Codian MCU 4200 Series User Manual

Software version 1.3(1), December 2005

Codian MCU 4210 Help Contents

Welcome to the Codian MCU User Manual. You can access all help topics from this contents page. You can also access context-sensitive help for a particular page when using the MCU web browser interface, by clicking the  icon on that page.

Using the Web Interface

Joining and Viewing Conferences

Managing Conferences

Logging into the Web Interface

The Codian MCU web interface is used for administering the MCU device, managing conferences, users, and pre-defined endpoints. You can also perform many conference-related tasks using the web interface that you cannot otherwise do.

When connecting to the Codian MCU web interface, you must log in so that the MCU can associate the session with your configured user and a set of access privileges. The MCU has a set of configured users, and each user has an ID and password that are used for logging in.

1. Using a web browser, enter the host name or IP address of the MCU.
2. Click on the **Log in** button.
3. Enter your assigned **User Name** and **Password**.

The main menu appears, restricting the available options based on your access privileges. Administrators have full access; standard users can create new conferences and manage their profiles; guest users typically can access publicly available conferences.

Related Topics

- Web Interface Tips

Web Interface Tips

These tips can help you more effectively use the MCU web interface:

- Displaying Updated Information
- Working with Tables
- Getting Help

Displaying Updated Information

The MCU web interface primarily displays static information that represents a snapshot of the status when the page was requested or refreshed. However, the information on the pages do not automatically update. Instead, you can just click the Refresh button on your web browser to display that latest information.

For example, if you are viewing the Conference List, it will not automatically update to reflect people joining or leaving that conference.

Working with Tables

Most of the MCU configuration and status information display in tables, which typically resemble the following:

Delete selected | Add new entry | Page 1 2 3 4 5 6 7

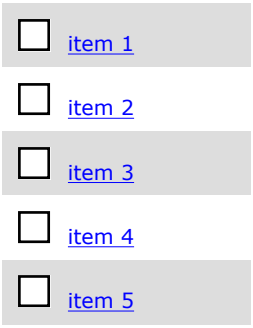
	Name	Address	Status
☐	a sample name	224.2.127.254	Responding normally
☐	building bridges	10.2.1.47	Responding normally
☐	middle entry	224.2.127.254	Responding normally
☐	xylophone	224.2.127.254	Responding normally
☐	zebra	224.2.127.254	Responding normally

Delete selected | Add new entry | Page 1 2 3 4 5 6 7

The significant controls in tables include:

- Checkboxes
- Hyperlinks
- Sorting Icons
- Page Indicators
- Buttons

Checkboxes



Clicking in the checkboxes next to items indicates that you want to apply an operation to those items. You can select each item individually, but sometimes you might want to apply the same operation to many items simultaneously. For example, you might do this to invite several endpoints into a conference at once rather than having to add them all separately.

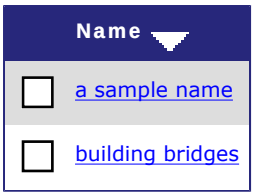
To do this, select or unselect one checkbox, then press the Shift key on your keyboard and click on another checkbox. All checkboxes between the first and last one will simultaneously be selected (or unselected).

You can also delete all selected items by clicking on the items you want to remove, and pressing the **Delete selected** button.

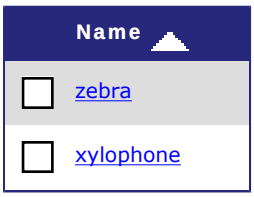
Hyperlinks

In general, when viewing items in the table, you can click on the "Name" field to display a new window with detailed configuration information about that item. Typically, you can also change and save the configuration for that specific item from that window.

Sorting Lists



A downward pointing arrow next to the a column heading indicates that the table is sorted by this category, in ascending order. For example, this sample table is displaying the items sorted by name. To sort by a different field, click on its name (for example, "Address" or "Status").



This shows the effect of clicking on the "Name" column heading when the table was sorted by already sorted by name. The downward pointing arrow has changed to an upward pointing arrow, and the names are now displayed in the opposite order, with the latest (in alphabetical terms) now at the top.

Page Indicators

If a table contains more entries than can be usefully displayed on a single screen, those entries are split up into multiple pages. The number of the page currently displayed is highlighted. To move to another page, click its associated link. Unused pages (representing unused table capacity) are grayed out.

Each page is a section of the complete, sorted, table. So the first item will always be at the top of Page 1. However, if you reverse the sorting order is reversed, the previously last *table* entry displays at the top of Page 1.

Buttons

Tables typically have two or more buttons associated with them that allow you to perform tasks to either all items or just selected items in the table. Refer to the context-sensitive Help topics for the specific tables for detailed assistance.

Getting Help

If you need assistance while working with the MCU web interface, click the Help icon on that page to display context-sensitive help content. This content explains fields and offers tips about how to use that specific web page.

Related Topics

- Logging into the Web Interface

Calling into Conferences

Depending on how your system administrator has configured the MCU and conferences on it, you might be able to join conferences by simply dialing a phone number.

Dialing in Using a Video Endpoint

Your system administrator may have configured the MCU to allow you to use your video endpoint to directly dial the conference by dialing a phone number. You will be required to enter the conference ID and PIN, if required. Or you may be able to dial by IP address and connect to the Auto Attendant. Using an Auto Attendant for details.

Note that some video endpoints require that you activate the keypad before dialing. For example, you might need to press the # key.

Dialing in Using an Audio-only Phone

If your phone system allows calls to the MCU, you may use your regular phone to join conferences as an audio-only contributor. You must enter the conference ID (and PIN, if required).

If your regular phone number is linked to your video endpoint, then when you use your phone to join a conference, the video portion of the conference will automatically appear on your video endpoint's screen. You can continue to use your regular phone for the audio portion of the conference.

The advantages to this method are that you are able to use the same method and phone to make video calls as you do traditional audio calls. You also may have improved audio signaling. However, this method requires significant configuration and setup from the system administrator. Your company's network may not have all the components available to support this method.

Related Topics

- Displaying Conference Lists
- Using an Auto Attendant
- Watching Conferences (Streaming)
- Using In-Conference Features from Video Endpoints
- Being Invited to a Conference
- Understanding How Participants Display in Layout Views

Using an Auto Attendant

Your system administrator may have set up an auto attendant for you to use to join conferences. An auto attendant presents you with a series of menus from which you can choose a conference to join.

Calling an Auto Attendant

There are typically two different ways to call an auto attendant using your video endpoint. Your system administrator should provide you with information about which method you should use:

- Enter the IP address or host name of the MCU device
- Dial using a standard E.164 phone number

Accessing the Main Menu

Once you successfully connect to the MCU, the main menu displays on your video screen, and you should also hear the audio instructions playing.

Navigate the auto attendant using the Far-End Camera Controls (FECC) on your video endpoint. Use the up and down controls to highlight the option or item you require; use right to make your selection. To return to previous a previous menu from a sub-menu, use left.

Typically, you will have these options:

Create New Conference

This option enables you to start a new conference that takes place immediately (an "ad hoc" conference). When creating this conference, you'll need to add a conference ID and optional PIN (to restrict access to the conference). Other participants are then free to join the conference as they would any other, for example by using the auto attendant, or by calling in directly (see Calling into Conferences).

Your system administrator can disable this option so it may not be available for all participants.

Join a Conference

All permanent conferences or conferences scheduled to take place (at this time) display here, listed by the conference name. Your system administrator can limit the conferences that display here. So, if you do not see the conference you want to join, verify the conference name, start time, and finally verify that your system administrator has enabled the conference here.

Access Other Auto Attendant Menus

Your system administrator may allow this auto attendant to access additional auto attendants, giving you access to additional conferences.

Participating in the Conference

Once you join a conference, the in-conference controls and features are the same regardless how you joined the conference (see Using In-Conference Features).

Leaving a Conference

To exit a conference that you have joined using the auto attendant, simply hang up. You cannot return to the main menu. So, if you need to join another conference, you will need to make a new call to the auto attendant.

Related Topics

- Displaying Conference Lists
- Calling into Conferences
- Watching Conferences (Streaming)
- Using In-Conference Features
- Being Invited to a Conference

Using In-Conference Features with Video Endpoints

Once you join a conference, you can control many conference features directly from your video endpoint. (For information about in-conference features using the web interface, see Controlling In-Conference Features).

- Controlling Conference Views
- Understanding Participants Status
- Using Far-End Camera Controls

Controlling Conference Views

Your video endpoint typically has navigation keys, such as up/down and left/right (on a keyboard or remote control), that allow you to control the camera viewing angles. When connected to a conference, you can also use these controls to scroll through participants and conference layout formats (see Understanding How Participants Display in Layout Views).

Understanding Conference Views

When you join a conference, you will have a set of available layout options you can from which you can choose to display the conference participants. Typically you can choose from two primary groupings of layouts:

- **Same-size Panes** — in these formats, all conference participants display in the same size pane on the video screen and thus have the same level of focus or importance. For example, a conference with four participants might display each in a pane sized to be a quarter (1/4) the size of your video screen.
- **Variable-size Panes** — in these formats, conference participants display in various pane sizes on the video screen depending on their "importance". For example, a layout might display the participant who is speaking in a pane larger than the other conference participants. Or, you might choose to focus on a particular participant (see Selecting Participants)

Choosing a Conference View

To switch among available conference views:

1. Change the camera control to "far".
2. Use the up/down navigation keys to toggle through the available format options.
3. Refer to the table below for assistance interpreting the icons that appear on-screen.

Icon	Icon Description
	You are scrolling up through the layout views.
	You are scrolling down through the layout views.
	You have stopped scrolling through the layout views.

Selecting Participants

When viewing a conference with a variable-size pane (see Variable-size Panes) you can choose which participant to

display in the larger panes on the video screen. You do this by selecting the participant following these steps:

1. Change the camera control to “far”.
2. Choose a variable-size pane layout view.
3. Use the left/right navigation keys to scroll through the participants.
4. Refer to the table below for assistance interpreting the icons that appear on-screen.

Icon	Icon Description
	You are scrolling through the participant list in a counter-clockwise direction.
	You are scrolling through the participant list in a clockwise direction.
	Speaking participant has the focus.

Understanding Participants Status

During the conference, various icons might appear in the pane of specific participants. Refer to the table below for assistance interpreting these icons.

Icon	Icon Description
	This participant has been given priority in the layout views. A participant is made "important" using controls on the MCU web pages
	The audio quality from this participant is poor.
	The audio quality from this participant is good.
	The video quality from this participant is poor.
	The video quality from this participant is good.

Using Far-End Camera Controls

While in a 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. To do this:

1. Change the camera control to “far”.
2. Select the largest displayed participant pane.
3. Press Zoom. The far-end camera control icon appears, and you can now control the far-end camera.
4. Refer to the table below for assistance interpreting the icons that appear on-screen.

Icon	Icon Description

	You are now controlling the viewing angle of the far-end video camera.
	You are moving the remote far-end camera down.
	You are moving the far-end video camera up.
	You are moving the far-end video camera to the left.
	You are moving the far-end video camera to the right.
	You are zooming in with the far-end video camera.
	You are zooming out with the far-end video camera.

Related Topics

- Displaying Conference Lists
- Calling into Conferences
- Using an Auto Attendant
- Watching Conferences (Streaming)
- Being Invited to a Conference
- Understanding How Participants Display in Layout Views

Controlling In-Conference Features

You can control many conference features from the MCU web browser:

- Adding Participants
- Viewing Participants List
- Customizing Layout Views
- Displaying Conference Statistics
- Sending Messages to All Participants

Adding Participants

You can add a participant if they are configured as an H.323 or VNC endpoint. Refer to these topics for details:

- Adding an H.323 Participant
- Adding a VNC Participant
- Adding Pre-configured Participants

Adding an H.323 Participant

Follow these steps to add an H.323 participant to a conference:

1. Go to **Home > Conferences** to display the Conference List.
2. Click a Conference name and then click the **Add participant** button.
3. To invite a new H.323 participant, see Configuring H.323 Endpoints and click **Invite**.
4. To invite an existing H.323. participant. click next to the name and click **Add selected**.

Adding a VNC Participant

Follow these steps to add a VNC participant to a conference:

1. Go to **Home > Conferences** to display the Conference List.
2. Click a Conference name and then click the **Add VNC** button.
3. To invite a new H.323 participant, see Configuring VNC Endpoints and click **Invite**.
4. To invite an existing VNC participant. click next to the name and click **Add selected**.

Adding Pre-configured Participants

You can choose to pre-configure participants to be part of a conference. These participants will be automatically invited into the conference by the MCU. This is useful if you regularly invite the same participants into a conference.

Follow these steps to add pre-configured participants to a conference:

1. Go to **Home > Conferences** to display the Conference List.
2. Click a Conference name and then click the **Configuration** tab.
3. Click the **Pre-configured participants** button. The pre-configured participants page will be displayed. This page lists all the endpoints that have been configured on the MCU (see Adding an H.323 Endpoint).
4. Select which endpoints you would like to add as pre-configured participants in this conference.
5. Press **Return to conference configuration**.
6. Make any other changes you require to the conference configuration, then press **Update conference**. If you do not press **Update conference**, you will loose any changes to made to the pre-configured participants in the previous steps

Related Topics

- Displaying Conference Lists
- Configuring VNC Endpoints
- Configuring H.323 Endpoints
- Adding an H.323 Endpoint

Configuring H.323 Endpoints

You can configure an H.323 endpoint on the MCU by choosing **Home > Endpoints > Add H.323**. This makes it easier to add endpoints to conferences because you can choose its name from a list rather than by its network address. The MCU can also call a configured endpoint to add it to a conference.

Refer to the table below for tips on adding an H.323 endpoint to the MCU. After entering the settings, click **Add endpoint**.

Field	Field Description	Usage Tips
Name	Identifies the name of the endpoint.	
Address	Displays the IP address, host name, or an E.164 address (phone number).	
H.323 gateway	Identifies the gateway through which the endpoint connects.	
Call-in match parameters	These fields are used to identify incoming calls as being from the endpoint.	The endpoint is recognised if all filled-in fields in this section are matched. Fields left blank are not considered in the match.
Preferred video size	Limits the video size received or sent by the endpoint.	This setting takes precedence over the *Default video size* setting in Conference settings. However, it is restricted by the *Maximum video size* setting (see Conference Settings). This option is only available if the MCU 4CIF (HRO) feature key is present.
Default view family	Sets the layout family to be used when calling out to this endpoint.	If this is set to *Use box-wide setting* then the default view family that has been configured via the Conference Settings page will be used.
Preferred bandwidth from MCU	Identifies the network capacity (measured in bits per second) used by the media channels established by the MCU to a single participant.	These settings take priority over the *Default bandwidth from MCU* setting configured in the global Conference settings (see Conference Settings).
Preferred bandwidth to MCU	Sets the bandwidth that the endpoint will advertise to the MCU when it calls it.	These settings take priority over the *Default bandwidth to MCU* setting configured in the global Conference settings (see Conference Settings).
Layout control via FECC / DTMF	Sets whether this endpoint is able to change their view layout via Far-End Camera Controls or DTMF tones.	This setting takes precedence over the per-conference layout control setting for conferences that the endpoint is invited into.
H.239 video contribution	Specifies whether this endpoint is permitted to contribute the conference content channel using H.239.	This setting takes precedence over the per-conference H.239 contribution setting for conferences that the endpoint is invited into.
Widescreen video	If this is set to *Enabled*, the MCU will send video to this endpoint in a format suitable for viewing on a widescreen display.	

Conference membership

This table shows which conferences this configured endpoint is a member of (if any). The list will include membership details for any currently active conferences, as well as for scheduled conferences in which this participant is a pre-configured member (see Adding participants).

Related Topics

- Displaying Endpoint List
- Adding a VNC Endpoint

Configuring Global Conference Settings

You can modify the global conference settings for the MCU choosing by **Home > Settings > Conference**. However, many of these values can be overwritten by other MCU or endpoint settings.

- Conference Settings
- Advanced Settings

Conference Settings

Refer to this table for assistance configuring the conference settings. After making any configuration changes, click **Apply Changes**.

Field	Field Description	Usage Tips
Default video size	Identifies the nominal video size that the MCU will send and receive when connected to a video endpoint.	This option is only available if the MCU 4CIF (HRO) feature key is present.
Maximum video size	Identifies the greatest video size that the MCU will send and receive when connected to a video endpoint.	This option is only available if the MCU 4CIF (HRO) feature key is present.
Default bandwidth from MCU	Identifies the network capacity (measured in bits per second) used by the media channels established by the MCU to a single participant.	When the MCU makes a call to a H.323 endpoint, the MCU chooses the maximum bandwidth that is allowed to be used for the media channels which comprise that call. This field sets that maximum bandwidth, and is the total bandwidth of the audio channel and video channel combined. This setting can be overridden by individual H.323 endpoints' *Preferred bandwidth from MCU* values.
Default bandwidth to MCU	Sets the bandwidth that the MCU will advertise to the H.323 endpoint when it calls it.	This setting can be overridden by individual H.323 endpoints' *Preferred bandwidth to MCU* values.
Default view family	Determines which layout views (see Customizing Layout Views) new participants see when connecting to conferences.	Regardless of the family chosen here, participants can cycle through the available families using the Far End Camera Controls. See Understanding How Participants Display in Layout Views.
Active speaker display	When in a conference, there is generally one participant that the MCU recognises as the *active speaker*, notionally the person currently speaking the loudest. This setting determines how the MCU displays that participant in conference views. • **None** With this setting, no special action is taken when displaying the active speaker. • **Border** Displays a border around the active speaker. • **Show full screen** If an active speaker is detected, this setting will cause the MCU to display that person full screen, irrespective of the layouts chosen by the conference participants. If there then ceases to be an active speaker for the conference, participants' views will revert to their previous layouts.	

