



***LifeSize® Communicator Multipoint Server  
User Guide***

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## About LifeSize Communicator Multipoint Server

LifeSize Communicator Multipoint Server is a standards-based, software MCU that provides multipoint voice and video conferencing for any SIP endpoint, including desktops, room systems, and mobile users. Users can easily access conferences via integrated 1-click, ad-hoc conferencing or by calling into an on-demand, personal meeting room. Once connected, LifeSize Communicator Multipoint Server delivers a high-quality audio and video experience with continuous presence and voice-switched layouts for a truly interactive experience.

LifeSize Communicator Multipoint Server provides a flexible solution to meet the conferencing needs of any enterprise. As a software solution, administrators can deploy LifeSize Communicator Multipoint Server on a standard Microsoft Windows Server and choose the conferencing capacity required for their enterprise. Using the intuitive management interface, administrators can define meeting rooms to support the conferencing needs of any application of use.

The table below provides a summary of features available using the LifeSize Communicator Multipoint Server software MCU:

Feature	Description
SIP-based multipoint conferencing	Compatible with all major vendors' endpoints
On-demand, personal meeting rooms	An administrator can configure a personal meeting room for any user to provide a simple and accessible conferencing solution. An administrator can configure the call rate and quality level for each meeting room to ensure a consistent user experience.
Large conference support	A conference can include any number of voice and video endpoints up to the capacity of the MCU.
Personal layout selection	Users can choose between a continuous presence or current speaker layout. The continuous presence layout automatically chooses the appropriate layout based on the number of video participants in the conference.
Right-sized buying	LifeSize Communicator Multipoint Server allows administrators to purchase only the number of ports they need at one time, and then grow into additional ports as the need arises. One port is equivalent to 26 resource units of conference capacity.
High quality audio and video conferencing	LifeSize Communicator Multipoint Server delivers a high-quality audio and video experience with support for HD conferencing. Each user receives the best media experience possible with full transcoding and transrating for each user. LifeSize Communicator Multipoint Server supports: <ul style="list-style-type: none"> <li>• Up to 720p30 transmit and receive</li> <li>• Selectable 4:3 and 16:9 aspect ratio for transmitted video</li> <li>• H.264, H.263+, and H.263++ video codecs</li> </ul>

Web-based management and monitoring	<ul style="list-style-type: none"><li>• AAC-LC, G.711, G.722, G.722.1c audio codecs</li></ul> LifeSize Communicator Multipoint Server is managed via a web-based administrative interface. Administrators can monitor the status of the MCU and all active conferences.
SIP registration and proxy support	Integrate with existing SIP infrastructure via SIP registration and proxy support. All meeting rooms and the ad-hoc conferencing service are registered.
Usage and system logging	Log all usage and system data to a Microsoft SQL Server database.
Administrative access control	LifeSize Communicator Multipoint Server provides secure access control using Windows Domain authentication and local system authentication. There are three levels of administrative access. <ul style="list-style-type: none"><li>• Viewer: Users can view all settings and active conferences on the MCU.</li><li>• Administrator: Users can modify any setting on the MCU with the exception of adding or editing user accounts.</li><li>• Superuser: Users can perform all functions on the MCU.</li></ul>
Endpoint API support for advanced conference management	LifeSize Communicator Multipoint Server provides a SIP CSTA API that enables endpoints to utilize advanced conference management features. These features include: <ul style="list-style-type: none"><li>• 1-click, ad-hoc conference initiation</li><li>• Add additional users via the endpoint's address book</li><li>• Remote hold/resume and hang up</li></ul>

## Conference Capacity Planning

LifeSize Communicator Multipoint Server supports video and audio endpoints that may require significantly different resources when connected to the MCU. To more accurately estimate and use the conferencing capacity of the MCU, LifeSize Communicator Multipoint Server utilizes the flexible concept of **Resource Units**. (One port currently equals 26 Resource Units.)

