is configured with a number of video ports to reserve and a number of audio-only ports to reserve. If you are working with an MCU that is in reserved mode you may want to set the conference preferences to specify the number of participants so that you do not forget when you create new conferences.

The numbers set in port reservation mode differ from the maximum port values set in the unreserved mode in a number of ways:

- **Reservations are guaranteed**
  As well as being maximum values (i.e. enforcing limits on the number of conference participants), port reservation values also guarantee that as many endpoints as are specified are able to participate in the conference.

- **Port reservations are mandatory**
  In unreserved mode, it is not necessary to specify the number of video or audio-only ports for a conference. In reserved mode, however, every conference must have configured reservations for both video and audio-only ports.

- **Over-allocation is not permitted**
  Port reservations guarantee that a certain number of participants will be able to join a conference; because of this, the MCU will not permit these reservations to be configured such that the total number of reserved ports at any given time exceeds the total number of ports available. See Clashing reservations for additional information.

Clashing reservations

In order to honor configured port reservations, the MCU must ensure that at any given time the number of reserved ports does not exceed the total media capacity. This entails some level of clash detection when conferences are scheduled or their configurations changed.

Two conferences are considered to clash if they can ever be active simultaneously. When validating a conference scheduling operation, the MCU looks at the maximum number of ports reserved by other conferences which can be active at the same time, and checks that the number of ports requested by the conference being changed or added is guaranteed to be available. If, for instance, the MCU has 20 video ports available in total, it will not be possible to set up two conferences which require 15 video ports each if they are scheduled such that they overlap even for a minute.

In the simple case of conferences which start at specific times and end at specific times (or, indeed, are permanent), it is easy to see whether they clash. The more complex cases involve repetition, and it is important to bear in mind that port reservations are only permitted when the MCU can guarantee them for every repetition of a conference. As an example, a conference scheduled to run from 08:00 to 10:00 on the second Monday of each month will be deemed to clash with a conference configured to run from 09:00 to 09:30 every Monday, even though the former will only really clash with the latter every fourth or fifth week.

In general, to make best use of the available MCU media ports, conferences should not be scheduled for longer than they are needed, and repetitions should be limited, either by end date or number, wherever possible.

When scheduling conferences or changing port reservations for existing conferences, the MCU will endeavor to tell you the maximum number of ports you are able to reserve, based on the start time, duration, and repetition parameters of the conference in question.

Ad hoc conferencing

Ad hoc conferences are not permitted on MCUs in Reserved mode. This affects the operation of the MCU in the following ways:

- **Auto attendant usage**
  When in reserved mode, the **Create new conference** option will not be shown on video auto attendant menus, even for auto attendants configured to offer this facility.

- **Auto attendant configuration**
  When configuring new or existing auto attendants via the web interface, you cannot enable the *Create new conference* option..

- **Calls to unknown E.164 number configuration**
  On the web interface, this field on the **Settings** > **Conferences** page also offers a *Create new conference* option. When in reserved mode, this is not available, and becomes equivalent to the Disconnect caller option.

Auto attendant connections

If a participant calls in to the MCU and connects to an auto attendant, the MCU does not know which conference they will join until they make a selection from the auto attendant menu.

In unreserved mode, the auto attendant connection just uses a video or audio-only port as appropriate from those not currently in use. If all of the media ports are in use, the endpoint's connection will be dropped by the MCU.

In reserved mode, the auto attendant connection effectively "borrows" a video or audio-only port from those not currently in use. However, this borrowed media port has a lower priority than a media port used by a conference participant, and if the auto attendant connection "borrows" the last remaining media port then that connection will be dropped if another endpoint connects directly to a conference and requires a reserved media port.

Changing MCU port reservation mode

In general, changing port reservation mode when there are active connections is not recommended. Although you cannot change the port reservation mode using Conference Director it is important to understand the consequences if this happening. They include, but are not necessarily limited to:

- **Destruction of ad hoc conferences**
  Ad hoc conferences are not permitted in port reservation mode. Changing an MCU from unreserved mode to reserved mode, causes any ad hoc conferences in progress to be destroyed and their participants dropped. (An ad hoc conference can be set up "on the fly" from an auto attendant if the **Create new conference** option is available. Ad hoc conferences always start straight away.)

- **Participant disconnection**
  For each conference, the maximum port usage values (for unreserved mode) and the port reservations (for reserved mode) are separate configuration items. When changing between modes, if the new conference limit is less that the number of active participants in that conference, some participants will be disconnected.

Port usage with content channel support

Port reservation mode

If the MCU is operating in reserved mode, enabling H.239 (a data channel) for a conference requires the use of an additional video port. A single video port is needed for all content channel and H.239 operations, irrespective of how many viewers there are; for example, a conference involving 5 video endpoints (one of which is contributing a H.239 stream and the other 4 viewing it) will require 6 video ports.

In reserved mode, a conference with H.239 enabled will require a video port for H.239 operations even if no current participants are actively making use of H.239.

Unreserved mode

If the MCU is operating in unreserved mode, enabling H.239 for a conference works in a similar way to streaming in that it will require a video port to be allocated when content channel operations are first attempted for that conference. For instance, this could be when a participant opens a H.239 channel or a user starts viewing the content channel via their web browser. When the video port is no longer needed for the conference's content channel (e.g. when the last remaining participant disconnects) the port will be released for use by future participants or conferences.

Streaming of the content channel

The streaming of the content channel is performed using the video port allocated for H.239 rather than the video port allocated for streaming. This means that it is possible to stream the content channel (for example, to use the video markup feature) for conferences which do not have streaming enabled. Enabling both streaming and H.329 for a conference will mean that 2 additional video ports will be required for that conference, over and above the video and audio-only ports used by endpoints participating in that conference.

The content (H.239) channel

For each conference, the MCU supports an additional video channel known as the content channel. This feature encompasses:

- H.239 video streams sent from the MCU to viewing H.323 endpoints
- Sourcing the content channel from a H.323 endpoint's H.239 video stream or from a VNC connection. (Virtual Network Computing or VNC is an open standard commonly used for remotely controlling one PC from another)
- Streaming the content channel to users' desktop machines (*)
- Allowing graphical and textual "markup" of the content channel (*)
- Text chat between conference participants (*)

* See Streaming of the content channel, markup and chat

Content channel configuration can be set at several levels (see MCU content channel configuration). Whether a conference allows content channel support or not is determined when you create the conference. However, you can set the default in the conference preferences. (The setting can also be changed subsequently in the Advanced page of the conference configuration dialog.)

Content channel usage has some consequences when port reservation is enabled.

Content channel vs. main video

The H.239 protocol allows the MCU to support an additional video stream to or from each connected H.323 endpoint. Thus, there are potentially three media streams between each H.323 endpoint and the MCU: audio, main video and H.239 video. (What is referred to here as main video is the normal multi-pane conference view showing participants' video streams composed within the selected layout.)

The main differences between the H.239 (content channel) video and the main video are:

- **Single layout**
  Each participant in a conference can normally select their own individual main video layout (e.g. a 2 x 2 grid of other participants, 1 large focused pane plus 8 smaller panes) and they are free to change this layout as many times as desired during the time they are connected to the conference. The content channel video always shows just a single video stream, "full screen", and each viewing endpoint will see the same stream. The stream which constitutes the content channel can change any number of times during the conference, but there can be at most one such contributing stream at any given moment.