Media port reservation	Determines whether the MCU is operating in *Reserved mode* (Media port reservation **Enabled**) or *Unreserved mode* (Media port reservation **Disabled**).	See Port reservation modes for additional information.
Use in-conference	Allow various in-conference features to be enabled or disabled. • **Messages** Visual notifications that appear on participants' screens when certain events or conditions occur. • **Warning icons** Icons that display on participants' panes when media from that participant is low quality. • **Audio notifications** Audible speech messages that play when certain events or conditions occur.	The in-conference messages appear when other participants join and leave conferences. Messages also appear when the conference's scheduled end time is approaching. The warning icons typically occur when a participant is experiencing high packet loss or if the network link's bandwidth is too low for the type of channel to the MCU that the endpoint has established. Audio notifications appear when a conference is about to end.
Time to show participant names	This setting controls whether (and for how long) participants shown in view panes are accompanied by their supplied name.	Whether to show participant names in view panes is not affected by the "Use in-conference messages" setting (described above). If "Use in-conference messages" is checked, other textual messages (for instance information on how soon the conference is going to end, or endpoints leaving and joining the conference) may take priority over participant names.

Advanced Settings

You typically only need to modify these advanced settings if you are working with a support engineer or setting up more complicated configurations.

Field	Field Description	Usage Tips
Audio codecs from MCU	Restricts the MCU's choice of audio codecs to be used for receiving audio from the endpoints.	When communicating with a H.323 endpoint, the MCU receives a list of supported audio codecs from the endpoint. The MCU chooses an audio codec from those available, and sends audio data to the endpoint in that format. The G.711 codec is used for streaming as well as for communication with H.323 endpoints, so disabling it also disables audio for streaming viewers.
Audio codecs to MCU	Determines which audio codecs the MCU advertises to remote H.323 endpoints, restricting the endpoints' choice of channels available for sending audio data to the MCU.	
Video codecs from MCU	Restricts the MCU's choice of video codecs to be used for receiving video from the endpoints.	When communicating with a H.323 endpoint, the MCU receives a list of supported video codecs from the endpoint. The MCU chooses a video codec from those available, and sends video data to the endpoint in that format.
Video codecs to MCU	Determines which video codecs the MCU advertises to remote H.323 endpoints, restricting the endpoints' choice of channels available for sending video data to the MCU.	

Video format	Sets the video format used and transmitted by the MCU. • **NTSC** The MCU will favour transmitting video at 30 frames per second, at SIF-like resolutions. • **PAL** The MCU will favour transmitting video at 25 frames per second, at CIF-like resolutions.	NTSC is typically used in North America, while PAL is typically used in the UK and Europe. Setting this field to match the most common type of endpoint used with the MCU will improve the smoothness of the video sent by the MCU to the endpoints. Note that the MCU will accept video with either frame-rate, regardless of how this setting is configured.
Maximum transmitted video packet size	Sets the maximum payload size (in bytes) of the packets sent by the MCU for outgoing video streams (from the MCU to connected video endpoints).	Typically, you only need to set this value to lower than the default (1400 bytes) if there was a known packet size restriction in the path between the MCU and potential connected endpoints. Video streams generally contain packets of different lengths. This parameter only sets the *maximum* size of a transmitted network datagram. The MCU optimally splits the video stream into packets of this size or smaller. Thus, most transmitted packets will not reach this maximum size.
Receive bit rate optimization	Enables the MCU to send bandwidth control messages to optimize the video bandwidth being used.	The MCU can send these messages to H.323 endpoints requesting that the bandwidth of the video that they are sending be decreased or increased, up to the maximum bandwidth of the channel. If the participant is very prominent, then the MCU will ask the endpoint to send video at a high bandwidth. If the participant is not being viewed at all (or only being viewed in very small view panes), the MCU will request that the video is sent at a lower rate to conserve network bandwidth.
Flow control on video errors	Enables the MCU to request that the endpoint send lower speed video if it fails to receive all the packets which comprise the far end's video stream.	The MCU can send these messages to H.323 endpoints requesting that the bandwidth of the video that they are sending be decreased based on the quality of video received by the MCU. If there is a bandwidth limitation in the path between the endpoint and the MCU, it is better for the MCU to receive every packet of a lower rate stream than to miss some packets of a higher rate stream.
Video transmit size optimization	Allows the MCU to vary the resolution of the video being sent to a remote endpoint within the video channel established to that endpoint.	With this option enabled, the MCU can, for instance, decide to send CIF video within a 4CIF channel if this will increase the viewed video quality. The circumstances under which decreasing the video resolution can improve the video quality include: • if the original size of the viewed video is smaller than the outgoing channel • if the remote endpoint has used flow control commands to reduce the bandwidth of the MCU video transmission Typically, lowering the resolution means that the MCU can transmit video at a higher frame-rate.
Don't see yourself in small panes	Prevents the MCU from showing conference participants their own video in small panes of variable-sized pane views.	When using a conference view with some large and some small panes, if this option is set, then participants will never appear in any of the small panes, even if there are free slots available. They may still appear in larger panes, however, for example if the view focus is manually changed to show their video. See Understanding How Participants Display in Layout Views for more details.

Don't duplicate in small panes	Prevents the MCU from duplicating large-pane participants in small panes.	When using a conference view with some large and some small panes, the MCU will typically duplicate in a small pane the video of a participant shown in a large pane. This is done to minimise the switching of small panes in response to changes of participant focus in the large pane. If you would prefer not to duplicate participants in small panes in this way, check this option. For more details of view layouts, see Understanding How Participants Display in Layout Views.
Voice switching sensitivity	Determines how easy it is for a participant to replace the active speaker for a conference based on how loudly they are speaking.	A value of 0 means that it is very difficult for the active speaker to be replaced; a value of 100 means the active speaker can be replaced very easily.
Incoming calls to unknown E.164 number	Sets the default action when endpoints call into the MCU using an unknown E.164 number; ie one the does not correspond to any configured conference. • **Default auto attendant** The endpoint will enter the default auto attendant from which they may join existing conferences or potentially create a new conference (see Using an Auto Attendant). This behaviour is the same as if the endpoint had called the MCU using its IP address rather than an E.164 number. • **Disconnect caller** Endpoints are not allowed to call unknown E.164 numbers, and the call will be terminated. • **Create new conference** A new conference will be created with the E.164 number called as its numeric identifier. The endpoint automatically joins this new conference.	This option can make it easier for callers to create ad hoc conferences if *Create new conference* is selected. If you do not wish callers to be able to create conferences in this way, select one of the other options.
Require H.323 gatekeeper callers to enter PIN	Instructs the MCU to request conference participants dialing into protected conferences using an E.164 number via an H.323 gatekeeper to enter a PIN before they may join the conference.	You may wish participants joining a conference via a gatekeeper not to need to enter a PIN, even for protected conferences. If this is the case, do not set this option. If you wish conferences to be protected, regardless of how participants connect, ensure you set this option. When this option is set, participants calling into a protected conference will be presented with PIN-entry screen instead of the normal conference view. The option has no effect for conferences with no PIN set.

Related Topics

- Controlling the Conference Views
- Conference List

Customizing Layout Views

You can select custom layouts to make available for all conference participants. To access this option:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click the **Custom layout** tab.

Review this information for explanations about the details that display:

Field	Field Description	Usage Tips
Conference custom layout		
Current status	Indicates whether a custom layout can be used for this participant.	When you click a new layout from the *Available layouts*, **Enabled** is automatically chosen with the most recent layout selected.
Make new participants see this view	Indicates that new participants joining this conference will view the conference with this custom layout rather than one of the default views (see Customizing a Participant's Layout Display). To force all participants to use this layout, click **Switch all participants to this view**.	If a participant has chosen to use a custom conference layout (see Customizing a Participant's Layout Display), their view will automatically update and switch to the new view.
Available layouts		
	Displays all pre-configured conferences that are available. Click a layout to select it and make it available.	You can only select one custom layout at a time.

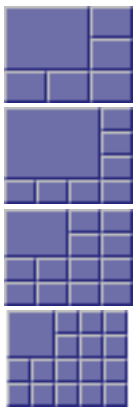
Related Topics

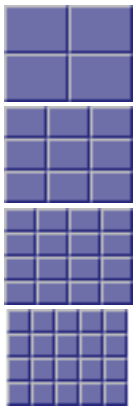
- Customizing a Participant's Layout Display
- Understanding How Participants Display in Layout Views

Customizing a Participant's Layout View

Every person viewing a conference (whether they are contributing video of their own or using streaming to watch other participants) sees a conference layout view. This view divides the video screen into a collection of panes with participants' video streams displayed in those panes. You can customize this view by choosing this option:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click on a participant's name.
3. Click the **Display** tab.

Field	Field Description	Usage Tips
Preview		
Video Display	Displays static sample of video screen in the currently selected layout.	Click on the image to refresh the picture
Border	Adds a border thickness to display around the video image.	If the image is displaying off the edges of the participant's screen, add a border until the image displays properly.
Layout		
Family 1 	Give prominence to one participant over the others.	The number of contributing conference participants determines the size of the large pane.
Family 2 	Displays a single participant.	
Family 3 	Displays the four most active participants without seeing them scaled down to a small size if there are lots of other participants.	Used when there are five or more video participants.

Family 4 	Gives equal prominence to up to 20 conference contributors, and is useful for a "roll call" of active participants.	The MCU automatically changes the layout to the 3 x 3 arrangement, and will continue to use this layout for up to 9 participants. With 10 or more participants, the 4 x 4 view is used, and with 17 or more participants the 5 x 4 view will be used. The MCU will then continue to use this layout even if there are more than 20 participants.
Family 5 	Gives prominence to two participants in the center of the view while showing smaller versions of other participants' video streams above and below.	This view is useful for observing a dialog between two participants or for viewing slides and a presenter.
Conference custom layout	Click **Edit** to choose or create a custom layout to be used by any participant.	See Customizing Layout Views.
Participant custom layout	Click **Edit** to choose a pre-configured custom layout from for this participant.	See Selecting a Custom Participant Layout.
Controls		
	Prevents this participant from changing their own conference layout using the far-end camera controls on their video endpoint.	A participant can still change their layout view using the web interface.
	Allows this participant to control their own conference view.	
	Send "normal" format video to this participant - this means that the video is intended to be displayed on a screen whose dimensions (width and height) are in the ratio 4:3.	The ability to send video in widescreen format is governed by the presence of the high resolution feature key (HRO). If the MCU has not been configured with this feature key, these controls will not be available.
	Send "widescreen" format video to this participant - this means that the video is intended to be displayed on a screen whose dimensions (width and height) are in the ratio 16:9.	
	Do not allow this participant to start contributing H.239 content channel video.	For more information, see H.239 per-participant parameters.
	Allow this participant to start contributing H.239 content channel video.	
Focused participant		
	Indicates which participant appears in the largest pane.	This setting can be over-written if a participant is identified as "important" on the Conference Participants List (see Viewing Conference Participants List).

Related Topics

- Viewing Conference Participants List
- Understanding How Participants Display in Layout Views
- Customizing Layout Views
- Selecting a Custom Participant Layout

- Using an Auto Attendant

Managing Participants

You can view detailed information about conference participants:

- Customizing a Participant's Layout Display
- Controlling the Near-End Camera
- Managing Participant's Audio Signals
- Creating a Custom Participant View
- Displaying Statistics for a Participant
- Sending Messages to One Participant
- Displaying Diagnostics for a Participant

Controlling the Near-End Camera

You can control the viewing angle, zoom, and focus of the camera on your video endpoint. You can customize this view by choosing this option:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click on a participant's name.
3. Click the **Camera** tab.

Field	Field Description	Usage Tips
Movement	Click on one of the directional arrows to change the view direction of the camera.	Not all endpoints will respond to these controls. In particular, endpoints with fixed cameras such as most webcams.
Zoom	Click on one of the magnifying options to zoom the view in or out.	Not all endpoints will respond to the zoom controls, possibly including those that do respond to the *Movement* controls
Focus	Click on one of the adjustment options to improve the clarity of the image.	Not all endpoints will respond to the focus controls, possibly including those that do respond to the *Movement* controls

Video mute

You may not wish a participant to be visible in a conference, for example if they are only supervising, but not contributing. The MCU allows this. Refer to the table below details of the controls available:

Field	Field Description	Usage Tips
	Prevents others from seeing this participant's video in conference views (mute).	This setting applies only to conference views. The participant's video will still appear in the conference participant list (see Viewing Conference Participants List), and in the auto attendant if a conference is not PIN-protected (see Using an Auto Attendant).
	Allows others to see this participant's video in conference views (un-mute)	

Related Topics

- Customizing a Participant's Layout Display
- Managing Participant's Audio Signals
- Creating Custom Layout
- Displaying Participant's Statistics
- Sending Messages to One Participant
- Using an Auto Attendant

Viewing a Participant's Audio Signals

In general, the audio settings are for advanced troubleshooting. You can view these settings by selecting this option:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click on a participant's name.
3. Click the **Audio** tab.

Briefly, these settings can help you resolve audio problems in conferences. For example:

- Waveforms display a snapshot of the audio waveform received from the participant's endpoint. If the participant is silent or speaking very quietly, the preview displays a horizontal green line. If the participant is speaking, the line is wavy.
- The AGC control is useful if participants are too loud or too quiet. For example, if a participant is shouting on the remote end, but is barely audible to others in the conference.

Audio mute

You may mute a participant's audio. Refer to the table below for details of the controls available.

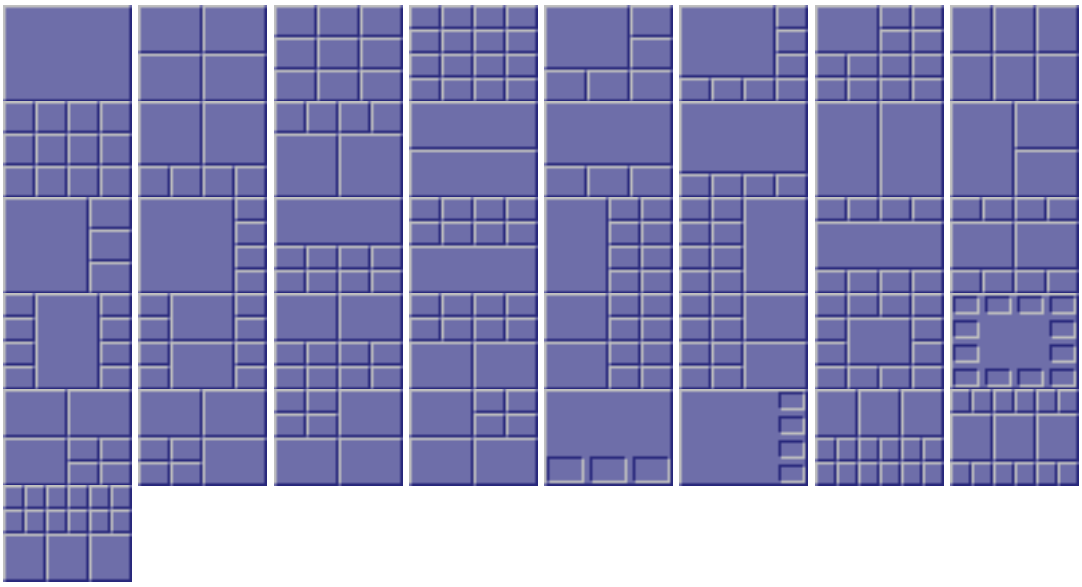
Field	Field Description	Usage Tips
	Prevents others from hearing this participant (mute).	
	Allows others to hear this participant's audio (un-mute).	

Selecting a Custom Participant View

You can add a custom layout to the choice of layouts available for this participant. You can customize this view by choosing this option:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click on a participant's name.
3. Click the **Custom layout** tab.

Field	Field Description	Usage Tips
Current status	Indicates whether a custom layout can be used for this participant.	When click a new layout from the *Available layouts*, **Enabled** is automatically chosen with the most recent layout selected.
Available layouts	Displays all pre-configured conferences that are available to the participant. Click a layout to select it and make it available for the participant.	You can only select one custom layout per participant.



Related Topics

- Understanding How Participants Display in Layout Views
- Customizing Layout Views
- Customizing a Participant's Layout View

Understanding How Participants Display in Layout Views

The default behavior of the Codian 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.

Big Panes vs. Small Panes

This layout can be seen as the most traditional video-conferencing view. Each participant displayed is shown in the same sized pane as the other participants. If there are more than 4 participants to show, then the four most significant (the four loudest) should be displayed, with one pane each.

By contrast, these example layouts have some larger panes, and the participants shown in those panes are seen as more significant than the other contributors. When allocating participants to panes, the MCU always fills the largest panes first. If there are more participants than panes then there will never be empty big panes and non-empty small panes.

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 (see Configuring Global Conference Settings).

For the three example layouts shown above, the participant(s) shown in the large pane(s) of the first two layouts will be duplicated in the surrounding small panes. However, the four small panes of the third layout will show different participants to those displayed in the 3 big panes.