LifeSize Communicator Multipoint Server allocates a specific number of Resource Units to each endpoint, depending on the configuration of a meeting room or the ad-hoc conference. Here are some guidelines for how Resource Units are estimated:

- Audio-only endpoints use one Resource Unit.
- Video endpoints use Resource Units based on the configured maximum video resolution for the conference they are connected to. For example, a meeting room configured with maximum transmit resolution of 400p30 requires 30 Resource Units, while a 720p30 meeting room requires 97 Resource Units.
- If LifeSize Communicator Multipoint Server does not have sufficient Resource Units to connect an endpoint at the configured meeting room video resolution, the endpoint is connected at the highest video resolution available based on the remaining Resource Units.

For a table showing how many Resource Units per endpoint are required for specific video resolutions, see Meeting room endpoint call rate.

After initial startup, LifeSize Communicator Multipoint Server profiles the host server to determine how many resource units it can provide. The total number of resource units is a function of processor speed and number of cores/processors. The number of available resource units is displayed on the [Dashboard](#) screen.

Your LifeSize Communicator Multipoint Server license key controls how many resource units are usable for your host server. To use all of the resource units provided by the license key, make sure LifeSize Communicator Multipoint Server is running on a host server with sufficient processing power.

## Installation

### Hardware and software requirements

The host computer where you install LifeSize Communicator Multipoint Server must meet these requirements:

Resource	Requirement
Operating system	Microsoft Windows Server 2003 and R2 Microsoft Windows Server 2008
CPU	Dual core processor or higher required for operation. 2.5 GHz Xeon processor or higher required for HD video support.  Capacity of the MCU varies based on the available processor speed and number of available cores; resource usage varies by selected resolution.  Example: Dual Intel Xeon X5570 @ 2.93Ghz processor will support up to any of the following: <ul style="list-style-type: none"> <li>• 8 HD video participants (720p30) plus 7 video participants at 656p30 resolution</li> <li>• 52 video participants at Widescreen VGA resolution (368p30)</li> <li>• 135 video participants at Widescreen FCIF (224p30)</li> <li>• 1375 audio-only participants using any supported audio codec.</li> </ul>
Memory	Minimum 2 GB
Disk space	At least 2 GB available (with logging enabled)
Network interface	Single, 100 Mbps full-duplex Ethernet TCP/IP local network connection
Privileges	Administrator privileges are required for installation
Database (optional)	Microsoft SQL Server 2008 to support logging
Virtual Servers	Supported; requires dedicated resources

### Installing

1. Log in to the host machine as Administrator.
2. Double-click the installer file, LifeSize\_Communicator\_Multipoint\_Server\_Setup.msi, to start the installation wizard.

3. After accepting the license agreement, choose a destination folder for LifeSize Communicator Multipoint Server, or click Next to accept the default location.
4. Copy the license file from its current location to the license folder created during the LifeSize Communicator Multipoint Server installation.  
  
Copying the license file prevents it from being accidentally deleted if it was stored in a temporary location prior to installation.
5. Verify the license is valid before proceeding to the next screen. The capacity, MAC address, and expiration date should be checked.
6. Configure the initial default administration account. The initial account specified during installation will be provided with Superuser rights.
7. Verify the user account before proceeding.
8. Click Finish to complete the LifeSize Communicator Multipoint Server installation.

The installer creates a shortcut to the web interface on the desktop and in the Start menu program list.

## **Licensing**

A valid license is required for LifeSize Communicator Multipoint Server to operate. The LifeSize Communicator Multipoint Server license is provided to you by LifeSize in the form of an XML file. Contact LifeSize Support to obtain your license file. If you are deploying LifeSize Communicator Multipoint Server on more than one server, obtain a license file for each server. The license will specify the number of resource units available on the server and the MAC address of the host server. For information on upgrading your LifeSize Communicator Multipoint Server license, see [Updating the software license](#).