- **One channel per conference**
  Each participant's main video stream is encoded independently; this means that each endpoint can be receiving its main video stream at a different bit rate, codec, or resolution to that being sent to other participants. However, there is a single H.239 video stream per-conference, which means that the MCU sends the same bit rate and resolution to all endpoints receiving H.239. The bit rate and resolution used are chosen to maximize the number of viewers: the resolution might be reduced if a new endpoint joins the conference and its H.239 receive capabilities are more limited than those of the other participants.

- **Differing characteristics**
  The range of bit rates, resolutions and frame rates available to the MCU for sending the content channel via H.239 to H.323 video conferencing endpoints is potentially as wide as that for the main video channel. However, in general, the main video channel is used for motion video (i.e. high frame rate streams) and the content channel for less dynamic video such as an accompanying presentation — typically high resolution, low frame rate. The MCU allows flexibility in terms of nominating which of the available streams forms the content channel, as well as allowing control over which endpoints are permitted to start contributing H.239 video.

- **Uni-directionality**
  In terms of its main video channel, a video conferencing endpoint would normally be both contributing (sending) a video stream to the MCU and receiving a video stream from it. The content channel works differently in that an endpoint can either be sending H.239 video or receiving H.239 video, but not both simultaneously. A given H.323 endpoint may switch between being the contributor and a viewer during the course of its conference participation, but it will never be both.

H.323 endpoints' content channel support

Depending on the specific H.323 endpoint and how it is configured, the H.239 video stream may be displayed on a separate screen, or the endpoint may show the main video and the H.239 video streams side by side on the same screen.

Irrespective of its H.239 receive capability, a H.323 endpoint may or may not be able to contribute the content channel: typically, for this to be possible, it will either need a second camera or some other video input such as a VCR or "video in" connection.

Some H.323 endpoints may have no support for the H.239 protocol - and no SIP endpoints support H.239. However, it is still possible for such endpoints to view the content channel - the MCU is able to show the content channel within a normal view pane in the same way as it displays other conference participants. This ability is controlled by a unit-wide setting available in the web interface.

Content channel sources

There are several possible content channel sources:

- **H.239 video channel**
  This is the most conventional content channel behavior — a H.323 conference participant opens a H.239 channel to the MCU and contributes a video stream such as that supplied by a second camera or an attached PC. The H.323 endpoint needs to make a request to the MCU, and have that request accepted, before actual content channel contribution can start. If the conference already has an active content channel (for example, another endpoint is contributing H.239 video), the new request will be rejected by the MCU: it is necessary to wait for the active contributor to cease sending H.239 video before the new endpoint is able to start.

- **VNC connection**
  A VNC connection is one where the MCU has made a connection to a remote device (normally a desktop PC) and is receiving a video stream from that device. This is typically used to include a slide-based presentation in a conference. By default, if a conference is configured with content channel support and a VNC "participant" is added to that conference, the MCU will attempt to use the VNC video as the content channel. This is normally the desired behavior; however, there are a couple of caveats:

  o If there is a H.323 video conferencing endpoint actively contributing H.239 video, then it will not be possible to immediately switch over to using the VNC video instead: the switch over will occur when the H.323 participant closes its H.239 channel

  o With more than one active VNC connection in a conference, the first will be used as the content channel source, and subsequent connections will be shown in main video layout panes, just as if the conference had no content channel facility. If the currently active VNC connection is either disconnected or its use as the content channel disabled, another VNC video stream will start to be used as the content channel

  o **Participant main video**
  The MCU can use a H.323 endpoint's main video channel as the conference's content channel. This has the same caveats as the use of a VNC connection for the content channel, as described above.

- **Video markup**
  Whichever of the content channel sources mentioned above is active for a conference, the MCU allows users to add markup to the video channel. This is an additional video overlay onto which graphics may be drawn and text added. Content channel viewers see the content channel source video plus this overlay. The overlay can be later cleared leaving the source video unaltered.

MCU content channel configuration

H.239 or content channel configuration is set at different levels:

- **MCU-wide** using the web interface
  In the **Settings** > **H.239** page, the MCU can be configured to disallow the use of conference content channels completely. If the content channel facility is enabled, the MCU can be separately configured not to allow textual or graphical markup of the content, and whether to make text chat visible to connected H.323 endpoints.

- **Per-conference configuration** using either Conference Director or the web interface
  See [Setting preferences](), [Creating a conference]() and [Conference configuration fields]() (or the Add new conference page in the web interface).

- **Per-participant configuration** using the web interface
  For a conference configured with content channel video enabled, each endpoint in that conference is either permitted or prohibited from being able to contribute H.239 video. H.239 is the protocol used by H.323 video conferencing endpoints to supply or receive content channel video: other content channel source configurations, such as the use of a VNC connection, do not depend on any H.239 contribution parameters.

Note that what is termed H.239 contribution is more precisely the ability to start contributing content channel video via H.239. The nature of the H.239 protocol used between the MCU and H.323 endpoints is such that once an endpoint has successfully become the H.239 source for a conference, the MCU is not then able to force that endpoint to stop contributing the content channel video.

While an endpoint is supplying the content channel via H.239, it is considered to be holding the virtual H.239 token for the conference; this token must be relinquished before either another H.323 endpoint can start contributing video via H.239 or a content channel source such as VNC become active. This token is normally released via a specific endpoint operation (e.g. a "stop H.239" option) or by that endpoint leaving the conference.

By default, participants' ability to contribute H.239 video is determined by the per-conference H.239 contribution from endpoints setting. This setting can be overridden by the configuration of individual H.323 endpoints and there are three options: *<use conference default>*, *Enabled* or *Disabled*. (If an endpoint's ability to contribute H.239 video has been explicitly enabled or disabled via this mechanism, this setting will take precedence over any current or future conference or participant configuration, even if the endpoint later moves to a different conference.)

ⓘ   All of the content channel features are available for ad hoc conferences. However, content channel support in ad hoc conferences can only be enabled or disabled on a unit-wide basis. (An ad hoc conference can be set up "on the fly" from an auto attendant if the **Create new conference** option is available. Ad hoc conferences always start straight away.)

Streaming of the content channel, markup and chat

H.239 is the mechanism by which a conference's content channel video is delivered to a H.323 endpoint. There is a single H.239 video stream per conference, and, if the conference channel is active, the same stream is sent to as many H.323 conference participants as are able to receive it.

As well as the H.239 stream (used for sending to H.323 endpoints), the MCU also generates a Cisco proprietary format version of the content channel video that can be viewed in conjunction with PC-based video streaming. This ensures that all participants and viewers for a conference are able to access all of its associated media, if desired.

Content channel streaming also allows participants using H.323 video conferencing endpoints without H.239 capability to view a high resolution version of the content channel. Content channel streaming also provides some features not available via the H.239 protocol: markup and text chat.

Markup

"Markup" is the overlaying of graphics and text onto the content channel video; this could be used, for instance, to draw attention to a specific element of a presentation slide. Markup can only be performed through the content channel streaming interface, and is accomplished via the simple mechanism of clicking and dragging with the mouse, with extra controls for changing the drawing color or clearing the markup when its usefulness has passed.