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 never to show participants their own video stream in small panes (see Configuring Global Conference Settings). If this is the case, then participants viewing layouts with some panes larger than others will never see their own video stream in any of the small panes, even if there are free slots. They may still appear in large panes, for example if the view focus is manually changed to show their video.

Changing View Focus

Using the tilt (up and down) Far End Camera Controls on a connected video endpoint cause the view to change, cycling through the available families and then the conference-wide or per-participant custom layouts (if enabled).

In addition, the pan (left and right) Far End Camera Controls on a connected video endpoint can be used to focus the view on a particular participant, as opposed to the MCU allocating participants to panes based solely on the volume of the audio being received from them.

To reduce the disruption of the view when cycling through conference participants, there is a short delay after selecting a new focused participant before the rest of the view layout reverts to the "correct" arrangement of participants in panes.

However, this view focus cannot be performed for layouts in which all panes have equal precedence, as it would not be clear where the focused participant was being shown. The following layouts fall into this category, and so always operate in voice-switched mode:

"Important" Participants

For each conference, one active participant can be set as "important". This means that the MCU considers this participant first when deciding which contributors to show in which layout panes, rather than their position in the list being set by how loudly they are speaking. See the Control setting in the Viewing Conference Participant List.

"Important" Participants Combined with View Focus

Both "Changing view focus" and "Important participants" above involve a single specific participant being shown in the biggest pane available, even if they are not currently the loudest speaker. This causes a potential conflict, which is resolved dependant on the type of layout.

The MCU cannot focus on a specific participant in this type of view (a layout in which all panes are of equal size). However, if there is a conference participant that has been set to "important", that participant is always shown in the upper-left view pane.

This type of layout displays a single big pane and several small panes. If the view focus has been changed (for instance with left and right Far End Camera Control operations), then the big pane shows the selected participant. If a conference participant has been set to "important" then its video stream is shown in the big pane.

However, if a participant has been set to "important" *and* the view is focused on a (different) specific participant, the focused participant is shown in the big pane, 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.

These layouts have two large panes and several smaller ones. If the view focus has been changed (for instance with left and right Far End Camera Control operations), 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.

For these layouts, if the view has been focused on a particular participant, that participant appears in the upper or left large pane. If a participant has been selected as "important", that participant will be shown in the lower or right large 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.

Clipped Panes

The majority of the conference layouts defined by the Codian MCU, for example:

have in common that all of their 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.

By comparison, there are some defined conference layouts, for example:

in which this aspect ratio preservation does not occur. In these cases, the MCU scales the participant video stream according to the larger dimension of the pane.

For example, in the layout to the left, the size of the top left pane is one half of the view width and two thirds of the view height. Because two thirds is greater than one half, the MCU scales the participant video stream to two thirds of its size and thus a small amount of the left and right of the original image will not appear in the final composed layout.

Video Stream vs. Fixed Bitmap Images

For video conference participants, the image that displays in the layout view pane is either the live video stream (if viewing from the video endpoint) or a captured video image from the current video stream (if viewing from the web interface).

However, audio-only participants do not have any associated video to display. Instead, you can assign a fixed image (in bitmap format) to a specific participant. When the participant joins a conference as an audio-only participant, this image appears in the layout pane. To enable this feature, the participant must be added as a user to the MCU, have an associated E.164 telephone, and have a designated image file uploaded. See Adding and Updating Users.

Muted Participants

Audio mute

Participants who have had their audio muted from the web interface do not contribute audio to the conference. Additionally, muted participants are 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.

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

Video mute

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

Related Topics

- Customizing Layout Views
- Customizing a Participant's Layout View
- Selecting a Custom Participant View

Viewing Conference Participant List

The Participant List displays information about active and previous participants in the conference. To access this list, choose **Home > Conferences** and click a Conference name. Review this information for explanations about the details that display.

- Port Usage
- Active Participants
- All-participant Controls
- Previous Participants
- Pre-configured Participants
- Summary Information

Port Usage

Each conference may have either imposed limits on the maximum number of media ports it is able to use, or a certain number of media ports reserved for its use. This section shows the video port and audio-only port reservation or limit, plus the streaming status for the conference.

See the full description of Port reservation for additional information.

Active Participants

Refer to the table below to get details about the active participant list, which you can modify in the following ways:

- You can end the conference, forcing all participants (including unicast streaming viewers) to be dropped, by clicking **End conference**.

  Also, for conferences that are "scheduled" rather than "ad hoc", this option causes the configured duration to be reduced, and any configured repetition to be cancelled. For example, if a conference was scheduled to run from 09:00 until 10:00 (one hour) and the conference ended at 09:25, the configured duration would be changed to 25 minutes. The conference would also move from the "Scheduled conferences" list to the "Completed conferences" list.
- You can add a new H.323 video conferencing endpoint to the conference, either by creating a new endpoint or by choosing an existing one by clicking **Add participant**. See Adding Participants.
- You can add a new VNC endpoint to the conference, either by creating a new endpoint or by choosing an existing one by clicking **Add VNC**. See Adding Participants.

Field	Field Description	Usage Tips
Type	Indicates whether the participant is an H.323 or VNC endpoint.	
Participant	Displays the name of the participant (endpoint). The following additional indications may also be displayed:	
	User: <user id> If the participant has been resolved to a particular configured user (for instance by matching the participant's E.164 phone number against a configured value), then the appropriate user id will be shown here.	User names only display if the participant list is being viewed by an administrator, as only administrators have access to the configured user database.
	Configuration: <name> This indicates that this endpoint is in the conference because it is a pre-configured participant. The <name> shown is the endpoint's configured name.	Configured endpoint names only display if the participant list is being viewed by an administrator, as only administrators have access to the configured endpoint database.

Controls	 Makes participant important  Make participant unimportant	When you make a participant "important", it sets this participant as the focused participant. For example, this participant is considered the loudest participant even if they are not speaking. Only one participant can be identified as "important", and no participant is set to "important" by default. This option affects the layout views for the conference and individual participants. See Selecting a Custom Participant View and Customizing Layout Views.
	 Prevents others from hearing this participant (mute).  Allows others to hear this participant's audio (un-mute)	
	 Re-connects a participant to the conference  Disconnects a participant from the conference	The re-connect button is only active in the Previous Participants table
Status	Displays the time at which a participant connected to the conference. If a participant is not yet fully connected (for example, if the MCU has called a participant but it has not yet answered), then that is indicated here. The following additional indications may also be displayed:	If this column is selected as the sorting field (see Sorting Lists), the listing is ordered according to when the participants connected to the conference.
	Pre-configured This indicates that this endpoint is in the conference because it is a pre-configured participant.	See Adding Pre-configured Participants for additional information on adding endpoints to conferences in this way.
	No audio capabilities **No video capabilities** These messages indicate that the MCU has not opened a media channel to a participant because the participant has no capability to receive that type of channel. For example, if the endpoint is a simple telephone, you might expect to see "No video capabilities" shown here.	
	No common audio codecs **No common video codecs** These messages indicate that the remote endpoint had declared media capabilities, but the MCU was not permitted to open a channel that the endpoint was prepared to receive.	This is most likely to occur if you have disabled one or more codecs in the "Audio codecs from MCU" or "Video codecs from MCU" configuration on the Advanced Conference Settings web page.
	No common audio formats **No common video formats** These messages indicate that the remote endpoint had declared media capabilities including codecs that the MCU was permitted to send, but that the MCU was unable to transmit the specific formats declared.	This could occur if, for instance, the far end's advertised receive video sizes were all 4CIF (704 x 576 pixels) or above, and the MCU was set to not transmit above CIF (352 x 288 pixels).

	No common symmetric audio codecs **No common symmetric video codecs** This indicates that the MCU was unable to open a media channel to the endpoint because the only possible channels it would be able to open were invalid due to a symmetry clash. This clash occurs when the remote endpoint has declared that it is only able to receive certain types of media if it is also sending the same format, and the format in question is one that the MCU is able to send but not receive.	
	Audio port limit exceeded **Video port limit exceeded** This message occurs if a channel was unable to be opened purely because doing so would have exceeded the port limit. This limit may be a per-conference restriction or, for those conferences which impose no such limit, it could be that all of the MCU's available ports were in use.	
	Endpoint audio and video channels rejected **Endpoint audio channel rejected** **Endpoint video channel rejected** Indicates that the MCU is unable to receive the media format that the endpoint is trying to transmit.	
	H.239: unable to use main video as source Indicates that use of this participant's main video source as the H.239 (content channel) source has failed. This is normally because there is already a source for the content channel; either another participant's main video channel which has been configured in the same way (VNC participants are set up this way by default) or a H.239 video channel contributed by a connected H.323 endpoint.	
Preview	Displays a sample still video capture of the participant.	Click the picture to update it.
	Controls These controls are only available if the conference is configured with H.239 enabled, and if the participant is contributing a main video channel.  This control causes the MCU to attempt to use the participant's main video channel as the conference's content channel source. This will not be possible if the conference already has an active content channel source (either an endpoint's H.239 video channel or another participant's main video activated via this control).  This control causes the MCU to stop attempting to use the participant's main video channel as the conference's content channel source. It is necessary to use this control to switch to using a different endpoint's primary video channel or to enable H.239 video contribution from endpoints.	See H.239 (content channel video) support for additional information on H.239.

All-participant Controls

Although you may use the controls described above to affect one participant at a time, for example to mute that participant's audio, or to make them important, you may wish to affect all participants at once. The *all-participant* controls permit you to do this. Note that you may continue to use the per-participant controls in conjunction with the all-participant controls. Refer to the table below for details of the controls available:

Field	Field Description	Usage Tips
Importance	 Makes all participants unimportant	If no participants are currently important, then this control will be unavailable.
Mute	 Prevents others from hearing any participant (mute).  Allows others to hear all participants' audio (un-mute)	If no participants are currently muted, the *un-mute* control will be unavailable. If all participants are currently muted, the *mute* control will be unavailable.
Disconnect	 Disconnects all participants from the conference.	If this conference was created ad hoc, then disconnecting all the participants will terminate the conference as well.
View	 Selects *voice-switched* view for all participants (see Customizing a Participant's Layout View).	If all participants are watching the voice-switched view, then this control will be unavailable.
Mute	 Prevents participants from changing their own view layout from their endpoint.  Allows participants to change their own view layout from their endpoint.	If no participants may control their own view layout, the *prevent* control will be unavailable. If all participants may control their own layout, the *allow* control will be unavailable.

Previous Participants

Refer to the table below to get details about the previous participant list. To erase this list, click **Clear previous participants record**.

Field	Field Description	Usage Tips
Type	Indicates whether the participant is an H.323 or VNC endpoint.	
Participant	Displays the name of the participant (endpoint).	
Controls	 Adds a participant to the conference	A previous participant can only be re-connected to a conference if it was added to the conference by the MCU. In other words, a participant who called the MCU themselves and then disconnected from the conference cannot be re-connected in this way. Conversely, if a participant was originally invited into the conference by the MCU, the button will be active regardless of whether the MCU disconnected the participant, or whether the participant disconnected themself from the MCU.
Status	Displays the time at which a participant disconnected to the conference and who initiated the disconnect.	

Pre-configured Participants

Refer to the table below to get details about pre-configured conference participants.

Field	Field Description	Usage Tips

Type	Indicates whether the pre-configured participant is an H.323 or VNC endpoint.	
Name	Displays the name of the participant (endpoint).	
Status	Displays the connection status of the pre-configured participant.	This field shows which participants have connected, which have disconnected, and reasons for failure if a participant has failed to connect to the conference.

Summary information 

You may wish to inform participants about conference details such as start time, instructions on how to view the conference using streaming, and so on. Click the **Summary information** icon to display further details about a conference. This information may be copied to the clipboard for convenience.

Related Topics

- Adding Participants

Reservation of MCU media ports

The MCU is able, if required, to allocate its available media ports in advance to specific conferences. 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.

Media port types

There are two types of media ports available on the MCU, **video ports** and **audio-only ports**.

The term *video port* refers to a port that can be used by a video-conferencing endpoint for a call. Thus, a video port includes both video **and** audio streams (bidirectionally) and so the number of video ports available (see below) 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 has just 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, of course, not be used, but the audio device will be able to participate as normal in the conference. The exception to this is VNC - as 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 purposes of streaming a conference, any number of streaming viewers will be able to view that conference via streaming, at any combination of available bit rates.

MCU media capacity

The total number of media ports available depends on the MCU model, as detailed below:

Model	Number of video ports available	Number of additional audio-only ports
4205	12	12
4210	20	20
4220	40	40

Configuring the MCU

How MCU media ports are allocated, and which options and settings are available, is controlled by the *Media port reservation* setting on the Conference settings page.

Unreserved mode

This is the mode under which the box runs when the *Media port reservation* setting is configured as **Disabled**, and is the mode that the MCU uses by default. With this scheme, it is possible to specify for each conference a maximum value for the number of video and audio-only ports it is allowed to use. These limits are optional, and by default there is no configured limit.

The configured limits are strictly *maximum* values; in particular, setting such a limit does not guarantee that that many participants will be able to join the conference. It is perfectly possible to 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

This is the mode under which the box runs when the *Media port reservation* setting is configured as **Enabled**. With this scheme, each conference is configured with a number of video ports to reserve and a number of audio-only ports to reserve. These values differ from the maximum port values set in 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 that many endpoints are able to participate in the conference.
- **Port reservations are mandatory**
  In unreserved mode, it is not necessary to specify a 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 honour 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 configuration changed.

Two conferences are considered to clash if they can ever be simultaneously active. 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 ever overlap.

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 endeavour 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

As mentioned above, port reservations are mandatory in **Reserved mode**, which means that every active conference must have configured values for the number of video ports and the number of audio-only ports to reserve for it. This in turn entails that every active conference must be configured, and so *ad hoc conferences* are not permitted when 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, the *Creation of new conferences* parameter will not be available.
- **Calls to unknown E.164 number configuration**
  This setting on the Conference settings 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. The effects of changing mode include, but are not necessarily limited to:

- **Destruction of ad hoc conferences**
  As mentioned above, ad hoc conferences are not permitted in port reservation mode. Thus, when changing the MCU from unreserved mode to reserved mode, any ad hoc conferences in progress will be destroyed and their participants dropped.
- **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.

Related Topics

- Adding and Updating Conferences
- Configuring Global Conference Settings

Adding and Updating an Auto Attendant

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 conferences. No gateway or gatekeeper is required. The auto attendant is configured on the MCU itself.

The information required to add or update an auto attendant is nearly identical. Refer to these topics for details.

Adding an Auto Attendant

Follow these steps to add an auto attendant:

1. Go to **Home > Conferences**.
2. Click the **Auto attendants** tab.
3. Click **Add new auto attendant**.
4. Refer to the table below to determine the most appropriate settings for the auto attendant.
5. After entering the settings, click **Add auto attendant**.

Updating an Auto Attendant

Follow these steps to update an existing auto attendant:

1. Go to **Home > Conferences**.
2. Click the **Auto attendants** tab.
3. Click the name of a pre-configured auto attendant.
4. Refer to the table below to determine the settings to change for this auto attendant.
5. After updating the settings, click **Update auto attendant**.

Field	Field Description	Usage Tips
Auto attendant		
Name	Identifies the name of the auto attendant.	
H.323 gatekeeper id	Specifies the gatekeeper associated with this auto attendant.	See Gatekeeper Settings for details.
PIN	Assigns a password to the auto attendant.	If you set a PIN, all participants using the auto attendant will be required to enter this password.
Re-enter PIN	Verifies the password.	
Creation of new conferences	Enables participants to create new ad hoc conferences using the auto attendant.	Participants do not have as much control creating conferences from the auto attendant. For example, participants cannot schedule future conferences.
Accessible conferences		
All conferences	Enables all auto attendant participants to join any conferences scheduled to start while they are using the auto attendant.	
Selected conferences	Restricts the conferences available to be joined by auto attendant participants	
Links to other auto attendants		
Default	Identifies any other pre-configured auto attendants that are accessible from this auto attendant.	

Related Topics

- Viewing the Auto Attendant List
- Adding a Custom Banner

Creating Auto Attendants

The Codian MCU allows you to configure auto attendants on it, which allows users to more easily join conferences.

- Viewing the Auto Attendant List
- Adding and Updating an Auto Attendant
- Adding a Custom Banner

Viewing the Auto Attendant List

You can view an overview of the configured auto attendants on the MCU by choosing:

1. Go to **Home > Conferences**.
2. Click the **Auto attendants** tab.

Field	Field Description	Usage Tips
Name	Displays the name of the auto attendant	
Numeric	Displays the number that you can dial to connect to the auto attendant	
H.323 gatekeeper	Displays the status of an auto attendant with respect to its gatekeeper registration. The possible states are: • **n/a** This conference is not configured to be registered with the gatekeeper; it thus has no applicable registration status. • **Registering** This conference is in the process of registering with the gatekeeper. • **Deregistering** The conference is in the process of unregistering with the gatekeeper. This might occur if: ◦ Gatekeeper registration has been turned off (either for that conference only or for the entire MCU) ◦ The configured gatekeeper has just been changed and the MCU is in the process of unregistering from the previous gatekeeper before registering its conferences with the new one. • **Re-registration pending** / **Retry timeout** If the MCU fails to register a conference with the gatekeeper, it enters these states temporarily before re-attempting the registration. • ***<number>*** The conference has been registered successfully with the gatekeeper and can be contacted using the number indicated.	For tips on configuring gatekeepers, see Gatekeeper Settings.
Security	Indicates whether a PIN has been configured to restrict access to the auto attendant	
Calls	Displays the total number of calls received by the auto attendant since the last restart	
Banner	Displays a thumbnail of the custom banner if one has been specified	

Related Topics

- Adding and Updating an Auto Attendant
- Adding a Custom Banner

Displaying Gatekeeper Settings

You can configure the MCU to use a gatekeeper, which can make it easier for end-users to join conferences using directory numbers rather than requiring them to know the IP address or host name of the MCU. Choose **Home > Settings > Gatekeeper**.