## **Check LifeSize Communicator Multipoint Server Services**

After successful installation, the following services should be running on your server host machine:

- LifeSize Communicator Multipoint Server Web Service
- LifeSize Communicator Multipoint Processor

## **Uninstalling**

To uninstall LifeSize Communicator Multipoint Server, go to Control Panel > Add or Remove Programs, select LifeSize Communicator Multipoint Server from the program list, and click Remove.



## Logging in

To log in to the LifeSize Communicator Multipoint Server web interface:

1. Open a web browser and enter the IP address or host name of the LifeSize Communicator Multipoint Server in the browser's Address field.

**Note:** LifeSize Communicator Multipoint Server uses HTTPS and a specific port number (8443). The login address should use the following format: `https://[hostname or IP Address]:8443`

2. On the login page, enter your Username, Password, and Domain information, and click **Login**.

After you log in, LifeSize Communicator Multipoint Server displays the [Dashboard](#) screen.

## Displaying MCU Status

### Dashboard

The Dashboard screen is your home page when you log in to LifeSize Communicator Multipoint Server. Use the Dashboard to monitor the overall system status of the MCU. You can view the number of video and audio endpoints currently connected to the MCU, the percentage utilization of available resource units, and total incoming and outgoing bandwidth.

The Dashboard screen displays the following information:

Field	Description
Username	Your LifeSize Communicator Multipoint Server user name
Domain	Your network domain
Roles	Your current role: viewer, administrator, or superuser. See <a href="#">Administering user accounts</a> .
Login Time	Date and time you logged in to LifeSize Communicator Multipoint Server for the current session
Last Login Time	When you logged in to LifeSize Communicator Multipoint Server for your previous session
Media Processors Up	On a multiple processor server, the number of processors currently operational.(*)
Media Processors Down	On a multiple processor server, the number of processors not operational.
Utilization of Resource Units	Percentage of total available resource units currently in use. Utilization is calculated by dividing the resource units in use by the total number of resource units.
Resource Units Available	Total resource units available. The number of resource units

	available is determined by the processing power of the server hosting LifeSize Communicator Multipoint Server, and by the limit allowed in the license file. See <a href="#">Licensing</a> .
Resource Units In Use	Number of resource units in use. This number divided by total available units determines resource utilization.
Active Conferences	The number of conferences currently active on the MCU.
Video Endpoints Connected	The total number of video endpoints connected to the MCU, for all active conferences.
Audio-only Endpoints Connected	The total number of audio endpoints connected to the MCU, for all active conferences.
Total Incoming Bandwidth	The total data rate being received by the MCU.
Total Outgoing Bandwidth	The total data rate being sent by the MCU.

(\*) LifeSize Communicator Multipoint Server supports single-processor servers at this time. Future releases will support servers with multiple media processors.

## Monitoring conferences

The Monitoring screen shows active conferences on the MCU. The upper section of the screen lists the conferences. For the selected conference, the lower section of the screen shows both the **Active** or current participants in the conference, and a **Participant History** of anyone who attended but may have left the conference.

The conference list shows the Conference Address, Room Name, Start Time, and Duration of a conference, as well as the current number of participants. The Address and Name are assigned when someone creates a meeting room for the conference. See Add a meeting room.

**Ad-hoc conferences** or ‘instant conferences’ also display on the Monitoring screen. Ad-hoc conferences are created when two connected endpoints invite one or more additional participants into a call. On the Monitoring screen, the Conference Address displays Ad-hoc Conference and the Room Name displays Instant Conference and the date.

Conference Address	Room Name	Start Time	Duration	Participants	Action
Ad-hoc Conference	Instant Conference, 12/18/2009	02:39:59 PM	1 minutes	3	<a href="#">[End Conference]</a>

Displaying 1 - 1 of 1 Conferences    Items per page: 5 ▾

In the upper section, click the **End Conference** link in the **Action** column to end any conference.