Content channel markup also has the following characteristics:

- All content streaming viewers have equal markup capabilities. This means that either all viewers are able to perform markup on the content channel video (or clear it), or all are unable to do so - it is not possible to restrict markup to just a subset of active viewers
- The video markup, although it can only be edited by streaming viewers, will be seen by both content channel streaming viewers and participants connected via H.323 endpoints
- Video markup is normally used as an overlay to content channel video as supplied by a H.239 or VNC connection. However, for a conference with content channel operations enabled, it is also possible to form a content channel comprising just the markup applied to an otherwise blank video stream. This can be accomplished simply by starting to stream the conference's content channel and performing the usual markup operations on the (empty) content channel displayed. Adding markup to such a blank channel "activates" it, and will cause a video channel to be opened to those H.323 conference participants which have H.239 capabilities

The ability of content channel streaming viewers to perform markup is governed by the unit-wide Markup of content channel video setting in **Settings** > **H.239**.

Text chat

In parallel with, though in many senses independently of, content channel streaming, the MCU also provides a mechanism for those streaming a conference's content channel to communicate with other conference participants via text messages. Beneath the window showing the content channel video, streaming viewers are able to type messages that will be sent to all other streaming viewers, as well as see messages that other users type.

In order that users contributing text messages can be identified, each content streaming viewer has an associated user ID, and this ID is pre-pended to each of the messages they type when it is sent out to other viewers' displays. If the content channel streaming has been initiated via the streaming-only interface, each user is required to supply a Sign-in name before streaming starts, and this sign-in is used as their text chat identifier. If streaming has been initiated via the Watch control on the MCU conference list, the user's web interface login ID will be used as their text chat identifier.

The text chat facility provided via web browser-based content streaming is two-way in that any content channel streaming viewer is able to both contribute text and see all messages typed by other viewers. Although there is no mechanism by which H.323 endpoints are able to contribute text chat messages, the MCU is able to display the most recent text messages within H.323 endpoints' main video channels. This is intended to be of use in the scenario whereby a presenter is connected to an MCU conference via a H.323 endpoint and wishes to field questions raised by (content channel) streaming viewers. In this situation, the text typed by content channel streaming viewers is overlaid on the normal, multi-pane, conference layout, though is restricted to approximately the lowest 1/3 of the screen.

The display of text chat in H.323 endpoints' views is governed by the unit-wide Overlay text chat in normal video channel setting. The text chat facility itself, and display of typed text to all content channel streaming viewers' windows, cannot be disabled.

Sending a message during a conference

You can send a short message to one, more or all participants in an active conference.

Messages must be fewer than 256 characters, but depending on the viewing screen, messages at the higher-end of this limit might not display properly: therefore, consider limiting messages to approximately 180 characters. Also, messages longer than 256 characters will not be truncated; they will not display at all.

Sending a message:
1. To send a message to selected participants, right-click on one or more connected participants in the same conference, or to send the message to all participants, right-click on the conference.
2. Select **Send message**.
3. Type in the message.
4. If required, change the default message position and duration.
5. Click **OK**.

The message is displayed on the participants' endpoints for the time specified in the General page of the Preferences dialog (30 seconds by default). (If you select a combination of connected and disconnected participants, the disconnected participants will not see the message — even when they reconnect).

ⓘ   The MCU needs to be set up to allow messages: go to **Settings** > **Conferences** in the web interface.

Ending and deleting a conference

You can end an active conference, and you delete one active conference or scheduled conference at a time. This can be done in a number of ways.

> ⓘ Ending an active conference with the **End now** option ends the active conference and therefore disconnects all participants but does not delete the scheduled conference of the same name, if it exists. If the configuration is periodic, then the conference will happen again as scheduled.
>
> Deleting an active conference with the **Remove** option also disconnects all participants and therefore ends the conference, but in addition it deletes the scheduled conference of the same name, if it exists. Therefore the conference will not recur even if it had been previously scheduled to do so.
>
> Deleting a scheduled conference with the **Remove** option both stops the active conference of the same name if it exists, and stops the conference repeating even if it had been scheduled to do so.
>
> Whether you can still see a deleted conference in the Scheduled conferences depends on the setting in the Conference page of the [Preferences](#) dialog.

Ending an active conference
1. Right-click on the active conference and select **End now** or select the conference and go to **Conference** > **End now**.
2. Click **Yes**.
   The active conference is deleted and removed from the Tree View but the scheduled conference of the same name remains and the schedule still applies.

Deleting a conference
1. Right-click on the conference and select **Remove**, or select the conference and go to **Conference** > **Remove** or click the Remove conference toolbar icon 🔒.
2. Click **Yes**.
   The conference is deleted and removed from the Tree View.

Participants

About participants

As far as the MCU and Conference Director are concerned, a participant is any endpoint that can be called or that can call in to an MCU and join a conference.

This means that the same participant can appear in the Conference Director several times:
- In one active conference
- In several scheduled conferences on the same or different MCUs in addition to the one active conference

It is possible to have more than one participant with the same name in the same conference. To avoid confusion, you can edit the name in the Participant properties dialog or in the Address book - but the two are independent: changing the name in one place does not change it globally within the Conference Director.

Connecting a participant

Participants can join a conference in a number of ways:
- By being added to a conference configuration. This can be a participant with an entry in the Address book or you can add the details manually. In this case you choose whether the participant will be dialed automatically by the MCU or whether you manually connect them when the conference is active - see below
- By being added as an ad hoc participant in an active conference by right-clicking on the conference and selecting **Add participant**
- By dialing in to the conference as an ad hoc participant, for example by using the auto attendant

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ⓘ　　Note that an ad hoc participant is not dialed when the conference recurs.

To connect a participant manually

If you selected the Use manual connect check box when you added a participant to a conference configuration, the participant must be connected individually while the conference is active.

1. Right-click on the participant in either view and select **Connect**, or select the participant and either go to **Participant** > **Connect** or click the Connect participant toolbar icon .

A connected participant is shown as .

Understanding participant status

During an active conference, you can display an entry for each participant in the List View.

Various icons might appear for these participants showing their status. Refer to the table below for assistance interpreting these icons.

Icon	Description	Explanation
	This participant has been made important and therefore has been given priority in the layout views - see Making a participant important/have normal importance.	If the participant is not important. no icon appears in this column.
	This participant is the active speaker.	
	This participant's audio is unmuted - see Muting/unmuting the audio or video for one or more participants.	

Icon	Description	Explanation
	There is an error on the participant's audio.	
	The participant is receiving audio from the MCU - see Muting/unmuting the audio or video for one or more participants.	
	The Outgoing audio mute check box has been selected in General page of the Participant's properties dialog.	
	This participant video is unmuted see Muting/unmuting the audio or video for one or more participants.	
	If the icon is blue the participant's video has been muted - see Muting/unmuting the audio or video for one or more participants. If the icon is orange, there is an error on the participant's video.	

The status of a participant is also shown in the Tree View.

Icon	Description	Explanation
	This participant is connected.	
	The participant has been disconnected from an active conference.	The reason is shown in the Disconnect reason column in the List View.
	The participant has been disconnected from an active conference because of an error.	The reason is shown in the Disconnect reason column in the List View.
	Waiting for the participant to connect.	
	There is a problem with this participant.	
	The participant is configured in a scheduled conference.	
	There is a problem with this participant.	There are a number of reasons why you may see this icon; for example, this may be an alert that one of audio or video warning and critical packet loss levels set in the preferences have been reached.