- Gatekeeper Settings
- Gatekeeper Status

Gatekeeper Settings

Refer to this table for assistance configuring the gatekeeper settings. After making any configuration changes, click **Apply Changes**.

Field	Field Description	Usage Tips
H.323 gatekeeper usage	Enables the MCU to use an H.323 gatekeeper for registration of numeric identifiers for its conferences and/or auto attendants.	If this is set to *Disabled* then no gatekeeper registrations will be attempted (and existing registrations will be torn down), regardless of other gatekeeper or per-conference settings. Whether a call involves consultation with the configured gatekeeper also depends on the *Port A* and *Port B* settings. For all incoming calls, and outgoing calls dialled by address rather than by E.164 phone number, the gatekeeper will be used to validate the connection only if the network port over which the connection is made is selected here.
H.323 gatekeeper address	Identifies the network address of the gatekeeper to which MCU registrations should be made.	This can be specified either as a host name or as an IP address. This field will have no effect if *H.323 Gatekeeper usage* (see above) is set to *Disabled*.
Gatekeeper registration type	This option controls how the MCU identifies itself when registering with its configured gatekeeper. The choices are: • **Terminal / Gateway** register as a gateway if there are any prefix registrations required, or as a terminal if not • **Terminal / MCU** register as an MCU if there are any prefix registrations required, or as a terminal if not • **Gateway** always register as a gateway • **MCU** always register as an MCU	Not all H.323 gatekeepers allow all types of devices to register with them, and this option allows the MCU to work with gatekeepers of varying capabilities. The simplest (and generally most supported) type of registration is "terminal", but this type does not allow the MCU to register an "MCU service prefix". Hence, the "Terminal / Gateway" option normally registers as a terminal, but will register as a gateway if an MCU service prefix is configured; the "Terminal / MCU" option is similar but uses a registration of type MCU if the service prefix is required. For some gatekeepers, registering as an MCU means that extra conferencing features are available during a point to point call; with other gatekeepers, registrations of type MCU may not be supported at all. To always register as either a gateway or an MCU, irrespective of whether or not an MCU service prefix has been configured, select either "Gateway" or "MCU" as appropriate.

Prefix for MCU registrations	Specifies an optional group of digits that are added to the beginning of each conference or auto attendant's *numeric identifier* before registering it with the H.323 gatekeeper.	Conferences and auto attendants registered with a gatekeeper have a *Numeric identifier*. The numeric identifier is a unique sequence of digits entered from a video-conferencing endpoint to connect directly to the conference or auto attendant. This eliminates the need for users to navigate additional menus or to know the IP address of the MCU. To usefully partition the dialing space, you might need to ensure that all registrations from a single MCU start with the same sequence of digits. Using registration prefixes also can benefit large-scale dial plan changes. For example, you can change all MCU registrations to begin with "121" instead of "11" by changing a single MCU configuration field rather than individually amending every conference or auto attendant's associated numeric identifier. If *H.323 gatekeeper usage* is disabled, this field will have no effect.
(Mandatory) H.323 id to register	Use this field to specify an identifier that the MCU can use to register itself with the H.323 gatekeeper.	Before the MCU can register any conferences with the H.323 gatekeeper, it must make a unit-wide registration. This field is not required and will have no effect if *H.323 gatekeeper usage* is disabled.
MCU service prefix	Use this field to specify a group of digits which the H.323 gatekeeper may use to identify calls to be routed to the MCU.	This field is optional. If set, users dialing any number beginning with this prefix will have their call directed to the MCU. This might be useful if you wish to create conferences in response to unknown E.164 numbers. This field will have no effect if *H.323 gatekeeper usage* is disabled.

Gatekeeper Status

The MCU also displays brief status information about any registered gatekeepers.

Field	Field Description	Usage Tips
Gatekeeper status	Displays the IP address of the gatekeeper currently being used by the MCU.	This information might be useful if the gatekeeper has been specified with a host name rather than with an IP address.
Number of active registrations	Displays the number of E.164 numbers that the MCU has registered with the gatekeeper. It also shows how many registrations are in progress but are not fully registered yet.	

Adding a Custom Banner

You can add a custom background image to any auto attendant configured on the MCU. Follow these steps to add a conference:

1. Go to **Home > Conferences**.
2. Click the **Auto attendants** tab.
3. Click the name of a pre-configured auto attendant.
4. Click the **Banner** tab.
5. Refer to the table below to determine the most appropriate settings.

Field	Field Description	Usage Tips
Auto attendant banner		
Default	Chooses the default Codian MCU graphic to use for your banner	
Specific to this auto attendant	Displays the custom banner identified for this auto attendant. Click **Remove banner** to remove this graphic as the banner. Click **Update** after uploading a new graphic.	Nothing displays here until you upload the custom graphic as described below.
Banner upload		
Banner for this auto attendant	Specifies the custom graphic to be used for a banner. Click **Browse** to locate the file on your hard drive.	The image file must be GIF or Windows BMP format with a maximum size of 352 x 64 pixels.
Background colour	Sets a custom background color. Enter the color values in each field. Click **Upload new file** to display	

Related Topics

- Viewing the Auto Attendant List
- Adding and Updating an Auto Attendant

Adding and Updating Conferences

The information required to add or update a conference is nearly identical. Refer to these topics for details:

- Adding a conference
- Updating a conference
- Adding pre-configured endpoints

Adding a Conference

Follow these steps to add a conference:

1. Go to **Home > Conferences > Add new conference**.
2. Refer to the table below to determine the most appropriate settings for the conference.
3. After entering the required information, click **Add conference** to display the updated Conference List. The recently added conference appears either in the Active or Scheduled Conferences depending on its scheduled start time.

Updating a Conference

Follow these steps to update an existing conference:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click the **Configuration** tab.
3. Refer to the table below to determine the most appropriate settings for the conference.
4. After entering the required information, click **Update conference** to display the updated Conference List. The updated conference appears either in the Active or Scheduled Conferences depending on its scheduled start time.

Field	Field Description	Usage Tips
Parameters		
Name	Indicates the name users will see on auto attendant screens and on the MCU's web interface.	Conference names must be unique; conferences cannot share names.
Description	Provides additional information about the conference, which can assist users joining conferences.	Use the description to provide more detailed information about the conference than the name alone conveys.
Numeric identifier	Indicates 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, the MCU attempts to register the conference with an E.164 telephone number, which is comprised of the Registration Prefix and the numeric identifier. The numeric identifier must be unique; conferences cannot share this number. Additionally, because the numeric identifier is used in gatekeeper registration conferences and auto attendants cannot share a numeric identifier value.
Register with H.323 gatekeeper	Enables the MCU to attempt to register its *Numeric identifier* with the configured H.323 gatekeeper as described above.	

PIN	Provides restricted access to conferences.	If a conference has a PIN set, users cannot join the conference or change its configuration without entering the correct PIN value.
Owner	Shows the owner of the conference. In general, this is the user id of the person who scheduled the conference.	You may or may not be able to change the conference owner, depending on your privilege level. See Conference Ownership for additional information.
Layout control via FECC / DTMF	Prevents or permits conference participants changing their view layout or focused participant using Far-End Camera Controls or DTMF tones.	You may wish to prevent participants from changing their view layout in a managed conference, or classroom environment. This is a per-conference option, but FECC/DTMF layout control may still be enabled or disabled on a per-participant basis using the web interface. When calling out to H.323 endpoints, the endpoints' layout control configuration overrides this setting, and so it applies only to endpoints which connect to the conference via an auto attendant or by dialing in directly.
Invite pre-configured participants	Indicates when the MCU should invite any pre-configured participants into a conference. The options are: • **At the start of the conference** Pre-configured participants will be called as soon as the conference starts. • **When at least one other participant is present** Pre-configured participants will only be called once at least one other participant joins the conference.	Select which option fits your requirements best. Calling pre-configured participants *at the start of the conference* is most appropriate for repeating conferences with a particular start time; at the start of each meeting, certain endpoints are automatically called. Calling pre-configured participants *when at least one other participant is present* is most appropriate for permanent conferences; such conferences are typically un-attended for much of the time, and it may only make sense to invite pre-configured participants when others are present.
Streaming	Individually allow unicast and multicast streaming access to conferences.	See Configuring Streaming Settings for additional information.
H.239 content channel video	If *Enabled*, this signifies that this conference is able to support an additional video stream, sent potentially to all connected endpoints, intended for showing content video. This content video is typically high resolution, low frame rate data such as a presentation formed of a set of slides. Such presentation data can be sourced by an endpoint specifically contributing a separate H.239 video stream, the MCU being configured to use an endpoint's main video stream as the conference's content channel, a dedicated VNC connection, or user-generated markup data (the markup is normally, though not always, used in conjunction with H.239 video or VNC data).	See Configuring H.239 settings for additional information on MCU-wide H.239 configuration parameters.
H.239 contribution from endpoints	This parameter determines whether, by default, endpoints are permitted to contribute the content channel for a conference through the mechanism of opening a H.239 video channel. There can only be one endpoint contributing H.239 video at any one time, and the MCU arbitrates between them. Thus, even with this parameter set to *Enabled*, the ability of the endpoint to contribute H.239 video will be affected by other endpoints' behaviour.	If this setting is *Disabled*, it is still possible to enable H.239 contribution on a per-endpoint basis when the conference is active. Similarly, it is possible to disable H.239 contribution from specific H.323 endpoints, either while they are connected or via their configuration.
Maximum video participants	When not in port reservation mode, this parameter sets a limit on the number of endpoints which can connect to the conference as video participants. A participant counts (as a single unit) towards the video limit if either the MCU is sending a video stream to that participant or a video stream is being received from it.	If you do not want to limit the number of participants who can join this conference and use video, leave this field blank.

Maximum audio-only participants	When not in port reservation mode, this parameter sets a limit on the number of endpoints which can connect to the conference as audio-only participants. A participant counts (as a single unit) towards the audio limit if either the MCU is sending an audio stream to that participant or an audio stream is being received from it.	If you do not want to limit the number of participants who can join this conference to use just audio, leave this field blank.
Video ports to reserve	In port reservation mode, this parameter specifies the number of video ports to reserve. A participant counts (as a single unit) towards the video reservation value if either the MCU is sending a video stream to that participant or a video stream is being received from it.	This value is both a reservation and a limit; the MCU guarantees that this many video participants can connect to the conference, but no more than this will be able to join.
Audio-only ports to reserve	In port reservation mode, this parameter specifies the number of audio-only ports to reserve. A participant counts (as a single unit) towards the audio reservation value if either the MCU is sending an audio stream to that participant or an audio stream is being received from it.	This value is both a reservation and a limit; the MCU guarantees that this many audio-only participants can connect to the conference, but no more that this will be able to join.
Start time		
Start time	Designates the time at which the conference will begin.	
Start date	Designates the date on which the conference will begin.	
Set to current time	Sets the conference start time to the current time on the MCU.	The current time on the MCU is determined by the settings in the **Status > General** page, which can only be modified by the administrator. See Displaying General Status for additional information.
Duration		
Permanent	Allows you to retain a conference and its settings for an infinite period of time.	
Maximum duration	Limits the duration of the conference for one instance of the conference.	These fields are not available or necessary for conferences set to *permanent*.
Repetition		
Interval	This determines which days and / or weeks the conference repetitions will occur. The repetitions will always start at the same time of day: the conference's configured *Start time* (see above), and will last for the same amount of time: the configured *Maximum duration*.	The start date is taken into account when determining when the first repetition should occur. For instance, if the start date is a Wednesday and the conference is scheduled to repeat every Monday, Tuesday and Wednesday then it will occur only on Wednesday in the first week and on all three specified days in subsequent weeks.
Termination	If a conference is set to repeat, its repetitions can be configured to go on forever, stop after a certain date, or to occur only a certain number of times.	The first activation of a conference counts as a "repetition", so configuring a conference to repeat but terminate after 1 repetition is equivalent to it not repeating at all.

Adding Pre-Configured Endpoints

You can choose to pre-configure participants to be part of a conference. These participants will be automatically invited into the conference by the MCU. This is useful if you regularly invite the same participants into a conference. To add pre-configured endpoints, press **Pre-configured participants** (this button may also show a number in parentheses to indicate the number of participants currently pre-configured). Refer to Adding Participants for more details.

Related Topics

- Displaying Conference Lists
- Adding Participants
- Displaying Gatekeeper Settings
- Configuring Streaming Settings
- Displaying General Status

Conference Ownership

Each scheduled conference (i.e. conferences that are configured via the web interface with a start time and, optionally, a duration and repetition) has an associated *owner*. This owner is the id of a configured user, and normally corresponds to the user who scheduled the conference.

Scope of Conference Ownership

Conference ownership affects only web interface control of conferences - in particular, it plays no part in validating video conferencing endpoints' attempts to join conferences when they connect to the MCU via H.323. Restricting conference entry in this situation is accomplished via conference (or auto attendant) PINs, as before.

User privileges

The actual implications of conference ownership depend on the privilege of the user; specifically:

Privilege level	Effects of conference ownership
• **administrator** • **conference creation and full control**	Users with these privilege levels are able to create and own conferences, and are able to exercise full control of all conferences.
• **conference creation and limited control**	Users with these privilege levels are able to create and own conferences. They have full control of conferences they own, and limited control of conferences owned by other users.
• **conference creation**	Users with these privilege levels are able to create and own conferences. They have full control of conferences they own, but no control of conferences owned by other users.
• **conference detail** • **conference list plus streaming** • **conference list only**	Users with these privilege levels are not able to own conferences or change any conference's configuration.

Levels of conference control

As described above, a user privilege level confers a certain level of control over a conference, with that level of control possibly depending on whether that user is the conference owner or not. These conference control levels have the following meaning:

Conference control level	Description
• **full control**	This level of control permits the following operations: **Participant control** With full conference control, a user is able to disconnect participants, connect new participants to the conference, plus end the conference whenever they want to. **Configuration access** A user with full conference control can view and modify any aspect of the conference's configuration. This includes the start time, end time, or repetition characteristics, whether streaming is enabled, and which endpoints are pre-configured as participants. **Changing live conference parameters** When the conference is in progress, a user with *full control* is permitted to send a text message to all connected participants' video displays and change the Conference custom layout. Additionally, full control includes all of the operations covered by *limited control*, detailed below.

• **limited control**	This level of control permits the following operations: **Viewing the participant list** The participant list shows the names of the endpoints currently connected to the conference, a summary of that endpoint's status and, if they are a video participant, a preview image of the video stream they are supplying. Via the participant list, it is also possible to mute (or unmute) individual endpoints' audio, change the conference's "important" participant, and enable or disable the participants' ability to affect their own layouts via Far-End Camera Control or DTMF tones. **Controlling video sent to participants** This includes being able to choose what view layout (or family) is used for constructing the conference view being sent to a participant, changing the Participant custom layout, and whether to send widescreen or standard format video to that endpoint. **Controlling participant cameras** The web interface can be used to send control commands (e.g. pan and tilt) to a remote participant's camera. **Viewing audio status** Waveforms of audio channels being sent to, and received from, the participant can be viewed, audio gain applied, and participant audio can be muted if required. **Sending messages to individual participants** Textual messages can be sent to an individual participant, and will appear on their displays. **Viewing participant statistics and diagnostics** This allows details of the media streams being sent to, and received from, participants to be viewed, plus endpoint-specific characteristics to be examined.
• **no control**	This means that none of the above operations are possible. Depending on the specific privilege level, either the list of scheduled conferences will not be shown to the user, or the list will be shown but conferences over which the user has no control will be presented as names rather than hyperlinks.

Changing the owner of a conference

A user whose privilege level is either *conference creation and full control* or *administrator* is also able to change the owner of a conference. A conference owner can be changed to either a user with conference creation rights or to "none", signifying that no user should be considered the owner of that conference. Also, when scheduling new conferences, users with these privileges are able to choose which owner is initially associated with the conference.

Deleting users who are conference owners

If a user account is deleted, any conferences owned by that user have their owner reset to "none".

Related Topics

- Adding and Updating Conferences
- User Privileges

Privilege Levels

Every configured user in the MCU 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. Refer to the table below for details.