The lower section shows information about a selected conference. By clicking links in the Action column, you can view conference statistics or hang up a selected user.

## View conference details

1. Choose Monitoring > Conferences.
2. Select an active conference in the upper part of the screen.
3. Click the **Active participants** tab in the lower part of the screen. The participant list shows the following information for each participant:
  - start time
  - duration
  - type – Video conference, Audio conference, or both
  - status – Calling, Ringing, Connecting, Active, Disconnecting, or Hold
4. Use links in the Action column to View call statistics, hang up, or to change a participant's video layout.

## View call statistics

You can display call statistics for any conference participant, including audio and video transmission information in both directions between the participant and LifeSize Communicator Multipoint Server.

1. Choose Monitoring > Conferences.
2. Click the **Active Participants** tab.
3. For a particular participant, click **Statistics** in the **Action** column.

Statistics displayed include the participant's call start time and duration, audio and video data rate, and information on total and lost audio and video packets.

## Set video layout













The LifeSize Communicator Multipoint Server administrator can control the video layout for all participants in a conference or individual attendees. There are three video layout options:

**Current speaker** Displays only the current speaker in the conference (as determined by the MCU). This view is sent to all participants except the current speaker, who sees video of the previous speaker.

**Continuous presence layout with Hide Self enabled** Displays all participants in the conference, but does not show the user himself.

**Continuous presence layout with Hide Self disabled** Displays all conference participants.

For the two continuous presence options, the video layout changes according to the number of participants in the conference, as shown in the table below:

# Video Participants in Conference	CP Video Layout, Hide Self Disabled	CP Video Layout, Hide Self Enabled
1		
2		
3		
4		
5		
6+	 Additional participants will display using voice switched.	 Additional participants will display using voice switched.

To set video layout for conference participants:

1. Choose Monitoring > Conferences.
2. Select a conference in the top part of the Conferences screen.
3. In the **Active Participants** tab, click the **Video Layout** link for a conference participant.
4. In the Video Layout dialog box, select a video layout: Current Speaker, Continuous Presence, or Continuous Presence with Hide Self.
5. Select whether to apply the video layout to the individual participant or to all participants in the conference.
6. Click Set.

### View conference participant history

For active conferences on the MCU, you can view current participants and a history of anyone who has attended the conference, but may have left or been hung up.

1. Choose Monitoring > Conferences.
2. Select a conference in the upper part of the screen.
3. Click the **Participant History** tab in the lower part of the screen.

The history lists any participants who left the conference, the start time and duration of their attendance, and the End Event which terminated their participation.

## **Add participants to a conference**

You can use the LifeSize Communicator Multipoint Server management interface to add one or more participants to an ongoing conference.

1. Choose **Monitoring > Conferences**.
2. Select the active conference to which you want to add a participant.
3. Click the **Active Participants** tab.
4. Click the **Add Participant** link at the right.
5. In the Add Participant dialog box, enter the IP address (or SIP URI, if a SIP registrar is configured) of the invitee in the Participant Address field.
6. Choose a Call Rate for the invitee.
7. Click **Add**.

LifeSize Communicator Multipoint Server calls the address given. Once the invitee answers the call, he is connected to the conference and added to the Active Participants list for the meeting room.

## **End a conference**

When necessary, the LifeSize Communicator Multipoint Server administrator can choose to end an active conference. This may be necessary for an ongoing conference without attendees, or to clear bandwidth.

1. Choose **Monitoring > Conferences**.
2. Select the conference you want to end.
3. In the Action column, click the **End Conference** link. You are prompted with a warning before the conference is ended.
4. The conference is removed from the active conferences list.

# **Configuring the MCU**

## **System Details**

To view MCU system status, current license settings, host server, and network information:

1. Choose **Configuration > System**.
2. The following information is displayed:

**Status** LifeSize Communicator Multipoint Server software version, Media processors operating, Resource Unit utilization.