Adding a participant to a conference

A participant can be added to a conference through Conference Director in a number of ways. In each case see Participant properties fields for help about individual fields:

- **When you create or duplicate (copy) a conference**
  You can add the participant to the conference configuration when you create or duplicate the conference. This can be a participant with an entry in the Address book or you can add the details manually. You can choose whether the participant is called automatically by the MCU as soon as the conference starts or whether you manually connect them subsequently

- **Adding to the conference configuration using the conference configuration dialog**
  You can add the participant to the conference configuration using the Conference configuration dialog after the conference has been created or copied by right-clicking on the conference and selecting **Configuration**). This can be a participant with an entry in the Address book or you can add the details manually. In this case:
  - The MCU dials the participant as soon as you click **OK** - or as soon as the conference becomes active - unless you have selected Use manual connect. This is useful if you regularly invite the same participants into a conference

- o The participant is dialed every time the conference recurs unless you have Use manual connect selected. To connect the participant after the conference starts, right-click and select **Connect**

  You can also add the participant to the Address book at the same time.

- **Adding to a conference configuration by dragging and dropping from the Address book**
  Drag and drop the entry from the Address book on to the conference entry in the scheduled conferences branch of the Tree View.

- **As an ad hoc participant in an active conference using the Add new participant dialog**
  You can add the participant to an active conference dragging the participant from the by Address book on to the conference entry in the List View or by right-clicking on the conference and selecting **Add participant** and adding the details manually. In this case:
  - o The participant is an ad hoc participant: he or she will not be added to the scheduled conference configuration and therefore he or she is not dialed when the conference recurs

  You can also add the participant to the Address book at the same time.

  (Note that right-clicking on a conference in the scheduled branch and selecting **Add participant** is different from selecting this context menu option in the active conference branch: it adds the new participant to the conference configuration in the same way that working through the Conference configuration dialog does.

- **As an ad hoc participant in an active conference by dragging and dropping from another conference**
  Drag and drop the participant's entry from another active conference on the same MCU. See Dragging and dropping participants. These are then ad hoc participants in the new conference even when they were configured participants in the original conference. You can also drag and drop from one scheduled conference to another.

Note that a participant can also dial in and create or join a conference, for example through the auto attendant. This participant is then an ad hoc participant in the conference.

Displaying/Editing a participant's properties

You can display a participant's properties in a number of ways. When the properties are displayed, you can edit some of the fields. The information displayed and the fields that you can edit depend on whether the participant is connected in a conference or not.

Displaying/editing a participant's properties
1. Either double-click on the participant in either view and or right-click and select **Properties**.
   The Participant properties dialog is displayed:

   - If the participant is connected in an active conference the dialog opens with the General page displayed and all pages are active
   - For disconnected participants in an active conference all the pages are displayed but are inactive: no statistics are displayed for example because there is no connection
   - For a participant in a conference configuration that is not current active, only the General and Layout pages are displayed,. you can edit the settings on these two pages
     See Participant properties fields.
2. For active participants you can also:
   - Open the other pages to see different properties. See Participant properties fields
   - Modify some of the properties
   - Control the participant's layout view using the Layout page. See Understanding layout views.
   - Control the participant's Far End Camera by opening the Camera preview page and clicking the arrows. See Controlling a participant's endpoint camera
   - Send a message to the participant using the Messaging page. See Sending a message during a conference
3. When you have finished, click **Close**.

Participant properties fields

This topic describes the fields in the Participant properties dialog. If the participant is in a scheduled conference that is not active only the General and Layout pages of the dialog are relevant and displayed. If the participant was in an active conference but is disconnected, all five pages are displayed so you can see the details about their call but you cannot edit any fields.

When you have finished with this dialog, click **OK**.

General page

Some fields are editable for a connected participant only; others have a different effect when set for a scheduled participant compared to settings for a connected participant and both uses are explained.

Field	Description	Explanation
Name	The name by which this participant will be known in Conference Director.	The Name can be, but is not necessarily, the same as the Internal name of the participant's endpoint and can be used to distinguish between endpoints of the same Internal name. Note that changing the Name in the Address book after the participant has been added to the conference does not affect the name displayed for this participant under the active or scheduled conference branches in the Tree View or in the List view. Equally, editing the Name for a participant in this dialog does not update the Address book.
Address	The IP address, host name or an E.164 address (phone number) of the participant's endpoint.	
Gateway address	The gateway to use to connect to the participant's endpoint.	You can select an existing gateway to use but you cannot set up a H.323 gateway with Conference Director. To do this through the web interface go to **Gateways** and click **Add new H.323 gateway**. This field is blank for disconnected participants.
Conferencing parameters		
Important (active only)	*Connected participant*: Selecting this check box makes the participant important. *Scheduled participant*: whether the participant will be important when the conference starts.	You can only make an active participant important. This field is blank for disconnected participants.
Layout control enabled	When selected, this participant can control their own layout during a conference using their endpoint's controls - and therefore override what you set.	This field is blank for disconnected participants.
Widescreen (configured) and Send widescreen	Only select this check box if you have a legacy endpoint with a widescreen display but the displayed video stream	Endpoints advertise the resolutions that they are able to display. The MCU then chooses from those advertised resolutions, the resolution that it will

Field	Description	Explanation
(active)	is distorted.	use to transmit video. However, some endpoints do not display widescreen resolutions optimally. Therefore, you might want to use this setting to restrict the resolutions available to the MCU for transmissions to this endpoint. This field is blank for disconnected participants.
Audio muted	*Connected participant*: whether their audio is currently mute: other participants do not hear this participant. However, they see the video steam unless that is muted separately *Scheduled participant*: whether this participant's audio will be muted when the conference next starts.	This field is blank for disconnected participants. To change the properties for more than one participant, select them in List View and use the context menu.
Outgoing audio muted	For active participants only, selecting this check box prevents any audio being sent from the MCU to this participant.	
Video muted	*Active participant*: whether their video is currently muted. *Scheduled participant*: whether this participant's video will be muted when the conference next starts i.e. other participants will not see the video stream from this participant's endpoint however they will still hear the participant unless the audio is muted separately.	
Use manual connect (configured only)	If selected, this participant will not be connected automatically by the MCU when the conference starts, but only when you right-click on their icon and select **Connect**.	This field is not displayed for disconnected participants.
Audio gain	You can make the MCU adjust the audio from this participant: louder (positive numbers) or softer (negative numbers). The default is no gain (zero).	Select a value from the drop-down list. This field is blank for disconnected participants.
Motion/sharpness tradeoff	The settings for motion (frames per second) and sharpness (frame size or resolution) are negotiated between the endpoint and the MCU. *Connected participant*: controls whether motion or sharpness takes precedence during the current conference. *Scheduled participant*: controls whether motion or sharpness will take precedence when the conference starts.	This field is blank for disconnected participants. Select a value from the drop-down list: *Default*, *Balanced*, *Prefer motion* or *Prefer sharpness*. • *Default*: this is the MCU's unit-wide default value (i.e. the connection to the endpoint will use the motion/sharpness tradeoff setting from the **Settings** > **Conferences** page in the web interface • *Prefer motion*: the MCU will try and use a high frame rate. That is, the MCU will strongly favor a resolution of at least 25 frames per second

Field	Description	Explanation
	• *Prefer sharpness*: the MCU will use the highest resolution that is appropriate for what is being viewed • *Balanced*: the MCU will select settings that balance resolution and frame rate (where the frame rate will not be less than 12 frames per second)	
Bit rate to MCU/Max bit rate to MCU	*Connected participant*: The bit rate (in bits per second) that the MCU has requested that the remote endpoint sends during this conference. *Scheduled participant*: The bit rate (in bits per second) that the MCU will request the remote endpoint to send when the conference starts.	This value cannot be changed for an active participant. This field is blank for disconnected participants.
Bit rate from MCU/Max bit rate from MCU	*Connected participant*: The bit rate that the MCU is attempting to send at this moment. *Scheduled participant*: The bit rate that the MCU will attempt to send when the conference starts.	This value cannot be changed for an active participant. This field is blank for disconnected participants.