Privilege level	Access
administrator	The main difference between an administrator and users with lower privilege levels is that administrators can change settings that affect all conferences and the configuration of the MCU itself, whereas other users only have access to individual conferences and to their own profiles. Users with administrator access can: • View MCU-wide status (**Home > Status**) • Perform software upgrades (**Home > Settings > Upgrade**) • Change system-wide conference settings (**Home > Settings > Conference**) • View the Event Log (**Home > Events**) • Configure H.323 gateways (**Home > Gateways**) • Manage Users (**Home > Users**) • Manage Endpoints (**Home > Endpoints**) • Configure Auto Attendants (**Home > Conferences > Auto Attendants**) • Fully control conferences (**Home > Conferences**)
conference creation and full control	Users with this privilege level can: • Change their own profile (**Home > Profile**) • View the list of active conferences (**Home > Conferences**) • View conferences via streaming (**Home > Conferences**) • View participant lists for active conferences (**Home > Conferences**) • Schedule new conferences (**Home > Conferences**) • Fully control and modify all conferences (**Home > Conferences**)
conference creation and limited control	Users with this privilege level can: • Change their own profile (**Home > Profile**) • View the list of active conferences (**Home > Conferences**) • View conferences via streaming (**Home > Conferences**) • View participant lists for active conferences (**Home > Conferences**) • Schedule new conferences (**Home > Conferences**) • Fully control and modify conferences they own (**Home > Conferences**) • Exercise limited control of conferences owned by other users (**Home > Conferences**) See Conference Ownership for additional information on which actions are permitted (and forbidden) by *limited control*.
conference creation	Users with this privilege level can: • Change their own profile (**Home > Profile**) • View the list of active conferences (**Home > Conferences**) • View conferences via streaming (**Home > Conferences**) • View participant lists for active conferences (**Home > Conferences**) • Schedule new conferences (**Home > Conferences**) • Fully control and modify conferences they own (**Home > Conferences**)

conference detail	Users with this privilege level can: • Change their own profile (**Home > Profile**) • View the list of active conferences (**Home > Conferences**) • View conferences via streaming (**Home > Conferences**) • View participant lists for active conferences (**Home > Conferences**)
conference list plus streaming	Users with this privilege level can: • Change their own profile (**Home > Profile**) • View the list of active conferences (**Home > Conferences**) • View conferences via streaming (**Home > Conferences**)
conference list only	Users with this privilege level can: • Change their own profile (**Home > Profile**) • View the list of active conferences (**Home > Conferences**) The active conferences list shows any configured E.164 numbers, and so is useful for finding out what number to dial to call in to a conference directly rather than via an auto attendant. See Calling into Conferences for additional information.

Related Topics

- System Defined Users
- Viewing User List
- Adding and Updating Users
- Updating a User's Profile

System Defined Users

The MCU is pre-configured with two user accounts ("admin" and "guest"), but you can also add other users. Refer to the table below for descriptions of the pre-configured users.

User ID	Description	Usage Tips
admin	The MCU must have at least one configured user with administrator privileges. By default, the User ID is "admin" and no password is required.	After logging into the MCU for the first time (see Logging into the Web Browser), you can change the User ID and password for this account.
guest	The MCU must have at least one configured user with access privileges below *administrator*. The fixed User ID for this user is "guest" and by default no password is required.	You cannot change the name of the "guest" User ID, but you can add a password.

You can modify the system defined user accounts if you need to. For example, for security, you should add a password to the admin account.

Note that you can also create new accounts with administrator or lower access privileges in addition to these pre-defined users (see Adding and Updating Users).

Refer to these topics for assistance in modifying these users:

- Modifying the "admin" User
- Modifying the "guest" User

Modifying the "admin" User

The "admin" user is the default login account initially used to access the web interface.

1. Go to **Home > Users**.
2. Click **admin**.
3. Refer to the table below to determine the most appropriate settings for the user.
4. After entering the settings, click **Update user settings**.

Field	Field Description	More Information
User ID	Identifies the log-in name used to access the MCU web browser.	
Password	Specifies any required password.	
Re-enter password	Verifies the required password.	
Privilege level	Displays the privilege level, which is fixed at *administrator*.	See User Privileges for detailed explanations.

Modifying the "guest" User

1. Go to **Home > Users** .
2. Click **guest**.
3. Refer to the table below to determine the most appropriate settings for the user.
4. After entering the settings, click **Update user settings**.

Field	Field Description	More Information
User ID	Identifies the log-in name used to access the MCU web browser. This is fixed at "guest"	

Password	Specifies any required password.	
Re-enter password	Verifies the required password.	
Privilege level	Displays the privilege level, which can be changed to any level except *administrator*.	See User Privileges for detailed explanations.

Related Topics

- User Privileges
- Viewing User List
- Adding and Updating Users
- Updating Your Own Profile

Adding and Updating Users

You can add and update users to the MCU. Although most information is identical for both tasks, some fields differ.

Adding a User

Follow these steps to add a user:

1. Go to **Home > Users**.
2. Click **Add new user**.
3. Refer to the table below to determine the most appropriate settings for the user.
4. After entering the settings, click **Add user**.

Updating a User

Follow these steps to update an existing user:

1. Go to **Home > Users** .
2. Click a user name.
3. Refer to the table below to determine the most appropriate settings for the user.
4. After entering the settings, click **Update user settings**.

Field	Field Description	More Information
User ID	Identifies the log-in name that the user will use to access the MCU web browser.	
Name	Identifies the full name of the user.	
Password	Specifies any required password.	
Re-enter password	Verifies the required password.	
Privilege level	Specifies the access privileges to be granted to this user.	See User Privileges for detailed explanations.
E.164 phone number	Associates an E.164 telephone number with the selected H.323 video endpoint.	This limits the configuration end-users will be forced to do when joining a video conference. When they use the defined phone, calls placed through the MCU will automatically be set up as video calls using the designated video endpoint.
Associated video Endpoint	Associates a pre-configured H.323 endpoint with the user.	See Adding an H.323 Endpoint for information about adding endpoints.
Picture upload		
Upload bitmap file	Defines an image to display when users join conferences in audio-mode only.	Click **Browse** to locate the bitmap image on your hard drive. Then, click **Send file** to upload the image to the MCU. This option is only available after you add the user.

Related Topics

- System Defined Users
- User Privileges
- Viewing User List
- Updating Your Own Profile

Displaying Endpoint List

The Endpoint List displays all endpoints that have been configured within the MCU.

To add a new H.323 endpoint, press **Add H.323**. To add a new VNC endpoint, press **Add VNC**. To delete configured endpoints, select the ones you wish to delete and press **Delete selected**.

Field	Field Description
Name	Displays the name of the endpoint
Address	Displays the IP address, host name, or an E.164 address (phone number).
Type	Indicates whether it is an H.323 or VNC endpoint

Related Topics

- Adding an H.323 Endpoint
- Adding a VNC Endpoint

Configuring VNC Endpoints

You can configure a VNC endpoint on the MCU by choosing **Home > Endpoints > Add VNC**. This makes it easier to add a VNC session to conferences because you can choose its name from a list rather than by its network address. The MCU can also call a configured endpoint to add it to a conference.

You can add VNC (Virtual Network Computing) endpoints to the MCU. This enables you to have software applications running on a remote computer added to a conference. For example, if a speaker has a set of slides to present during a conference, you can add them as a VNC endpoint. After entering the settings, click **Add endpoint**.

Field	Field Description
Name	Identifies the name of the computer used for the VNC application (VNC endpoint).
Host name or IP address	Specifies the IP address or host name of the computer used for the VNC application (VNC endpoint).
Port	Indicates the port used for communication to the VNC endpoint.
Password	Indicates the VNC server password for the computer you're trying to view.
Re-enter password	Requires you to re-enter the VNC password.

Related Topics

- Displaying Endpoint List
- Adding an H.323 Endpoint

Displaying User List

The User List gives you a quick overview of all configured users on the MCU and a brief overview of some of their settings. To display this list, go to **Home > Users**. Refer to the table below for assistance.

Field	Field Description
User ID	Shows the log-in name that the users to access the MCU web browser.
Name	Shows the full name of the user.
Privilege	Displays the access privileges associated with this user. See User Privileges for detailed explanations.
E.164	Displays the associated E.164 telephone number.
Video endpoint	Displays the associated video endpoint.
Picture	Displays configured image to display for this user.

Related Topics

- System Defined Users
- User Privileges
- Adding and Updating Users

Editing Your User Profile

You can make some changes to your user profile to update. To do this, choose **Home > Profile**. Refer to the table below for tips.

Field	Field Description	More Information
Name	Make any changes to your name, which identifies you to other users.	Changing this field does not change your log-in User ID.
Password	Enter a new password.	
Re-enter password	Verify the new password.	
E.164 phone number	Associates an E.164 telephone number with the selected H.323 video endpoint.	This limits the setup you will need to do each time you join a video conference. When they use the defined phone, calls placed through the MCU will automatically be set up as video calls using the designated video endpoint. This field is not available for the system *admin* or *guest* accounts.
Associated video endpoint	Associates a pre-configured H.323 endpoint with the user.	The network administrator must configure video endpoints so they're available for you to select. This field is not available for the system *admin* or *guest* accounts.
Picture upload		
Upload bitmap file	You can add an image to display when you join conferences in audio-mode only.	Click **Browse** to locate the bitmap image on your hard drive. Then, click **Send file** to upload the image to the MCU.

Configuring Streaming Settings

You can configure the MCU to support either (or both of) unicast or multicast streaming. 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.

To access these settings, choose **Home > Settings > Streaming**.

Field	Field Description	Usage Tips
General		
Streaming status	Controls the ability of the MCU to stream conferences.	If this setting is *Enabled*, you can configure streaming on a per-conference basis from individual conferences' configuration pages. If this setting is *Disabled*, it will not be possible to stream any conferences.
Allow streaming of ad hoc conferences	Permits or prohibits streaming of conferences that are generated either through the "Create new conference" option in video auto attendants, or calling the MCU with an unknown E.164 number.	Ad hoc conferences are not permitted when Port reservation is enabled - if the MCU is operating in port reservation mode then this streaming option will not be shown. This setting refers to unicast streaming only - it is not possible to enable multicast streaming for ad hoc conferences.
Codec and bit rate choices		
Name	The MCU is configured with two streaming rates, each comprising audio and video encoding formats (codecs) and overall (i.e. combined) media bit rate. This parameter can be used by administrators to customize the choice offered to users when streaming. This is intended to make the choice easier for potentially non-technical users; for instance, one rate could be named "low bit rate" and the other "high bit rate".	This naming parameter is optional - if not specified, the choices offered to users will simply show the details of the audio and video codecs together with the overall media bit rate.
Streams	Sets the audio and video combination to use, and the overall media bit rate.	Typically, when two streaming rates are used, one is set up as a low bit rate combination and the other configured to use a higher bit rate. This enables those users with a low bandwidth connection to achieve useful streaming while at the same time allowing those with a high bandwidth link to take advantage of enhanced video.
Multicast	Choose whether to use the specified streaming rate for multicast. If this is set to *Enabled* then for any conference with *Streaming* set to "Multicast" or "Unicast and multicast", multicast audio and video streams will be transmitted according to the corresponding *Streams* setting.	Setting any *Multicast* parameters to "Enabled" will only be useful if the multicast media IP addresses and port numbers are also configured - see below.
Multicast		
Media transmit IP address range	Identifies the range of IP addresses to which multicast streaming media should be sent.	If this address range is not configured, the MCU cannot transmit multicast conference media.
Media transmit port number range	Sets the range of port numbers to which the media will be sent.	This UDP port number range is used in conjunction with the Media transmit IP address. You must set both the start and end port numbers to transmit multicast conference media.

Related Topics

- Configuring Network Settings
- Configuring Global Conference Settings
- Configuring the Gatekeeper Settings
- Upgrading the Firmware

Configuring Network Settings

You can configure the network settings on the MCU and check the network status by choosing **Home > Settings > Network A** or **Home > Settings > Network B**

The MCU has two Ethernet interfaces, *Port A* and *Port B*. The configuration pages for the two interfaces look and behave similarly, and so are described together. Differences will be noted as appropriate.

- IP Configuration
- IP Status
- Ethernet Configuration
- Ethernet Status

IP Configuration Settings

These settings determine the IP configuration for the appropriate Ethernet port of the MCU. When you have finished, you must press **Update IP configuration** to make any changes take effect.

Field	Field Description	Usage Tips
Port enabled	Specifies 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 can never be disabled, as it is the primary interface of the MCU. Port B may be enabled only if the *Video firewall* feature is enabled - this requires a feature activation key (see Upgrading the firmware).
Host name	Specifies a name for the MCU.	Depending on your network configuration, you may be able to use this host name to communicate with the MCU, without needing to know its IP address.
IP configuration	Specifies whether the MCU obtains its own IP address for this port automatically via DHCP (Dynamic Host Configuration Protocol), or whether you want to specify fixed values.	Only *manual* IP configuration may be used with Port B. Press the **Renew DHCP** button to request a new IP address if you have selected automatic configuration.
Manual Configuration		
IP address	Identifies the dot-separated IPv4 address for this port, for example 192.168.4.45	You only need to specify this option if you have chosen *manual* IP configuration, as described above.
Subnet mask	Identifies the subnet mask required for the IP address you wish to use, for example 255.255.255.0	
Default gateway	Identifies the IP address of the default gateway on this subnet, for example 192.168.4.1	If both Port A and Port B are enabled, you must specify which port's default gateway setting is used. This is selected on the **Routes** configuration page (see Configuring IP Routing settings). Regardless of the selected preference, you must still specify the default gateway if using manual configuration.
Name server (DNS)	Identifies the IP address of the name server.	If both Port A and Port B are enabled, you must specify which port's name server setting is used. This is selected on the **Routes** configuration page (see Configuring IP Routing settings). Regardless of the selected preference, you must still specify the name server if using manual configuration.

Secondary name server (DNS)	Identifies specify an optional second name server.	
Domain name (DNS suffix)	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 *codian.com*, then a request to the name server to look up the IP address of host *endpoint* will actually lookup *endpoint.codian.com*.

IP Status

Use the IP Status fields to quickly verify the current IP settings for the appropriate Ethernet port of the MCU, which were obtained using DHCP or configured manually (see IP Settings) including:

- Host name
- DHCP
- IP address
- Subnet mask
- Default gateway
- Name server (DNS)
- Secondary name server (DNS)
- Domain name (DNS suffix)

Ethernet Configuration

These settings determine the Ethernet settings for the appropriate port of the MCU. Refer to the table for assistance with these settings. When you have finished, you must press **Update Ethernet configuration** to make the changes take effect.

Field	Field Description	Usage Tips
Ethernet settings	Specify whether you want this Ethernet port to automatically negotiate its Ethernet settings with the device it is connected to, or if it should obtain its configuration manually using fixed values that you must specify.	It is important that your Ethernet settings match those of the device to which this port is connected. For example, both devices must be configured to use automatic negotiation, or both configured with fixed and matching speed and duplex settings (see below).
Manual Configuration Speed		
Speed	Identifies the connection speed: *10 Mbit/s*, *100 Mbit/s* and *1000 Mbit/s*.	The connection speed must match that of the device to which this port is connected. You only need to select this option if you have chosen *manual* Ethernet settings, as described above.
Duplex	Identifies the connection duplex mode: • **Full duplex** Both devices can send data to each other at the same time • **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. You only need to select this option if you have chosen *manual* Ethernet settings, as described above.

Ethernet Status

Field	Field Description	Usage Tips

Link status	Indicates whether this Ethernet port is connected to or disconnected from the network.	
Speed	Shows the speed (*10*/*100*/*1000 Mbit*/*s*) of the network connection to the MCU on this port.	This value is negotiated with the device to which this port is connected or based on your manual configuration, depending on the settings you chose above.
Duplex	Shows the duplex mode (*full*/*half duplex*) of the network connection to this port.	This value is negotiated with the device to which this port is connected or based on your manual configuration, depending on the settings you chose above.
MAC address	Shows the fixed hardware MAC (Medium Access Control) address of this port.	This value cannot be changed and is for information only.
Packets sent	Displays a count of 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 unit is transmitting packets into the network.
Packets received	Displays a count of 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 unit is receiving packets from the network.
Multicast packets sent	These fields display further statistics for this port.	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		

Related Topics

- Configuring IP Routing settings
- Upgrading the Firmware

Upgrading the Firmware

If you need to upgrade the firmware or activate features on the MCU, refer to these topics:

- Upgrading the Main MCU Software Image
- Upgrading the Loader Software Image
- Restarting the MCU
- Enabling MCU features

Upgrading the Main MCU Software Image

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

Follow these steps to upgrade this image:

1. Check the **Current version** field to verify the currently installed version.
2. Log onto the Codian support pages to identify if a more recent image is available.
3. Download the latest available image and save it to a local hard drive.
4. Unzip the image file.
5. Log on to the MCU web browser interface.
6. Go to **Home > Settings > Upgrade**.
7. Click on the **Browse** button to locate the unzipped file on your hard drive.
8. Click the **Upload software image** button. The browser begins uploading the file to the MCU, and a new browser window opens to indicate the progress of the upload. When finished, the browser window refreshes and indicates that the "Main imagine upgrade completed."
9. The upgrade status displays in the **MCU software upgrade status** field.
10. Shutdown and restart the MCU.

Upgrading the Loader Software Image

Upgrades for the Loader software image are not typically available as often as upgrades to the main software image.

Follow these steps to upgrade this image:

1. Check the **Current version** field to verify the currently installed version.
2. Log onto the Codian support pages to identify if a more recent image is available.
3. Download the latest available image and save it to a local hard drive.
4. Unzip the image file.
5. Click on the **Browse** button to locate the unzipped file on your hard drive.
6. Click the **Upload loader software** button. The browser begins uploading the file to the MCU, and a new browser window opens to indicate the progress of the upload. When finished, the browser window refreshes and indicates that the "Main imagine upgrade completed."
7. The upgrade status displays in the **Loader upgrade status** field.
8. Shutdown and restart the MCU.

Shutting down and restarting the MCU

After upgrading either software image, you must restart the MCU. Before you restart, it is recommended that you *Shutdown* the MCU. This will cause all conference participants to be disconnected, and allows the MCU to ensure that all data (such as Call Detail Records) is stored correctly.