**License** Current license status, and license capacity in Resource Units. License expiration date and licensed MAC address of the host server. For information on upgrading your LifeSize Communicator Multipoint Server license, see Updating the software license.

**Controller Host Server** LifeSize Communicator Multipoint Server host server name, operating system, processor, memory.

**Controller Network** Host controller IP address, router IP, subnet mask and MAC address.

## **Updating the software license**

Your LifeSize Communicator Multipoint Server software license controls how many Resource Units are available for your host server. The license file also specifies an expiration date and the MAC address of the host machine.

To update your license, you can import a new license file. Follow these steps:

1. Choose Configuration > System.
2. Click **Import** at the bottom of the screen.
3. In the Upload License dialog box, enter the filename and location of the new license. Click Browse if necessary to locate the file on your machine.
4. Click Import.

The new license file is verified before it replaces your existing license file. **Note:** The license file cannot license more Resource Units than are supported by the host machine processor.

## **Viewing media processor status**

Choose Configuration > Media Processors to check the status of the host machine media processor(s).

For the selected processor in the top part of the screen, the lower section of the screen displays processor status, server operating system, CPU model, system memory, and server capacity in Resource Units. The Network section displays the IP and MAC address of the host server and total incoming and outgoing bandwidth.

To restart the media processor, click **Restart**.

## Configuring general settings

Use the Settings screen to enable or disable ad-hoc conferencing, manage user account time limits, and set conference entry and exit sounds.

To configure general LifeSize Communicator Multipoint Server settings:

1. Choose Configuration > Settings.
2. Click **Edit**.
3. Configure Ad-hoc Conferencing, Administration, or Sounds settings as needed.
4. Click **Save** to save changes or **Cancel** to exit without saving changes.

### Ad-hoc conferencing settings

Ad-hoc conferences are ‘instant conferences’ that are created on the fly when two connected video endpoints conference in additional endpoints. LifeSize Communicator Multipoint Server supports ad-hoc conferences and allows you to monitor them like other scheduled conferences. Use the Ad-hoc conference settings to configure the default call rate and video resolution for ad-hoc conferences.

To enable Ad-hoc conferencing:

1. Set Status to Enabled.
2. Enter the Ad-hoc Conferencing Alias. This is a string of your choice that must match the string used when the ad-hoc conferencing service is configured on client endpoints. When configuring the endpoint, the ad-hoc conferencing alias is entered as follows:  
<Ad-hoc Conferencing Alias>@<SIP Domain>
3. Choose a maximum call rate for the meeting. See Meeting room endpoint call rate for more information.
4. Choose an aspect ratio for the video window: 16:9 or 4:3.
5. After selecting an aspect ratio, select the dimensions (width x height, in pixels) for the video window.
6. Click **Save**.

### Administration settings

Inactive account suspension limit – The time limit, in days, after which a user account becomes inactive if the user does not log in to LifeSize Communicator Multipoint Server. Range: 1-365 days. **Note:** This setting does not affect users who are set to Not Expire in their user settings. See [Add a user](#).

Inactive session expiration – The time limit after which administrative sessions expire. Range is from 1-60 minutes.

### Sounds settings

Use these settings to select the Entry Tone and Exit Tone sounds that conference attendees hear when a participant enters or leaves the conference. A menu of choices is available for each tone, based on sounds that are installed in the Data folder, inside the default installation folder.

Click Play to listen to the selected tone.

## Configuring SIP settings

Use the SIP configuration screen to register the MCU with a SIP registrar. This allows conference participants with SIP endpoints to connect to the MCU by dialing a meeting room number rather than an IP address.

If your network has a SIP server and you enable the Outbound SIP Proxy, outbound calls are directed through a SIP proxy server. The Proxy server may or may not be the same name entered in the Registrar field, above.