Layout page

This page is only displayed for participants in an active conference and allows you to choose the layout that this participant sees.

Select one of the following:
• the layout family to use
• the Conference layout radio button and click **Edit** to be able to select a new standard or widescreen conference custom layout which will also be used for the participant straight away. The Conference layout dialog opens with the current layout in a blue border. Then you click **OK**, you see the layout you chose next to the radio button
• the Participant layout radio button and click **Edit** to be able to select a standard or widescreen custom layout for this participant. The Participant layout dialog opens with the current layout in a blue border. Then you click **OK**, you see the layout you chose next to the radio button

See Understanding layout views.

Focus page

This page is only relevant for connected participants and selecting one entry from the list determines the participant who appears in the largest pane.

<loudest speaker>	When selected, the loudest speaker will be the focused participant.
<H.239 content>	When selected, the content channel will be in the largest pane on endpoints on which the content channel appears in the main video stream and not on a separate monitor.
participant name	Each connected participant is listed. Select one participant to have that participant be the focused participant.

Camera page

This page is only relevant for connected participants. Use the buttons to control the view that the participant's endpoint is sending to the MCU.

Movement	These buttons pan or tilt the endpoint's camera in the direction of arrows.
Zoom	The buttons zoom in and out.

Statistics page

This page is only displayed for participants in an active conference. For each of the following fields, information is displayed both "From" and "To" the participant.

Field	Description	Explanation
Video statistics		
Codec	The type of codec in use.	
Resolution	The resolution currently in use.	
Interlaced	Controls whether the MCU restricts video resolutions in order to reduce the effect of interlacing artifacts.	You should only enable this option if you are seeing video interlacing artifacts or on the advice of Cisco Technical Support. Note that all resolution restrictions imposed by this setting apply only to video being sent from endpoints to the MCU.
Frame rate	The most-recently measured actual frame rate.	
Channel bit rate	The negotiated bit rate available for the endpoint to send video in.	This value represents the maximum amount of video traffic that the remote endpoint will send to the MCU. It may send less data than this (if it does not need to use the full channel bit rate or the MCU has requested a lower rate), but it should not send more.
Selected bit rate	The bit rate (in bits per second) that the MCU has requested that the remote endpoint sends.	
Actual bit rate	The most-recently measured actual bit rate.	
Bit rate limit reason	The reason why the actual bit rate does not match the selected bit rate, if appropriate.	
Packets	A count of the number of packets that have been sent from the MCU to the participant's endpoint and vice versa.	
Lost packets	The number of video packet-level errors such as sequence discontinuities, incorrect RTP details, and so on.	This value does not include packets in which the actual video data in the packets is in error. You should expect to see small values for this setting. Consistently large numbers typically imply potential network problems.
Audio statistics		
Codec	The type of codec in use.	
Packets	The number of packets sent.	
Lost packets	The number of audio packet-level	You should expect to see small values

Field	Description	Explanation
	errors including sequence errors and packets of the wrong type.	for this setting. Consistently large numbers typically imply potential network problems.

Send message page

This page allows you to send a message to a connected participant. To send your message, click **Send**. (The message displays on their endpoint for the duration you set in the Preferences dialog.

Field	Description	Explanation
Message	Type in your message.	Messages must be fewer than 256 characters, but depending on the viewing screen, messages at the higher-end of this limit might not display properly: therefore, consider limiting messages to approximately 180 characters. Also, messages longer than 256 characters will not be truncated; they will not display at all.
Status bar	Displays the status of the message.	

Making a participant important/have normal importance

You can make one participant "important" in an active conference. Importance affects who appears in which pane in a view. See Understanding layout views.

Only one participant can be important at any time - making one participant important removes the importance from another participant. (However, you can also make an important participant have normal importance so that no participant is important.)

The important participant is shown with the 🔖 icon in the List View.

Making a participant important or have normal importance
1. Right-click on a participant in an active conference.
2. Click on the **Make important** or **Make normal** context menu option.

ⓘ You can only make a connected participant important.

Changing the settings of a participant in an active conference does not change their setting in the conference configuration i.e. making a participant important now does not mean they will be the important participant when the conference starts next time.

Equally, changing the setting in a scheduled conference configuration will make that participant important when the conference next starts but does not change what is happening now if the conference is also active.

Muting/unmuting the audio or video for one or more participants

You can set the audio and video streams that each participant sends to be on (unmuted) or off (muted). By default, both incoming video and audio are on (unmuted), but you can adjust the setting in a number of dialogs and using the toolbar. However, the effect will be different if the participant is in an active conference compared to changing the setting in the Address book or for a participant in a scheduled conference.

You can also mute the outgoing audio to an active participant i.e. that participant receives no audio from the MCU.

Participants in an active conference

You can "turn off" the audio or video signal for one or more participants in an active conference. Participants who have had their incoming audio muted do not contribute audio to the conference but continue to contribute to the video stream unless it is muted separately. Additionally, muted participants are not considered when the MCU calculates the loudest speakers to display in the largest panes, even if the participant had previously been in one of those positions. See Understanding layout views. Note that other participants will not have an indication that a participant has been muted. They simply will no longer hear that participant speaking.

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

Participants who have their outgoing audio muted do not hear any of the other participants.

Muting/unmuting the audio or video

1. Right-click on one or more participant(s) in the same conference and then click on the appropriate context menu option. Alternatively select the participant(s) and use the toolbar icons:

   - unmute audio (i.e. what the participant says)
   - mute audio
   - unmute outgoing audio (i.e. audio to the participant)
   - mute outgoing audio
   - unmute video
   - mute video

Changing the settings of a participant in an active conference does not change the setting in the scheduled conference i.e. the setting for this participant when the conference starts next time is not affected.

If you mute (or unmute) connected participant(s) in an active conference, then the appropriate setting is changed straight away. Changing the setting of participant(s) who are unconnected determines what other participants see and hear when they connect during the same conference session.

Participants in a scheduled conference

You can set the audio and video for a participant in a scheduled conference to be muted or unmuted when the conference (or a recurrence of the conference) starts.

Muting/unmuting the audio or video

1. Right-click on one or more participant(s) in the same conference and then click on the appropriate context menu option.
   Alternatively select the participant(s) and use the toolbar icons:

   - unmute audio (i.e. what the participant says)
   - mute audio
   - unmute video
   - mute video

Changing the setting in a scheduled conference effects what it seen and heard when the conference next starts but does not change what is happening now if the conference is also active.

Participants in the Address book

You can open a participant's entry in the Address book and edit their properties.

ⓘ   Changing the setting in the Address book only changes how this participant audio and video will be set for conferences that you add the participant to *after* the change. It does not effect the configuration of any conferences that this participant is already a part of.

Lecture mode

Using lecture mode does not affect the audio of other participants.

Outgoing audio mute

For an participant in an a active conference you can mute the audio they receive from the MCU by selecting the Outgoing audio mute check box has been selected in General page of the Participant's properties dialog.