You should also shutdown before intentionally removing power from the MCU.

To shutdown the MCU, follow these steps:

1. Click the **Shutdown MCU** button.
2. Confirmation of shutdown is required; the button changes to **Confirm MCU shutdown**.

3. Click again to confirm.
4. The MCU will begin to shutdown. The banner at the top of the page will change to indicate this.
5. When the shutdown is complete, the button will change to **Restart MCU**.
6. Click this button a final time to restart the MCU

Enabling MCU features

The MCU requires activation before most of its features can be used. (If the MCU has not been activated, the banner at the top of the web interface will show a prominent warning; in every other respect the web interface will look and behave normally.) Advanced MCU features (such as *Video Firewall*) are not enabled as standard, and require additional activation.

If this is a new MCU you should receive the unit already activated; if it is not, you have upgraded to a newer firmware version, or you are enabling a new feature, you may need to contact Codian or your supplier to obtain an appropriate activation code. Activation codes are unique to a particular MCU so ensure you know the unit's serial number such that you may receive a code appropriate to your MCU.

Regardless of whether you are activating the MCU or enabling an advanced feature, the process is the same:

1. Check the **Activated features** (MCU activation is shown in this same list) to confirm that the feature you require is not already activated.
2. Enter the new feature code into the **Activation code** field exactly as you received it, including any dashes.
3. Click the **Update features** button. The browser window should refresh and list the newly activated feature, showing the activation code beside it. Activation codes may be time-limited. If this is the case, an expiry date will be displayed, or a warning that the feature has already expired. Expired activation codes remain listed, but the corresponding feature will not be activated.
   If the activation code is not valid, you will be prompted to re-enter it.
4. It is recommended that you record the activation code in case you need to re-enter it in the future.
5. Successful MCU or feature activation has immediate effect and will persist even if the unit is restarted

Configuring IP Routes Settings

If the *Video Firewall* feature is enabled (see Upgrading the Firmware), you will need to set up one or more routing settings to control how IP traffic flows in and out of the MCU. It is important that these settings are configured correctly, or you may be unable to make calls to or from the MCU or access the web interface. You can configure the route settings by choosing **Home > Settings > Routes**.

- Port preferences
- IP routes configuration
- Current IP status
- IP services configuration

Port preferences

If both Ethernet ports are enabled, it is necessary to specify which port is used in certain special circumstances. Make the appropriate selections described below, then press **Apply changes** to make any changes take effect.

Field	Field Description	Usage Tips
Default gateway preference	The default gateway specifies the IP address to which the MCU will send packets in the absence of more specific routing (see IP routes configuration). Therefore, it only makes sense to have precisely one default gateway, even though *different* default gateways may have been configured for Ports A and B. Use this option to decide which port's default gateway configuration to use as the unit's default gateway.	If Ethernet Port B is disabled, it will not be possible to specify that port as the default gateway preference. Selecting Port B as default gateway preference then disabling Port B will cause the preference to revert to Port A.
Name server (DNS) preference	The name server specifies the IP address to which the MCU will send requests to look up unrecognised host names in order to determine their corresponding IP addresses. Only one name server (and associated secondary name server) may be used, even though *different* name servers may have been configured for Ports A and B. Use this option to decide which port's name server configuration to use as the unit's name server.	If Ethernet Port B is disabled, it will not be possible to specify that port as the name server preference. Selecting Port B as name server preference then disabling Port B will cause the preference to revert to Port A.

IP routes configuration

The controls in this section allow control over how IP packets should be directed out of the MCU. You should only change this configuration if you have a good understanding of the topology of the network(s) to which the MCU is connected.

Configuration of routes is divided into two sections: addition of new routes, and the display and removal of existing routes.

Adding a new IP route

To add a new route, first enter the details using the table below for reference. When you are satisfied with the details entered, press **Add IP route** to make the addition. If the route already exists, or aliases (overlaps) an existing route, you will be prompted to correct the problem and try again.

Field	Field Description	Usage Tips

IP address / mask length	Use these fields to define the type of IP addresses to which this route applies. The IP address pattern must be in the dot-separated IPv4 format, while the mask length is chosen from a drop-down list The mask field specifies how many bits of the address are fixed; unfixed bits must be set to zero in the address specified.	To route all IP addresses in the range 192.168.4.128 to 192.168.4.255 for example, specify the IP address as 192.168.4.128 and the mask length as 25, to indicate that all but the last seven bits address are fixed.
Route	Use this field to control how packets destined for addresses matching the specified pattern are routed. You may select **Port A**, **Port B** or **Gateway**. If the latter option is selected, you must specify the IP address of the gateway you wish packets to be directed to.	Selecting Port A results in matching packets being routed to Port A's default gateway (see Configuring Network Settings). Selecting Port B will cause matching packets to be routed to Port B's default gateway. If Ethernet Port B is disabled, the option to route packets to Port B will be disabled.

Viewing and deleting existing IP routes

Configured routes are listed below the *Add IP route* controls. For each route, the following details are shown:

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

The *default* route is configured automatically in correspondence with the *default gateway preference* field (see Port preferences) and cannot be deleted. Any packets not covered by manually configured routes will be routed according to this route.

Manually configured routes may be deleted by selecting the appropriate checkbox and pressing **Delete selected**.

Routes behaviour with disabled ports

If the default gateway preference is set to Port B (for example) and that port is disabled, the *default* route will be updated automatically to route packets not covered by any manually configured route via Port A.

If a manually configured route specifies Port B (for example) and that port is disabled, packets matching that route **will not** be automatically be routed via Port A, but discarded. You should take care to avoid this situation.

Current IP status

This table shows the current default gateway and name server(s) for Ethernet Ports A and B. No fields can be changed, and are provided for reference when configuring the other parameters described in the sections above.

IP services configuration

Use this table to control the type of services that may be accessed via Ethernet Ports A and B. You might use this if one Ethernet port is connected to a network outside your organisation's firewall, and you wish to restrict the level of access that external users are entitled to, for example, by disabling FTP access via Port B. Refer to the table below for more details.

In addition to controlling the Ethernet interfaces over which a service operates, this page also allows an administrator to specify the port number on which that service is provided. If the port number for a service is changed, it is necessary to ensure that the new value chosen does not clash with the port number used by any of the other services; it is not, however, normally necessary to use anything other than the pre-configured default values.

Field	Field Description	Usage Tips

Web	Use this option to enable or disable web access on the specified interface.	Web access is required to view and change the MCU web pages and read online help files. If you disable web access on both Ports A and B, you will need to use the serial console interface to re-enable it. If a port is disabled, this option will be unavailable.
Incoming H.323	Use this option to allow or reject incoming calls to the MCU using H.323.	Disabling this option will not prevent outgoing calls to H.323 devices being made by the MCU. If a port is disabled, this option will be unavailable.
Streaming	Use this option to allow or disable streaming from the MCU.	If a port is disabled, this option will be unavailable.
FTP	Use this option to enable or disable FTP access on the specified interface.	FTP can be used to upload and download MCU configuration. You should consider disabling FTP access on any port that is outside your organisation's firewall. If a port is disabled, this option will be unavailable.

Related Topics

- Configuring Network Settings
- Upgrading the Firmware

Configuring H.239 Settings

These settings affect the behaviour of the MCU with regard to H.239.

To access these settings, choose **Home > Settings > H.239**.

Refer to this table for assistance configuring the H.239 settings. After making any configuration changes, click **Apply changes**.

Field	Field Description	Usage Tips
H.239 status	Controls whether the MCU as a whole is permitted to use H.239.	If this setting is enabled, you can still enable or disable the use of H.239 on a per-conference basis. If this setting is disabled, no conference will be able to use H.239. Certain videoconferencing endpoints and infrastructure such as gatekeepers may not operate correctly when communicating with equipment (such as the Codian MCU) which declares H.239 capability. It may therefore be necessary to set this to *Disabled* in order to work with legacy devices (this will, of course, also prevent H.239 video streams being used with H.239-aware equipment).
Outgoing H.239 video codec	This field sets which video codec is used for conferences' H.239 video streams.	A single H.239 video stream is used for each conference, and this stream will be sent to all viewing endpoints. If an endpoint is unable to receive H.239 video using the codec configured here, no H.239 channel will be opened to that endpoint.
Display H.239 in normal video channel	Sets whether the MCU will render content channel data in endpoints' main video channels.	If there is an active content channel for a conference, it may be that the MCU is unable to open a H.239 channel to a particular endpoint. For instance, that endpoint may have no H.239 capability, or might not support the video format specified by the *Outgoing H.239 video codec* setting (see above). In these cases, if this option is set to *Enabled*, the MCU will display the content channel video within a pane of the currently selected conference layout.
Overlay text chat in normal video channel	As part of the web conferencing facility of the MCU, streaming viewers can take part in text chat as well as potentially adding graphical markup to the content channel video. If this setting is *Enabled*, the text chat, as well as being sent to all web browser-based streaming viewers, will be overlaid on the video streams being sent to H.323 videoconferencing endpoints.	This facility may be of use in situations where a presenter is connected via a videoconferencing endpoint, and is being asked questions by people viewing the conference via streaming.
Web viewing applet size	Controls the size of the applet used to view the content channel video when streaming. This option is only available if the MCU web conferencing (WCO) feature key is present.	The resolution of the content channel may change during the course of a call. However, when being viewed via a web browser, the content channel video stream will always be scaled to the size specified here.

Web viewing applet bandwidth	Sets the bandwidth of the content channel video stream sent to streaming viewers. This option is only available if the MCU web conferencing (WCO) feature key is present.	Just as there is a single H.239 video stream sent to all H.239-capable videoconferencing endpoints in a conference, there is a single content channel video stream sent to all streaming viewers. This option allows the bandwidth of the streamed content channel video to be set. While in general a higher value means a greater frame rate (and thus better video quality), it is important to not set this value too high (i.e. higher than the available TCP network bandwidth between the MCU and viewers' machines) to avoid degradation resulting from lost data.
Markup of content channel video	If *Enabled*, people viewing conference the content channel stream via a web browser will be able to add markup to that video stream such as graphics and text. This markup will then be visible to all content channel viewers, both those viewing via streaming and those connected via H.323 videoconferencing endpoints. This option is only available if the MCU web conferencing (WCO) feature key is present.	Changing this setting has an immediate effect: • if changed to *Disabled*, it will not be possible for existing viewers to complete markup currently in progress • if changed to *Enabled*, existing streaming viewers will gain the ability to add markup

Related Topics

- H.239 (content channel video) support
- Configuring Global Conference Settings

H.239 (content channel video) support

The Codian MCU supports, for each conference, 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 a VNC connection
- Streaming the content channel to users' desktop machines (*)
- Allowing graphical and textual "markup" of the content channel (*)
- Text chat between conference participants (*)

***** - these features require the web conferencing feature key.

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 3 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, by comparison, 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.
  There is, however, 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 is chosen to maximize the number of viewers - for instance 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 videoconferencing 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, however, 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 videoconferencing endpoint would normally be both contributing (sending) a video stream to the MCU and receiving a video stream from it.
  The content channel, however, works differently in that an endpoint can either be sending H.239 video or receiving H.239 video, but not both. 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. 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 the box-wide *Display H.239 in normal video channel* setting.

Content channel sources

As described above, a conference's content channel as sent to the set of receiving endpoints has a single source. 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.
  As there can be at most one content channel source, 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 will be 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 for including 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:
  - If there is a H.323 videoconferencing 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.
  - 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.
- **Participant main video**
  It is also possible for the MCU to 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 provides the facility for users to add markup to the video channel. This markup consists of 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

Box-wide configuration

At the box-wide level, 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.

For more information on these configuration parameters, see Configuring H.239 Settings.

Per-conference configuration

Assuming that the MCU H.239 feature is enabled, each scheduled conference can be independently configured to allow content channel operations or not. If enabled, this has an impact on the conference's port usage - if disabled, then all attempts by participants in that conference to open a H.239 channel to the MCU will be unsuccessful.

For more information on the conference configuration parameters relevant to the content channel, see Adding and updating conferences.

Per-participant parameters

H.239 contribution

H.239 contribution refers to the ability of H.323 videoconferencing devices to contribute the content channel video for a conference via the mechanism of opening a separate video channel, distinct from its main video stream. Specifically, this section does not deal with the use of H.239 by the MCU when sending content channels to viewing H.323 devices or the use of other protocols such as VNC to supply the content channel video for a conference.

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 videoconferencing 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.

It should be borne in mind that what is termed *H.239 contribution* is more precisely described as 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 for a conference 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 (technically, as above, to **start** contributing H.239 video) is determined by the per-conference *H.239 contribution from endpoints* setting.

The per-conference default *H.239 contribution from endpoints* setting can be overridden by individual H.323 endpoints' configuration. If such an endpoint's *H.239 video contribution* setting is *<use conference default>* then the endpoint's ability to contribute content channel video via H.239 will be determined initially from the conference setting. If the endpoint setting is <enabled> or <disabled> then this will override the conference setting and that endpoint will either always be prevented from using H.239, or always permitted (assuming the conference of which it is part is configured with content channel support). As well as being part of each H.323 endpoint's configuration, the *H.239 video contribution* setting can also be specified when calling out to a H.323 endpoint by address.

Irrespective of per-conference or per-endpoint configuration parameters, if a conference is configured to allow content channel operations then it is possible to explicitly enable or disable individual conference participants' ability to use H.239 via the web browser interface (assuming a user login with full conference control).

To change the H.239 contribution setting for an active conference participant via the web interface, first navigate to that participant's Display page. As long as both the conference has H.239 enabled and the endpoint in question has H.239 capabilities, you should be able to use one of the following controls:

-  allow participant to contribute H.239 video
-  do not allow participant to contribute H.239 video

If an endpoint's ability to contribute H.239 video has been explicitly enabled or disabled via this mechanism, that enablement or disablement will take precedence over any current or future conference or participant configuration, even if the endpoint later moves to a different conference.

Use of main video as content channel

In addition to supporting the H.239 protocol by which H.323 endpoints in a conference can supply the content channel video, the MCU also allows a participant's main video channel to be used for the content stream. This is essentially what happens by default for VNC connections in a conference configured to allow content channel video.

As detailed above, it is not possible to force an H.323 endpoint that has started to contribute H.239 video to relinquish the virtual token that it holds. Thus, if an endpoint's main video channel is configured to be the content channel source, this will only take effect if no other endpoint is supplying the content channel video stream (whether by H.239 or through use of its main video stream).

To control the use of a participant's main video as the conference content channel source, these following controls are displayed on the per-conference participant list (next to the preview image of the video stream to which they relate):

-  use this participant's main video stream as the content channel
  (this is set by default for VNC connections)
-  stop using this participant's main video stream as the content channel
  (revert to more conventional content channel behavior such as H.239)

If more than one participant's main video channel is configured to provide the content channel, then all but the active (normally, first) one will be marked with the status:

H.239: unable to use main video as source
You might also see this warning if there is more than one VNC connection in a conference, as the MCU will, when establishing a new VNC connection, automatically configure its main (in fact, sole) video channel to be used as the content channel source if possible. To choose between multiple potential main video channels as the content source for the conference, ensure that you use the disablement control:

on all but the participant you wish to use for this.

Streaming

H.239 is the mechanism by which a conference's content channel video may be delivered to a H.323 endpoint. As detailed above, 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 Codian proprietary format version of the content channel video which can be viewed in conjunction with PC-based video streaming. This ensures that, if desired, all participants and viewers for a conference are able to access all of its associated media.

Content channel streaming also allows participants using H.323 videoconferencing 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

"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 box-wide *Markup of content channel video* setting.

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 box-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.

Web conferencing feature key

Some of the above content channel features require the MCU to have been configured with the **Web conferencing** feature key. The following features are only available with the Web conferencing key:

- Streaming the content channel to users' desktops
- Markup of content channel video
- Text chat

Port usage

Port reservation mode

If the MCU is operating in reserved mode, enabling H.239 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 - *Video ports to reserve* should be set to 5, and *H.239 content channel video* set to "Enabled" in this specific example.

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

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.

See port reservation for more information.

Ad hoc conferences

It is not possible to use content channel features (including the H.239 protocol between the MCU and H.323 videoconferencing endpoints) with ad hoc conferences.

Related Topics

- Configuring H.239 Settings
- Configuring H.323 Endpoints

Displaying General Status

The General Status displays an overview of the MCU status. To access this information, go to **Home > Status > General.**

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

Field	Field Description
System status	
Model	Indicates specific Codian MCU model
Serial number	Shows the unique serial number of the MCU
Software version	Displays installed firmware version
Build	Displays build version of installed firmware
Up time	Displays time since the last restart of the MCU
Current time	Displays current time.
Host name	Displays the host name assigned to the MCU
IP address	Displays the IP address assigned to the MCU
Media processing load	Displays an overview of the current processing load on 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.
System time	
New time	Allows you to set a new time on the MCU. Click **Change system time** after modifying this value.
New date	Allows you to set a new date on the MCU. Click **Change system time** after modifying this value.

Related Topics

- Displaying Conference Status
- Displaying Hardware Health Status

Displaying Conference Status

The Conference Status displays the status of active and completed conferences and video and audio processing. To access this information, go to **Home > Status > Conferences.**

Refer to the table below for assistance in interpreting the information displayed:

- Conference Status
- Video Status
- Audio Status

Format of displayed values

In many cases, the values displayed on this page are shown in the format **A (B) / C**; this represents:

- **A** – the current value of this statistic
- **B** – the maximum achieved value of this statistic (since last reset)
- **C** – the maximum allowable number for this statistic (this varies by MCU model)

Statistics for which there is no set maximum will be displayed as just **A (B)**, where **A** and **B** have the meanings as described above.

Where the highest value attained is shown in parentheses (i.e. **B** in the above example), this value can be reset by selecting **Reset maximum values**. These values can be useful in monitoring peak MCU usage over a period of time.

Conference Status

Conference status displays an overview of active and completed conferences.

Field	Field Description
Active conferences	Displays the number of conferences that are currently configured on the MCU.
Active auto attendants	Displays the number of auto attendants that are currently in use. If you dial in with an endpoint to the auto attendant, this will go up by one. It does not reflect the number of configured auto attendants.
Completed conferences	Displays the number of conferences that were once active but are now not.
Completed auto attendants	Displays the total number of calls into an auto attendant, excluding any in progress. If you call an auto attendant and enter into a conference or hang up the call, this number increases by one.
Active conference participants	Displays the number of people currently in conferences.
Previous conference participants	Displays the number of people who were previously participating in a conference (since the last time the MCU restarted).
Active streaming viewers	Displays the number of people currently watching conferences via a streaming application, such as Apple Quicktime or RealPlayer.
TCP streaming viewers	Displays the number of streaming sessions out of the *Active streaming viewers* value shown above which are using TCP media transport rather than UDP.
Video ports in use	This value is shown if the MCU is not operating in Port reservation mode, and shows the number of video ports in use. This corresponds to the number of connected participants that are either contributing or being sent video, plus the number of conferences for which streaming is active.
Audio-only ports in use	This value is shown if the MCU is not operating in Port reservation mode, and shows the number of audio-only ports in use. This corresponds to the number of connected participants that are contributing or being sent audio but not video.
Reserved video ports	This value is shown if the MCU is operating in Port reservation mode, and shows the total number of video ports reserved across the currently active conferences. Note that each conference for which streaming is enabled requires an additional video port, and these streaming allocations are included in the total displayed.

Reserved audio-only ports	This value is shown if the MCU is operating in Port reservation mode, and shows the total number of audio-only ports reserved across the currently active conferences.
Reserved video ports in use	This value is shown if the MCU is operating in Port reservation mode, and shows, of the number of video ports reserved, how many are actually being used by active conference participants or streaming allocations.
Reserved audio-only ports in use	This value is shown if the MCU is operating in Port reservation mode, and shows, of the number of audio-only ports reserved, how many are actually being used by active conference participants.

Video Status

Video status displays an overview of current video resource use.

Field	Field Description	Usage Tips
Incoming video streams	Displays the number of video streams being received by the MCU.	Unicast indicates video streams sent directly to the MCU (incoming) or directly to the endpoints (outgoing) rather than multicast streams broadcast to the network and captured or sent by the MCU.
Outgoing video streams	Displays the number of video streams being sent by the MCU.	
Total incoming video bandwidth	Displays the total video data rate being received by the MCU.	
Total outgoing video bandwidth	Displays the total video data rate being sent by the MCU.	

Audio Status

Audio status displays an overview of current audio resource use.

Field	Field Description	Usage Tips
Incoming audio streams	Displays the number of audio streams being received by the MCU.	Unicast indicates audio streams sent directly to the MCU (incoming) or directly to the endpoints (outgoing) rather than multicast streams broadcast to the network and captured or sent by the MCU.
Outgoing audio streams	Displays the number of audio streams being sent by the MCU.	
Complex (not G.711 or G.722) audio participants	Displays active audio participants using neither G.711 or G.722.	At most half of the MCU's allowable participants are permitted to use complex audio channels. A participant is considered to be using complex audio if *either* it is transmitting a complex audio channel or the MCU is sending complex audio to it.

Related Topics

- Displaying General Status
- Displaying Hardware Health Status

Displaying Hardware Health Status

The Health Status displays information about the hardware components of the MCU. To access this information, go to **Home > Status > Health.**

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

Field	Field Description	Usage Tips
Fans **Voltages** **RTC battery**	Displays three possible states: • OK • Out of spec • Critical States indicate both **Current Status** and **Worst Seen** conditions.	• **OK** – component is functioning properly • **Out of spec** – Check with your support provider; component might require service. If the **Worst Seen** column displays "Out or spec", but **Current Status** is "OK", monitor the status regularly to verify that it was only a temporary condition.
Temperature	Displays three possible states: • OK • Out of spec • Critical States indicate both **Current Status** and **Worst Seen** conditions.	• **OK** – temperature of the MCU is within the appropriate range • **Out of spec** – Check the ambient temperature (should be less than 34 degrees celsius) and verify that the air vents are not blocked • **Critical** – temperature of 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 or spec", but **Current Status** is "OK", monitor the status regularly to verify that it was only a temporary condition.

Related Topics

- Displaying General Status
- Displaying Conference Status

Displaying Conference Lists

The Conference List displays information about active, scheduled, and completed conferences. To access this list, choose **Home > Conferences**.

Review this information for explanations about the details that display:

- Active Conferences
- Scheduled Conferences
- Completed Conferences

Active Conferences

Active conferences are currently in progress. For each conference, the following information displays:

Field	Field Description	Usage Tips
Watch	Displays conference streaming page. This option is not necessarily available for every conference, and some conferences may require a PIN to access this feature.	See Using Streaming to View Conferences for more information.
Name	Displays the name of the conference, which is either the name entered when the conference was scheduled, or, in the case of certain specialized types of conferences, a name chosen automatically by the MCU when created.	Specialized conference types are described below in *Description*. Click the conference name to display detailed information about the conference and participants.
Description	Provides additional information about the conference, which can assist users joining conferences. You can add the description when scheduling a conference. If you do not add a description or the conference has not been scheduled in advance, the Description displays one of the following: • **<scheduled>** The conference has been scheduled in advance using the MCU web interface, but the owner has not entered a description. • **<ad hoc>** The conference was created dynamically during an auto attendant session and will end when the last participant using the auto attendant exits the conference. • **<auto attendant>** This type of conference indicates that a participant is currently connected to the auto attendant and navigating the menus.	
Owner	Shows the configured owner of the conference.	See Conference ownership for additional information.

Gatekeeper	Displays the status of a conference with respect to its gatekeeper registration. The possible states are: • **n/a** This conference is not configured to be registered with the gatekeeper; it thus has no applicable registration status. • **Registering** This conference is in the process of registering with the gatekeeper. • **Deregistering** The conference is in the process of unregistering with the gatekeeper. This might occur if: ◦ Gatekeeper registration has been turned off (either for that conference only or for the entire MCU) ◦ The configured gatekeeper has just been changed and the MCU is in the process of unregistering from the previous gatekeeper before registering its conferences with the new one. • **Re-registration pending / Retry timeout** If the MCU fails to register a conference with the gatekeeper, it enters these states temporarily before re-attempting the registration. • ***<number>*** The conference has been registered successfully with the gatekeeper and can be contacted using the number indicated. • **<no id set>** The conference is configured to register with a gatekeeper, but has not had a numeric identifier set.	If the MCU can connect to an H.323 gatekeeper, each conference can be registered with that gatekeeper as a different directory number. This allows users to dial directly into a particular conference instead of connecting first to the MCU's auto attendant and navigating the menu system. For tips on configuring gatekeepers, see Gatekeeper Settings.
Participants	Displays the number of currently active contributors to the conference. This value does not include streaming viewers or any other endpoints that are viewing only and not contributing any media to the conference. If a limit on the number of participants has been set for the conference, the *participants* value is shown as **A / B**, where **A** is the number of active participants and **B** is the configured limit. If it has not been possible to reserve all of the required ports for a conference (for instance because of a configuration error), this value will display in red as an error indication.	If a conference is protected by a PIN, the number of participants is hidden until the PIN is entered. In this case, the Participants displays as *<PIN required>*
Start time	Displays when the conference began. If the conference started before today, the date also displays.	
Time remaining	Display how long the conference still has to run. If the conference does not have a limited duration, this column displays as *<forever>*.	Only displays for conferences with limited durations.

Scheduled Conferences

Scheduled conferences are either in progress or are yet to start. You can review this list and make some changes to it:

- To remove a scheduled conference, select the conference (see Checkboxes) and click **Delete selected**.
- To schedule a new conference, click **Add new conference** (see Adding and Updating Conferences).

Field	Field Description	More Information
Name	Displays the name of the conference, which is either the name entered when the conference was scheduled, or, in the case of certain specialized types of conferences, a name chosen automatically by the MCU at creation time.	Specialized conference types are described in the Description field. Click the conference name to display detailed information about the conference and participants.
Numeric	Displays the number that you can dial to join the conference.	
Security	Indicates whether a PIN is required to join the conference.	
Owner	Shows the configured owner of the conference.	See Conference ownership for additional information.
Status	Displays whether a conference is: • **Yet to start** The conference's configured start time has not yet arrived. • **In progress** The conference is running and is available for videoconferencing endpoints to join. A scheduled conference in this state will also appear in the *Active conferences* list. • **Awaiting repeat** The conference is not currently running, but has been previously active and is now waiting to be re-activated when the time of its next repetition is reached. There is no explicit status for "finished" – when a conference is not in progress and is not scheduled to become active again then it is moved to the *Completed Conferences* list.	
Start time	Displays when the conference began. If the conference started before today, the date also displays.	
End time	Displays when the conference will end.	

Completed Conferences

Completed conferences have finished and are not scheduled to repeat.

- To remove specific conferences from the list, select the conferences (see Checkboxes) and click **Purge selected**.
- To remove all conferences from the list, click **Purge all**.

Field	Field Description	More Information
Name	Displays the name of the conference, which is either the name entered when the conference was scheduled, or, in the case of certain specialized types of conferences, a name chosen automatically by the MCU at creation time.	Specialized conference types are described in the Description field. Click the conference name to display detailed information about the conference and participants.
Owner	Shows the configured owner of the conference.	See Conference ownership for additional information.
Start time	Displays when the conference began. If the conference started before today, the date also displays.	
End time	Displays when the conference ended.	

Related Topics

- Viewing Conference Participant List
- Adding and Updating Conferences

Using Streaming to View Conferences

The Codian MCU supports streaming, which involves sending conference media (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 actually contribute to a conference via streaming.

To view a conference using streaming, go to **Home > Conferences** and click **Watch** next to an active conference. Refer to the table below for tips.

Embedded unicast streaming

Displays video in a window within the web browser window. Refer to the table below to choose the most appropriate settings for your needs

Field	Field Description	More Information
Bandwidth	Indicates the preferred bandwidth to use for streaming video	Consider your network speed when choosing a bandwidth. For example, you might use 128k if you are connecting over ISDN or 384k over a T1.
Viewer	Specifies the viewer to use for streaming video	The streaming video may be delayed by approximately 4-10 seconds compared to the real-time video.

Click **Start streaming** to display the conference.

Displaying Statistics for a Participant

You can view statistics about the video and audio streams between individual participants (endpoints) and the MCU by choosing this option:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click on a participant's name.
3. Click the **Statistics** tab.

If the participant is participating in the conference using audio only, the values for the video settings are not populated.

Media Statistics

Media statistics provide detailed information about the actual voice and video streams (Realtime Transport Protocol (RTP) packets).

When examining media statistics for a conference's streaming viewers, there are many fewer pertinent values and so a different, more limited, set of information is displayed. In this case, the MCU shows how many streams of each outgoing audio and video format are being transmitted.

Refer to the table below for additional information.

Field	Field Description	Usage Tips
Audio		
Receive stream	Displays the audio codec in use, along with the current packet size (in milliseconds) if known.	
Receive address	Displays the IP address and port from which the media is originating.	
Received jitter	Displays the apparent variation in arrival time from that expected for the media packets (in milliseconds). The current jitter buffer also displays in parentheses.	You should expect to see small values for this setting. Consistently large numbers typically imply potential network problems. The jitter buffer shows the current playout delay added to the media to accommodate the packet arrival jitter. Large jitter values indicate a longer buffer.
Received energy	Represents the audio volume originating from the endpoint.	
Packets received	Displays the number of audio packets destined for the MCU from this endpoint.	
Packet errors	Displays the number of packet errors, including sequence errors, packets of the wrong type, and so on	You should expect to see small values for this setting. Consistently large numbers typically imply potential network problems.
Frame errors	Displays frame errors, as *A*/*B* where *A* is the number of frame errors, and *B* is the total number of frames received	A frame is a unit of audio, the size of which is dependent on codec. You should expect to see small values for this setting. Consistently large numbers typically imply potential network problems.
Transmit stream	Displays the audio codec being sent from the MCU to the endpoint, along with the chosen packet size in milliseconds	
Transmit address	Displays the IP address and port to which the media is being sent.	
Packets sent	Displays a count of the number of packets that have been sent from the MCU to the endpoint	
Video (primary channel and H.239 shown separately)		

Receive stream	Displays the type of codec in use and the size of the picture that the MCU is receiving from the specific participant. If the picture is a standard size (CIF/QCIF/4CIF/SIF) then this is shown in parentheses afterwards.	
Receive address	Displays the IP address and port (<*IP address*>:<*port*>) of the device from which video is being sent	
Channel bit rate	Displays 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.
Receive bit rate	Displays the bit rate (in bits per second) that the MCU has requested that the remote endpoint sends. The most-recently measured actual bit rate displays in parentheses.	This value might be less than the *Channel bit rate* if: • the MCU detects that the network path to the remote endpoint has insufficient capacity to maintain a higher traffic rate • that endpoint's video stream's position in the active conference compositions does not require it • it has been necessary to reduce the video bit rate because of the overall call bit rate; the audio bit rate plus the video bit rate should not exceed the call bit rate For example, if all participants in the conference were watching a single participant at full screen, no other participants' video streams would be needed at all. So the MCU would request that those streams were sent at a low bit rate in order to avoid needless use of network bandwidth. If the receive bit rate has been limited to below the maximum channel bit rate, the reason for this limitation can be seen by moving over the  icon.
Received jitter	Represents the variation in video packet inter-arrival time at the MCU	
Packets received	Displays the number of video packets destined for the MCU from this endpoint	
Packet errors	Displays video packet-level errors such as sequence discontinuities, incorrect RTP details, and so on. not the same as packets where the contents (the actual video data) is somehow in error.	This value does not represents packets in which the actual video data in the packets is in error.
Frame rate	Displays the negotiated frame rate from the endpoint. The most-recently measured actual frame rate displays in parentheses.	
Frame errors	Displays the number of "broken" frames verses the total number of video frames received	
Transmit stream	Displays the codec, size and type of video being sent from the MCU to the endpoint	
Transmit address	Displays the IP address and port of the device to which the MCU is sending video.	
Channel bit rate	Displays the negotiated available bandwidth for the MCU to send video to the endpoint in.	

Transmit bit rate	Displays the bit rate the MCU is attempting to send at this moment, which may be less than the channel bit rate which is an effective maximum. The actual bit rate, which is simply the measured rate of video data leaving the MCU, displays in parentheses.	The *Transmit bit rate* value might be less than the *Channel bit rate* if: • the remote endpoint receiving the video stream from the MCU has sent flow control commands to reduce the bit rate • it has been necessary to reduce the primary video bit rate to allow sufficient bandwidth for a H.239 video stream If the transmit bit rate has been limited to below the maximum channel bit rate, the reason for this limitation can be seen by moving over the  icon.
Packets sent	The number of video packets sent from the MCU to this endpoint.	
Frame rate	Displays the negotiated frame rate from the endpoint. The most-recently measured actual frame rate displays in parentheses.	
Temporal/ spatial	Displays a number that represents the tradeoff between video quality and frame rate.	A smaller number implies that the MCU prioritizes sending quality video at the expense of a lower frame rate. A larger number implies that the MCU is prepared to send lower quality video at a higher frame rate.

Control Statistics

Control statistics provide information about the control channels that are established in order that the endpoints can exchange information about the voice and video streams (Real Time Control Protocol (RTCP) packets). Refer to the table below for additional information.

Field	Field Description	Usage Tips
Audio		
Receive address	Displays the IP address and port to which RTCP (Real Time Control Protocol) packets are being sent for the audio and video streams	
Receiver reports	Displays a count of the number of "receiver report" type RTCP packets seen by the MCU.	A single RTCP packet may contain more than one report of more than one type. These are generally sent by any device receiving RTP (Real Time Protocol) media from the network and are used for auditing bandwidth, errors, and so on by the MCU.
Sender reports	Displays a count of the number of "sender report" type RTCP packets sent by the MCU.	These are typically sent by any device that is sending RTP media.
Other	Displays a count of the number of reports seen by the MCU that are neither sender nor receiver reports.	
Transmit address	Displays the IP address and port to which the MCU is sending RTCP packets about this stream.	
Packets sent	Displays the number of packets sent.	
Video		
Receive address	Displays the IP address and port to which RTCP (Real Time Control Protocol) packets are being sent for the audio and video streams	
Receiver reports	Displays a count of the number of "receiver report" type RTCP packets seen by the MCU.	A single RTCP packet may contain more than one report of more than one type. These are generally sent by any device receiving RTP (Real Time Protocol) media from the network and are used for auditing bandwidth, errors, and so on by the MCU.

Sender reports	Displays a count of the number of "sender report" type RTCP packets sent by the MCU.	These are typically sent by any device that is sending RTP media.
Other	Displays a count of the number of reports seen by the MCU that are neither sender nor receiver reports.	
Transmit address	Displays the IP address and port to which the MCU is sending RTCP packets about this stream.	
Packets sent	Displays the number of packets sent.	