Making a participant the lecturer

You can make one connected participant the lecturer and the conference is then said to be in lecture mode.

This is a simple and quick way to set the layout seen by participants:

- The lecturer is seen by all other participants full-screen irrespective of any of their current settings
- You can choose the layout view that the lecturer sees of the other participants

Making a participant the lecturer

1. Right-click on the participant who you want to be the lecturer and click **Lecture mode**.
   The Set lecturer's layout dialog is displayed.
2. Select the appropriate layout or layout family that you want the lecturer to see.
   - If you want to use the current custom Conference or Participant layout, click the corresponding radio button
     Note: Although you cannot change the custom Conference layout from this dialog you may still want to use the one that is currently set because only the custom Conference layout has pane placement. For any other views the lecturer sees the participants that the MCUs would normally put in these views: see Understanding layout views.

   - You can select a different custom Participant layout. Click **Edit**. In the Participant layout dialog select the layout you require and click **OK** to close the dialog.
3. Click **OK**.

The layout view for all participants changes:

- the lecturer sees the view that you selected
- all other current participants see the lecturer only. (However participants joining the conference while lecture mode is in progress are not forced to view the lecturer full screen - unless this is the default layout for the conference, or the MCU's default layout, if no default layout is set for the conference)

Terminating lecture mode

Lecture mode can be turned off by right-clicking on the conference and selecting **Apply conference layout**. The layout for all participants switches to the default conference layout or the MCU's default layout if none is set for the conference.

Controlling a participant's endpoint camera

While in an active conference, you might need to change the camera settings for one of the conference participants, for example, if you want to zoom in on a particular speaker in a large group, or if you cannot see the speaker. This is done using the participant's far end camera control.

ⓘ   Click on the preview window above the arrow keys to refresh the participant's camera view.

Using the Far End Camera controls
1. Right-click on a participant in an active conference and select **Properties**.
2. Open the **Camera** page.
3. To move the camera angle, click on the arrows as required.
4. To zoom in or out, click on the appropriate magnifying glass button.
5. When you have finished, click **Close**.

Dragging and dropping participants

You can now use drag and drop to make it easier to manage participants.

Dragging between conferences

You can drag and drop one or more participants from one conference to another conference:

- **Active conferences**: From one active conference on an MCU to another active conference on the same MCU. Dragged participants are ad hoc participants in the destination conference: they are not dialed when the conference recurs. The participant's call remains connected continuously. If you drag and drop between conferences, no messages are displayed to the participant (unless you selected the preference to display a confirmation dialog) - the participant simply sees a different set of participants and the layout is determined by the new conference . See Preferences dialog fields.

- **Scheduled conferences**: From one scheduled conference on the same or a different MCU. The participant is removed from the original conference.

Dragging and dropping can be done in either the Tree View or the List View.

ⓘ   You cannot drag a participant from an active conference to a scheduled conference and vice versa.

Keeping track of moved participants

You can choose whether a dragged and dropped participant remains as a disconnected participant entry in the conference that you moved the participant from by using the **View** > **Show moved participants** option. The Disconnect reason is shown as "moved". If the option is not ticked, then no record remains that the participant was once in the original conference.

ⓘ   Participants who were ad hoc participants in the original conference do not show as disconnected participants after they have been dragged and dropped even if you have selected the **View** > **Show moved participants** option.

Dragging to and from the Address book

You can drag and drop a participant in to the Address book and their details are stored for use subsequently. If there is already an entry for a participant with the same name as the one you are adding, you are prompted to enter a new name.

You can drag and drop a participant from the Address book in to an active conference and that participant is dialed straight away. You can also drag a participant from the Address book to a scheduled conference and they are added to the conference configuration.

Dragging from the auto attendant

You can also drag a participant who is connected to an auto attendant to an active conference on the same MCU to connect them to the conference: however, you cannot drag a participant to an auto attendant.

Understanding layout views

The MCU provides over 50 layout views and each participant can have a different view (except for participants who are streaming the conference: all multicast streaming participants see the same view). The views vary from the most simple of just displaying one participant to dividing the endpoint's screen in to a large number of panes. The panes can be the same of different sizes. Which view is the most "sensible" depends on a number of factors, including how many participants there are in the conference and whether the endpoint supports widescreen views.

The default behavior of the MCU is to display the "loudest" participants in the most prominent layout panes. If there are more contributors than there are panes available, then the "quietest" participants are not shown.

However, different styles of layout introduce slight subtleties to this behavior, and in addition there are a few ways in which participants or conference administrators may change the system used for pane assignment. These are described in this topic. (In addition, if you select a conference custom layout you can choose which participant appears in each pane. See pane placement.)

Layout pages

One layout or a family

The Layout pages in the Conference configuration and participant dialogs allow you to choose a layout — or a layout family — for the selected conference or participant(s). For example the difference between selecting the third option (screen divided in to four panes) and the fourth option is that if you select the third option then the screen is always divided in to four. There are blank panes if there are fewer than 4 participants and, equally, the endpoint only displays four other people even if there are 5 or more participants in the conference. The fourth option is a layout family, so that when a fifth participant joins the conference the layout changes from a 2 x 2 view to 3 x 3 so that up to 9 participants can be displayed simultaneously. Equally, if a tenth participant joins the conference, the view will change again to 4 x 4.

The custom conference and participant options allow you to choose one layout from a large number of layouts - and in the case of the custom conference layout, to use pane placement.

Equal sizes or different sized panes

Options two, three and four all have panes of equal sizes. Options 1 and 5 allow you to pick arrangements with panes of different sizes and this may be useful if there is one main speaker, or a person who is more important than the other participants.

When allocating participants to panes, the MCU always fills the largest pane or panes first. If there are more participants than panes then there will never be empty big panes (though one or more small panes may be empty). To reduce the number of view changes when different participants speak (for example, when people change from being active speakers to inactive contributors), the MCU duplicates participant views for layouts with more than four small panes. This reduces the impact of audio volume changes on the composed layout while not needlessly wasting view space. However, it is possible to configure the MCU not to duplicate participant views in this way if so desired (go to **Settings** > **Conferences** in the web interface).

Widescreen layouts and clipped panes

The custom conference and participant layouts include a page with a number of layouts more suitable for endpoints with widescreens.

Clipped panes can occur when a view is scaled. Most panes, whether big or small, have the same aspect ratio as the view itself: that is, the panes' widths and heights are in the same proportion as the width and height of the encompassing view. However, some views have panes where the ratio is not preserved. In

these cases, the MCU scales the participant video stream according to the larger dimension of the pane so that that dimension fits. For example, in a pane which is one half of the view width and two thirds of the view height, the MCU scales the participant video stream to two thirds of its size. Therefore a small amount of the left and right of the original image will not appear in the final composed layout.

"Important" participants

For each conference, one active participant can be set as "important". The MCU then 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. Note that importance is overridden if you are using pane placement.

In a layout in which all panes are of equal size, the MCU cannot focus on a specific participant; however, if a conference participant has been set to "important", that participant is always shown in the upper-left view pane.

"Important" Participants Combined with View Focus

If the view focus has been changed (for instance with left and right Far End Camera Control operations), then there is a potential conflict between the "important" participant and the focused participant.

In a layout with a single big pane and several small panes, the big pain shows the "important" participant by default. However, if the focus is changed to a different participant, then the big pane shows the selected participant and the "important" participant is shown in one of the small panes. If the view has been focused on a participant and the same participant is also set as "important" then that participant is shown in the big pane.