Related Topics

- Displaying Conference Statistics
- Viewing Conference Participant List

Displaying Conference Statistics

You can display statistics about the conference. You can use this information to quickly see how many participants are currently in a conference. To access this option:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click the **Statistics** tab.

Refer to the table below for information on interpreting this information.

Field	Field Description
Start time	Displays the time at which the conference started.
End time	Displays the time at which the conference completed. This setting displays as <*permanent*> if is has been configured to last forever.
Running time	Displays the duration of this conference.
Gatekeeper id	Displays the number to use to directly dial the conference. This field is only available if the conference is configured to use a gatekeeper.
Number of participants	Displays the current number of contributing participants. This value displays only while the conference is active.
Highest number of participants	Displays the highest number of contributing participants who have been in the conference at the same time.
Number of streaming viewers	Displays the current number of streaming participants for the conference. This value displays only while the conference is active.
Highest number of streaming viewers	Displays the highest number of streaming participants who have been in the conference at the same time.

Related Topics

- Adding Participants
- Viewing Conference Participant List

Sending Messages to Individual Participants

You can send a short text message to a specific participant currently in the conference by choosing:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click on a participant's name.
3. Click the **Send message** tab.

This message appears overlaid on the participant's view, even if the participant is viewing the conference via streaming.

Field	Field Description	Usage Tips
Message text	Enter the message to send to this participant.	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. So, consider limiting messages to about 180 characters. Also, messages longer than 256 characters will not be truncated; they will not display at all. You can disable this setting from **Settings > Conferences** (see Conference Settings).
Duration	Indicates how long the message appears on the endpoint's video screen.	The default setting is 30 seconds. To remove a message before it times out, click **Clear message**.

Related Topics

- Sending Messages to All Conference Participants
- Conference Settings

Sending Messages to All Participants

You can select custom layouts to make available for all conference participants. To access this option:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click the **Send message** tab.

This message appears overlaid on each participant's view, including participants viewing the conference via streaming.

After entering the text, click **Send message** to send your message to all conference participants.

Field	Field Description	Usage Tips
Message text	Enter the message to send to all conference participants.	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. So, consider limiting messages to about 180 characters. Also, messages longer than 256 characters will not be truncated; they will not display at all. You can disable this setting from **Settings > Conferences** (see Conference Settings).
Duration	Indicates how long the message appears on the participants' video screens.	The default setting is 30 seconds. To remove all messages before they time out, click **Clear message**.

Related Topics

- Sending Messages to Individual Participants
- Conference Settings

Displaying Diagnostics for a Participant

You can view diagnostics for an individual participant's connection to the MCU by choosing this option:

1. Go to **Home > Conferences**.
2. Click a Conference name and then click on a participant's name.
3. Click the **Diagnostics** tab.

Participant Diagnostics

This page shows various low-level details pertaining to the endpoint's communication with the MCU. You are not likely to need to use any of the information on this page except when troubleshooting specific issues under the technical guidance of Codian.

Related Topics

- Viewing Conference Participant List

Being Invited to a Conference

If your video endpoint has been configured with the MCU, other conference participants can invite you to in-progress conference calls.

Depending on how your video endpoint is configured, an incoming video call might ring through to your regular phone or to your video endpoint (see Calling into Conferences for a brief description of the difference). Note that even if a video call rings arrives on your regular phone, the video portion of the call will appear on your associated video endpoint (if one is configured).

As with any other type of incoming call, you can choose to answer the call or not.

Related Topics

- Displaying Conference Lists
- Calling into Conferences
- Using an Auto Attendant
- Watching Conferences (Streaming)
- Using In-Conference Features from Video Endpoints
- Understanding How Participants Display in Layout Views

Displaying Gateway List

You can configure the Codian MCU to work with one or more H.323 gateways. The MCU can then effectively call through these configured gateways to one or more endpoints which are registered with the gateway but would not be reachable directly from the MCU.

For example, an IP PBX could be configured as a gateway, and the MCU could then call its registered E.164 numbers.

The gateway list shows all of the currently configured H.323 gateways. To access this list, go to **Home > Gateways**.

Field	Field Description
Name	Displays the descriptive name of the gateway.
Address	Displays the IP address or host name of the gateway.
Receive bandwidth	Displays the configured preferred bandwidth to the MCU from the gateway, or <*default value*> if no preference has been specified.
Transmit bandwidth	Displays the configured preferred bandwidth from the MCU to the gateway, or <*default value*> if no preference has been specified.

Related Topics

- Adding and Updating Gateways

Adding and Updating Gateways

You can configure the Codian MCU with one or more H.323 gateways:

- To add an H.323 gateway, go to **Home > Gateways > Add new H.323 gateway**. After entering the settings described below, click **Add H.323 gateway**.
- To update an existing H.323 gateway, go to **Home > Gateways** and click on a gateway name. After updating the settings described below, click **Update H.323 gateway**.

Field	Field Description	More Information
Name	Indicates the descriptive name of the gateway.	All gateways must have unique names.
Address	Indicates the IP address or host name of the gateway.	
Preferred video size	Limits the video size received or sent through the gateway.	
Preferred bandwidth from MCU	Identifies the network capacity (measured in bits per second) used by the media channels established by the MCU to a single participant.	
Preferred bandwidth to MCU	Sets the bandwidth that the endpoint will advertise to the MCU when it calls it.	

Working with the Event Logs

If you are experiencing complex issues that require advanced troubleshooting, you may be need to collect information from the MCU event logs. Typically, you will be working with a Codian support professional who can provide you with assistance in obtaining these logs.

The information available in these log files include:

- Event log — contains the last 2000 status messages generated by the MCU
- Capture filter — allows you to change the level of detail to collect in the traces. You should not modify this setting unless instructed to do so by a Codian support professional.
- Display filter — allows you to view or highlight stored event log entries
- Syslog — allows you to view all networking-related events
- H.323 log — allows you to view all H.323 events

In addition to the logs described above, the MCU can also store Call Detail Records (CDR) which may be used to auditing and billing purposes. The CDR log is accessed via the Event Log pages. See Working with Call Detail Records for more details.

Related Topics

- Working with Call Detail Records

Working with Call Detail Records

The MCU is able to generate Call Detail Records (CDR) which may be used for auditing and billing purposes. When logging is enabled, records are generated whenever a conference starts or finishes, when participants join and leave conferences and so forth. To view and control the CDR log, go to **Home >Events** and click on the **CDR log** tab. Refer to the tables below for details of the options available and for a description of the information displayed.

Call Detail Record log controls

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

Field	Field Description	Usage Tips
Logging	Use these controls to enable or disable CDR logging. The current logging status is shown to the side of the buttons.	Enabling or disabling CDR logging has immediate effect. There is no need to press **Update display** after pressing one of these buttons.
Filter string	Use this field to limit the scope of the displayed Call Detail Records. The filter string is not case-sensitive.	The filter string applies to the *Message* field in the log display. If a particular record has expanded details, the filter string will apply to these as well.
Expand details	By default, the CDR log shows only brief details of each event. Select from the options listed to display more details (when available).	Selecting **All** will show the greatest amount of detail for all messages, regardless of which other options are checked.

Call Detail Record log

This table shows the logged Call Detail Records, subject to any filtering applied (see Call Detail Record log controls, above). The fields displayed and the list's associated controls are described below:

Downloading and clearing the log

It is possible to download the complete CDR log in XML format using the web interface. The log will include all stored Call Detail Records, and include all available details, regardless of the current filtering and display settings.

To download the complete CDR log, click **Download as XML**. (Note that if there are a large number of logged Call Detail Records, it may take several seconds to download and display them all.)

To clear the CDR log, click **Delete X to Y**. This will permanently remove Call Detail Records X to Y. Due to the way the CDR log works it may not be possible to delete all records; the button name will indicate which records can be deleted.

CDR log display

The CDR log list shows some or all of the stored records, depending on the filtering and display settings (see Call Detail Record log controls). You may click on the column headings to sort by that field. Refer to the table below to understand the fields displayed in the CDR log list:

Field	Field Description	Usage Tips
# (record number)	This is the unique index number for this Call Detail Record.	

Time	This field gives the time at which the Call Detail Record was created.	Records are created as different conference events occur. The time the record was created is the time that the event occurred.
Conference	This is the number of the conference to which this record applies	Each new conference is created with a unique numeric index. All records pertaining to a particular conference display the same conference number. This can make auditing conference events much simpler.
Message	This shows the type of the Call Detail Record, and brief details if available.	The display settings allow you to display more extensive details for different record types. The *filter string* allows you to select for display only records where a particular word or string occurs.

Related Topics

- Working with the Event Logs

Customising the User Interface

By default the MCU includes English voice prompts spoken by a female American voice. You may wish to replace these prompts with your own in order to change the wording, language or accent used. Alternate prompts may be uploaded individually using the web interface. Alternatively, a collection of voice prompts may be uploaded in one go by means of a *resource package* (see Uploading a customisation package).

The entire customisation process is controlled via the web interface. To customise the user interface for your needs, go to **Home > Settings** and click on the **Customisation** tab. Refer to the sections below for details of the options available and for a description of the information displayed.

- Selecting the customisation set
- Uploading an alternate customisation package
- Using the customisation resource list
- Voice prompt specification
- Making the best possible recordings

Selecting the customisation set

This table provides two selections: *Default* and *Alternate*. The default set is identified as *US English* and is the standard set of voice prompts supplied with the MCU. These are spoken by a female voice in Americanized English. The alternate set may be un-named if you have uploaded voice prompts individually, or may have a specific identifier if you have uploaded a resource package.

To select a different customisation set, click the appropriate option, then press **Apply changes**. The customisation set selected will be applied immediately, although it may take a few seconds before everyone connected to the MCU is able to hear the new prompts.

You may change between the default and alternate set of customisations at any time, without needing to upload alternate customisations each time, and there is no need to restart the MCU or disconnect participants when you make this change. You should be aware, however, that users may hear disjointed audio if the change takes place while they are listening to a particular prompt. In practice this is not usually a problem.

Note that the default voice prompts will be used where there is no alternate prompt available, even if the *Alternate* set is selected.

Uploading a customisation package

It is possible to upload a collection of alternate voice prompts to the MCU with a single upload operation, using a *resource package*. Such a package may have been supplied to you by Codian or one of its representatives, or you may have created the package yourself (see Downloading a customisation package).

To upload a package, press the **Browse** button to locate the *.package* file on your computer. Once you have found an appropriate file, click **Upload package**. The upload may take several seconds, depending on the size of the package file and the speed of your network connection. When the upload is complete, a status screen will be shown, displaying some or all of the individual voice prompt customisations included in the package if the upload was a success, or an error message if the upload failed for some reason.

If you have already uploaded alternate voice prompt customisations to the MCU, then these will be replaced by those in the customisation package. If a particular customisation is not included in the package, then any existing customisation is unchanged. This allows customisation sets to be built up using several different packages if required.

Uploading a package does not automatically select the alternate customisation set. You must do this manually (see Selecting the customisation set). However, if the alternate set is already selected, uploading a customisation package will have immediate effect.

Customisation packages may include a name, meaning that you may notice the *Alternate* option may have a new identifier after a package upload.

Using the customisation resource list

You may review the voice prompt customisations available in the table headed *Installed customisations*. This displays all customisations, providing extended details for those which have alternate voice prompts uploaded. However, since this list can be quite long, by default it is hidden. Instead, it simply shows the number of customisations (files) available. If any have been modified (meaning an alternate customisation has been uploaded, either individually, or as part of a package), then this is indicated by an asterisk after the table name.

To expand the list to show all voice prompt customisations, click **show file details**; you may subsequently hide it again by clicking **hide file details**.

In the expanded state, the table shows, for each customisation, a description of the voice prompt, the standard MCU filename for the customisation, and the length and date modified (uploaded) of alternate customisations present. Voice prompts where an alternate is available are also indicated by an asterisk after their name.

Refer to the sections below for details of further functionality provided by the resource list:

- Uploading individual customisations
- Downloading individual customisations
- Downloading a customisation package
- Deleting alternate customisations

Uploading individual customisations

You may upload individual customisations. To do this, click the **upload** link for the customisation you wish to modify. You may do this regardless of whether an alternate customisation has already been uploaded.

You will be presented with a new screen, allowing you to locate and upload the customisation of your choice. Press the **Browse** button to locate the voice prompt file on your computer. Voice prompt files must be in the following format:

- Microsoft WAVE (.WAV) format
- 16kHz (16000Hz) sample rate
- Mono
- Uncompressed
- Maximum 10 seconds long

If you upload a file that is not in this format, the upload may fail or the voice prompt may sound distorted when heard by users. Use an audio editing package of your choice to make any conversions required. See Making the best possible recordings for how to obtain the best possible voice prompts for your MCU customisation.

Note that in addition to the 10 second length limit per prompt, there is a total length limit of 4 minutes for the full set of prompts. That is, if all samples were played back-to-back, it should take no more than 240 seconds.

When you have located the file you wish to upload, press **Upload customisation**. If the upload is successful, a page displaying the size of the file uploaded will be displayed; otherwise an error will be shown. If the upload fails, check your audio file matches the specification above before contacting your support representative.

Downloading individual customisations

You may wish to review a customisation that has been previously uploaded to the MCU. To do this, use the customisation list to locate the prompt of interest. Right-click **download** and choose 'Save Target As' (or your web browser's equivalent operation). The file will be downloaded to your computer for reference. Only alternate customisations can be downloaded in this way; the default voice prompts may not be downloaded. In addition, only customisations uploaded as individual files may be downloaded; those uploaded as part of a package may not be downloaded.

Downloading a customisation package

Once you are satisfied with your customisations, you may wish to apply the entire set to another MCU. Rather than individually uploading the alternate voice prompts to each one, you may create a *resource package*.

To create a resource package containing all of the alternate voice prompt resources previously uploaded, click **download package** at the bottom of the resource list. The resource package will be downloaded to your computer.

A package may only contain resources uploaded as separate files; those uploaded as part of another package may not be included. The package download option may be unavailable if no resources qualify for inclusion.

Deleting alternate customisations

If you are dissatisfied with an alternate customisation that you have uploaded to the MCU, you may delete it in the following manner:

1. Locate the resource of interest in the list
2. Click the corresponding check box to the left of the resource
3. Press **Delete selected** to remove the customisation

Only alternate customisations may be deleted in this way; the default voice prompts cannot be deleted. If you delete an

alternate customisation, it will immediately revert to the default prompt, even if the *Alternate* customisation set has been selected

You may wish to delete all customisations. To do this, press **Delete all**. Remember that you may revert to the default set of voice prompts without needing to delete any alternate customisations, by selecting the *Default* customisation set (see Selecting the customisation set).

Voice prompt specification

Below is a complete list of the voice prompts that may be customised. The default wording is shown for each prompt. You do not have to use exactly the same wordings if they are not appropriate for your needs, and are provided only as a guide.

Filename	Default wording
voice_prompt_conference_already_exists	I'm sorry, there is already a conference with that number
voice_prompt_conference_over	Your conference is now over. Goodbye
voice_prompt_connect_now	I'll connect you to your conference now
voice_prompt_enter_conference_id	Please enter the conference code now
voice_prompt_enter_conference_id_or_create	Plase enter the conference number followed by the pound key, or press star to create a new conference
voice_prompt_enter_conference_pin	Please enter the security pin for this conference now.
voice_prompt_enter_new_conference_id	Please enter the conference number for the conference you are creating, followed by the pound key
voice_prompt_enter_new_conference_pin	Please enter the pin for the conference you are creating, followed by the pound key; if you don't want a pin, just press the pound key
voice_prompt_fecc_usage	To join a conference you may use the far end camera controls on your remote
voice_prompt_first_participant	You are the first participant to join the conferrence
voice_prompt_pin_incorrect	Sorry, I did not recognise that security pin, please try again
voice_prompt_starting_now	Thank you, your conference is starting now
voice_prompt_two_minutes	Your conference is scheduled to end in two minutes
voice_prompt_unknown_conference	Sorry, I did not recognise that conference code, please try again
voice_prompt_welcome	Hello, welcome to the conferencing system

Making the best possible recordings

There are many factors to consider when recording alternate voice prompts in order to get the best results. Below is a brief summary of the points to bear in mind, though a more detailed document is available from Codian on request

Recording format

It is best to make each recording with the ideal settings and hence avoid any sample-rate or resolution resolution changes. As discussed, the ideal format is Microsoft Wave (.WAV) format, uncompressed, mono, at 16 kHz and 16-bit resolution.

If you are unable to make mono recordings, the MCU can convert stereo recordings.

Background noise

It is important to minimise background noise (hiss) as much as possible. This includes ambient noises such as road noise and slamming doors etc. but also try to keep fan noise and similar to a minimum.

When played back by the MCU, samples with background noise (hiss) are very apparent.

Consistency

If possible, record all voice prompts in one session. This will ensure that all voice and background conditions remain constant and the recorded voice will sound similar from prompt to prompt.

Volume

Record prompts using a relatively constant loudness of voice. Although it may take some trial and error, the best recordings will result from speaking loud enough that the voice is recorded loudly compared to any residual background noise, but not so loudly that it sounds distorted when played back.

Contact Details and License Information

Please refer to the following sections for details of where to get further help and for additional MCU software license information:

- Codian
- Software licenses

Codian

For further assistance and updates please visit the Codian web site: www.codian.com.

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