In a layout with two large panes and several smaller ones, if the view focus has been changed, then the upper or left large pane shows the focused participant. If a participant has been set to "important" then that video stream appears in the lower or right large pane. If the same participant is focused and "important", that video stream appears in the upper or left pane.

In layouts with three large panes, even if the view is focused on a specific participant and another has been set to "important", one large pane remains. This pane displays the "loudest" remaining participant.

Participants viewing themselves

When considering which participants to show in which panes, the MCU considers the participant's self view with lowest priority. This has two main implications:

- **Participant pane selection**
  When choosing participants to display, the MCU considers the viewer last. This prevents the participant who is the active speaker from potentially seeing only themselves. In this case, while everyone else will see the active speaker, the active speaker will see the previous active speaker in their biggest view pane.

- **View family layout selection**
  When the MCU is required to choose a layout from a view family, it does so based on the number of video contributors to the conference. However, when calculating the number of video contributors for a particular view, the MCU does not consider any video stream being received from the viewer. Thus, with 5 participants in a conference and everyone seeing the standard equal-sized view family (2x2, 3x3 or 4x4), each of the five contributing participants will always see the 2x2 view with themselves excluded. However, streaming viewers will see the conference display using the 3x3 view with five panes in use.

You may configure the MCU so that participants never see their own video stream in small panes, even if there are free slots (see **Settings** > **Conferences** in the web interface). They may still appear in large panes, for example if the view focus is manually changed to show their video.

Video stream vs. fixed images

The image you see in a pane for a video conference participant is either the live video stream (if you are viewing on a video endpoint) or a captured video image from the current video stream (if you are viewing on the web interface).

However, audio-only participants do not have any associated video to display. Instead, a fixed (bitmap or gif) image can be assigned to a participant through the web interface. When the participant joins a conference as an audio-only participant, this image appears in the layout pane. This can only be done through the web interface after the user account has been added. Go to for video conference participants and click on the link for an existing user.

Setting the layout

In Conference Director you can set the layout on a conference or per participant basis. you can:

- Control the layout for all the participants in a conference simultaneously using the Layout page of the Conference configuration dialog. You can also set a custom conference layout and use pane placement to select which participant appears in which pane
- Select more than one participant in the List View and set the layout; then, they all see the same selected view.
- Change the conference layout at any time by right-clicking on a conference and selecting **Set conference layout**; however you cannot set pane placement with this option, you must use the Conference configuration dialog to do that
- Apply the conference layout at any time by right-clicking on a conference and selecting **Apply conference layout**

Active vs configured participants

If you set the layout for active participants, then they see the selected view straight away.

However, if you set the layout for participants in a scheduled conference that is not currently active, the selected layout will be seen when the conference next repeats.

Setting the layout for one or more participants in an active conference
1. In the List View right-click on one or more participants.
2. Select **Set layout**.
3. Select one of the layout options. See Understanding layout views for information about the different choices.
4. Click **OK**.

The participant(s) see the selected view.

Setting all participants to the default conference layout in an active conference
1. In the List View right-click on the conference.
2. Select **Apply conference layout**.

Letting participants change their own layout

For each participant, you define whether that participant can override the layout you choose for them with the Enable layout control check box. By default the setting is enabled so that participants can control what they see. However, you can change the default setting when you add the participant to the Address book or create an ad hoc participant for a conference, or subsequently by editing the participant's properties. See Participant properties fields.

Setting the layout from the Address book or participant properties
1. Select a participant from the Address book and click **Edit** or right click on a participant in the Tree or List View and click **Properties**.
2. Open the Layout page.
3. Select one of the layout options. See Understanding layout views for information about the different choices.
4. Click **OK**.

If you updated the participant properties, the selected view is the one that the participant sees the next time they connect to a conference. If you updated the participant's Address book entry the selected view is only used when you subsequently add the participant to a conference from the Address book.

Layouts in lecture mode

If you select a participant to be the lecturer, then the layout is changed. The lecturer is seen by all participants full-screen but you can choose the layout view that the lecturer sees. See Making a participant the lecturer.

Disconnecting or removing a participant from a conference

You can disconnect participants from a conference and they are no longer part of the conference. However scheduled participants will be called in to the conference when it recurs. Simply right-click on the participant and select **Disconnect**.

A disconnected participant is shown with the icon and the icon. (If you see the same icon but in orange the participant was disconnected due to an error.)

Removing a participant is different. There are a number of ways to remove a participant from a conference:

- Open the Conference properties dialog and click on a name in right list box. Then click **Remove**. No confirmation is required
- Right-click on a participant in either the Tree View or the List View and select **Remove**. Click **Yes**
- Select a participant from Tree View and select **Remove** from the Participant menu. Click **Yes**
- Select a participant from Tree View and click the disconnect participant toolbar icon

Removing a scheduled participant from an active conference does also remove the participant from the Conference configuration; therefore the participant will not be called if the conference is scheduled for any repeats. A warning message is displayed.

Equally, removing a participant from a scheduled conference does not remove the participant from an active conference; their call is not disconnected.

Finally removing a participant from either an active conference or a scheduled conference (or both) does not remove the participant from the Address book - if he or she had an entry there.

ⓘ   Another way to remove a participant from an active conference is drag and drop them from this conference to another active conference on the same MCU. See Dragging and dropping participants.

Address book

Creating and selecting the Address book

You can create an Address book and use it for the participants that you call in to conferences frequently. You chose the folder to store the Address book in, locally or on a server. You can also share the Address book with other users of Conference Director.

> (i)   If you used the Address book in Conference Director's predecessor, the unofficial Management Application, you will find that using the Address book is much faster in Conference Director.

You can have more than one Address book and then select the one to use at any time. For example you may want to have one for your European participants and a different one for participant from the Americas. The Address book that is selected when you close Conference Director will also be the one automatically selected when the application reopens.

The Address book is used to store participant details such as their endpoint's IP address and whether to use a gateway to call it. For each participant you can also store a number of connection settings such as the maximum bandwidth, and preferences (for example, the initial layout displayed when the participant joins a conference).

The current Address book is automatically opened each time Conference Director starts. Address books have a filename extension of .caddr.

Leaving the Address book open

The Address book can be left open (displayed) while you work with other dialogs. This can be useful because dragging and dropping Address book entries is one way to add participants to conferences, for example. See Adding a participant to a conference.

Address book compared to pre-configured endpoints

The Address book is completely independent of the Endpoints function on the MCU; for example, it is not stored on the MCU. However, they serve a similar purpose - to let you set up frequently-used participants' endpoints once and call then in to conferences swiftly and easily. To save retyping information already stored on the MCU, you can copy pre-configured endpoints from the MCU to an Address book: see Obtaining Address book entries from an MCU.

Creating/Selecting an Address Book

When you create a new Address book it is automatically selected. If you are intending to import participants from an MCU, you must select the Address book to import them in to before you use the **Import from MCU** option in the Address book menu.

To select an Address book:
1. Go to **Tools** > **Address book** > **Select address book**.
2. Either type in a file name, or use **Browse**.
   This can be local or on a server. If you want to store the Address book in the same folder as the preferences file, this is \Documents and Settings\<name>\Application Data\Codian\Codian Director.
3. Click **OK**.
   If the file does not exist, then Conference Director asks you if you want to create it, both creating a new Address book and selecting it.

Adding a participant to the Address book/Editing an entry

You can add an entry in the Address book and then add that participant to one or more conferences. You can also add a participant to a conference and to the Address book in the same procedure.

Finally, you can add a participant from a scheduled or active conference as an Address book entry. This can be achieved in two ways: dragging and dropping as described in the previous section or by right-clicking on the participant and selecting **Add to address book**.

ⓘ   The participant is added to the currently selected Address book. As there can be more than one Address book, make sure it is the one you want to work with.

Adding an Address book entry

1. Go to **Tools** > **Address book** > **Open address book**.
2. Click **Add**.
    The Add address book dialog opens with the General page open.
3. Type in the participant's name and their endpoint's IP address.
4. Complete the dialog as appropriate. See Address book entry fields.
5. Click **OK** to close the dialog.
6. Click **Close**.

Editing an Address book entry

1. Go to **Tools** > **Address book** > **Open address book**.
2. Click on the participant's entry and then click **Edit**.
    The Edit address book dialog opens with the General page open and shows the current settings for this participant.
3. Modify the dialog as appropriate. See Address book entry fields.
4. Click **OK**.
5. Click **Close**.

Adding a participant to a conference and to the Address book

There is a **Add to Address book** check box in the dialogs used to add participants to conferences. See Adding a participant to a conference.

ⓘ   The one constraint about using this method to add a participant to the Address book is that the participant's name must be unique within the Address book. Normally a participant's name only has to be unique within a conference.

Address book entry fields

The same fields are displayed in the Add address book entry and the Update Address book entry dialogs. This topic describes these fields.

General page

Field	Description
Name	The name of the participant as you want it to be displayed within the Conference Director.
Address	The IP address, host name, or an E.164 address (phone number) of the participant's endpoint.
Gateway	Identifies the gateway through which the endpoint connects.
Conferencing parameters	
Use manual connect	If selected, the MCU will not call out to this participant's endpoint when a conference that this participant is configured in starts. You must connect to this participant manually subsequently (right-click on the participant and select **Connect)**.

Field	Description
Auto connect on dial in	If selected, this participant can connect to a conference without entering the conference PIN (if one is set).
Layout control enabled	If selected the participant is able to change their layout view using their endpoint's controls.
Send widescreen	If selected, the MCU will send video to this endpoint in a format suitable for viewing on a widescreen display.
Audio muted	If selected, other participants will not hear this participant.
Video muted	If selected, other participants will not see the video stream from this participant's endpoint. However, they will still hear the participant unless the audio has been muted separately.
Audio gain	Select a value from the drop-down list. You can make the audio louder (positive numbers) or softer (negative numbers). The default is *no gain* (zero).
Motion/sharpness tradeoff	The settings for motion (frames per second) and sharpness (frame size or resolution) are negotiated between the endpoint and the MCU. This setting controls how the MCU will negotiate the settings to be used with this endpoint. Select a value from the drop-down list: *Default*, *Balanced*, *Prefer motion* or *Prefer sharpness*. • *Default*: this is the MCU's unit-wide default value (i.e. the connection to the endpoint will use the motion/sharpness tradeoff setting from the **Settings** > **Conferences** page in the web interface • *Prefer motion*: the MCU will try and use a high frame rate. That is, the MCU will strongly favor a resolution of at least 25 frames per second • *Prefer sharpness*: the MCU will use the highest resolution that is appropriate for what is being viewed • *Balanced*: the MCU will select settings that balance resolution and frame rate (where the frame rate will not be less than 12 frames per second)
Max bit rate to MCU	Select a value from the drop-down list. Sets the bandwidth that the endpoint will advertise to the MCU when it calls it.
Max bit rate from MCU	Select a value from the drop-down list. Identifies the network capacity (measured in bits per second) used by the media channels established by the MCU to a single participant.

Layout page

This page shows a number of options for the layout that this participant sees when he or she connects to a conference. Choose from:
• MCU default layout
• One of the families of views: the actual number of panes displayed depends on the number of participants in the conference
• A custom layout for this participant that is the same as the Custom conference layout. Then click **OK**.
• A custom layout for this participant: click **Edit** and select the view from the Participant layout dialog. Then click **OK**.

Removing a participant from the Address book

You can remove one or more participants from the Address book. This has no effect on participants in a conference:
• For participants that are connected in an active conference - the connection remains
• If the participants are in one or more Scheduled conferences, they remain there and the MCU will called out to them each time those conferences start

If you want to disconnect participants from an active conference or delete them from a scheduled conference, you need to do this separately.

Removing a participant's entry from the Address book
1. Go to **Tools** > **Address book** > **Open address book**.
2. Select one or more participant(s) to delete and click **Remove**.
   The message, Remove selected entries? is displayed.

3. Click **Yes**.
4. Click **Close**.

Obtaining Address book entries from an MCU

If a number of endpoints have been configured on an MCU using the web interface, you can add the endpoints' details in to your open Address book using the configuration.xml file on the MCU instead of retyping all the information.

ⓘ   The Address book you want to import entries in to must be open.

       The import adds every entry it finds: therefore this can produce two entries for the same participant — you must tidy up the Address book manually.

Obtaining Address book entries from an MCU
1. Using ftp, copy the configuration.xml file to the computer on which you are running Conference Director.
2. With an Address book selected, go to **Tools** > **Address book** > **Import from MCU** and browse for configuration.xml. Then click **OK**.
3. When the confirmation message displays, click **OK**.
   This searches the configuration.xml file and extracts the details in to the Address book. New entries are displayed in the normal way for example in the Address book dialog.

Auto attendants

The auto attendant branch

Auto attendants simplify the way participants can join conferences. By calling an auto attendant using their video endpoint, a participant can choose among menu items to join, or start a new ad hoc conference if the **Create new conference** option is available. No gateway or gatekeeper is required.

ⓘ   You can drag a participant who is connected to an auto attendant to an active conference on the same MCU to connect them to the conference. See Dragging and dropping participants.

The auto attendant is configured on the MCU using the web interface (go to **Conferences** > **Auto attendants**). The MCU has one default auto attendant but you can configure others and set up a menu structure of auto attendants (otherwise known as Interactive Voice Responses or IVRs).

Although you cannot add or configure auto attendants with the Conference Director, you can see when they are being used. When a participant is connected to an auto attendant on a MCU it is the same as being connected to a conference in that the connection occupies a port. You see:

- The auto attendant in the Tree View Auto attendant branch
- How many participants are connected to the auto attendant as a number in brackets beside the name

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ⓘ   You can add a custom banner image to any auto attendant configured on the MCU using the web interface. Go to **Conferences** > **Auto attendants**. Then if want to change the banner – select the auto attendant from the list and click **Banner**.

Troubleshooting

Displaying the event log

If you need to perform some troubleshooting for example to find you why an icon turned orange, or you are asked by Cisco Technical support to provide an event log, you can display the Event log dialog suing the View menu. The event log lists events from the current Conference Director session; if you do not save the log, the data is lost when you close Conference Director.

Events are listed in chronological order, and for each event you can see the date and time that the event occurs, the MCU that it occurred on, the event type and a description.

Examples of events include:
- connections and failed connections to MCUs
- conferences starting and stopping
- participants joining and leaving conferences

You can
- highlight and remove one or more entries from the log
- save the event log to a file in .xml format. You can choose the name and location of the file. If you do not save the event log, the data is lost when you close the application