To enable the SIP registrar and/or SIP proxy server:

1. Choose Configuration > SIP
2. Click **Edit**.
3. Enter values for the following fields as needed:

Field	Description
<b>SIP Register</b>	
Status	Select Enabled to turn SIP registration on
SIP Domain	Domain name associated with the MCU
Registrar Address	Network address of the SIP registrar (host name or IP address)
Username	The login name for the MCU on the SIP registrar
Password	Password for the MCU on the SIP registrar
<b>Outbound Proxy</b>	
Proxy Status	Select Enabled to use a SIP Proxy
Proxy Address	Network address of the SIP Proxy
Proxy User	The login name for the MCU on the SIP Proxy
Proxy Password	Password for the MCU on the SIP Proxy

4. Click **Save**.

## Configuring network settings

Click Configuration > Network to view current network settings for the MCU. Click **Edit** to change network settings. You can configure the following settings:



Field	Description
DiffServe Audio Priority	0-63. ToS/QoS value – prioritizes audio/video traffic over other network traffic to the server.
DiffServe Video Priority	(see above)
Maximum Packet Size (MTU)	Network admin has set up network with an optimized MTU - this tailors C3 Conf. packets to your network settings.
RTP Lowest Port Number	The starting UDP port number. The lowest port number to which the packets are sent. Data for audio and video packets use several different RTP ports. This specifies a range to prevent conflicts with other traffic on the system.
RTP Highest Port Number	The ending UDP port number. The highest port number to which the packets are sent.

## Configuring meeting rooms

### About meeting rooms

Meeting rooms allow multiple users to connect in a planned videoconference. Using LifeSize Communicator Multipoint Server, you can set up personal meeting rooms for employees who frequently host meetings with multiple participants. Users can then include their personal meeting room information as part of calendar invites when they are scheduling meetings.

Here's a brief overview of the meeting room creation process:

1. A LifeSize Communicator Multipoint Server user with Administrator privileges logs into LifeSize Communicator Multipoint Server and creates a meeting room. He assigns the meeting room a number ("1234") and name ("Brian's Meeting Room"). **Note:** The meeting room number must be unique.
2. When the meeting room is created, a SIP URI is also created that can be dialed by any SIP endpoint. The meeting room SIP URI for our sample meeting room is [1234@mcuhost.company.com](mailto:1234@mcuhost.company.com).
3. Endpoint 1 dials [1234@mcuhost.company.com](mailto:1234@mcuhost.company.com) and is connected to the MCU in meeting room 1234.
4. Endpoint 2 dials [1234@mcuhost.company.com](mailto:1234@mcuhost.company.com) and is connected to the MCU in meeting room 1234.
5. Subsequent endpoints (3, 4, and so on) dial the same SIP URI and are connected to the meeting room.
6. Alternately, using the LifeSize Communicator Multipoint Server web interface, the administrator can add a participant to an ongoing conference. The administrator selects meeting room 1234 on the Monitoring > Conferences screen and then enters the IP address (or SIP URI, if a SIP registrar is configured) of the endpoint to be called and conferenced in. See Add participants to a conference.

If no Resource Units are left on the MCU, additional endpoints calling into a conference get a busy signal.

## Manage Meeting Rooms

Choose Configuration > Meeting Rooms to display the Meeting Rooms screen. On this screen, you can view and manage currently configured meeting rooms, or create a new meeting room.

To create a meeting room, click [Add a meeting room](#).

The address, name, maximum call rate, maximum video resolution, and status are listed for existing meeting rooms. The **address** is the string that callers enter in their video conferencing endpoint application to call into the meeting room. The **name** is assigned when the meeting room is created, or can be edited at any time.

You can sort meetings by the contents of the Address, Name, or Max Call Rate column. Click a column heading to make that the sort column. Click the heading again to reverse the sort order: for example, if the Address column is the current sort column, you can display meetings in forward or reverse alphabetical order.

To search for a meeting, enter the first and/or any subsequent letters or numbers of the meeting **name** or **address** in the Search field. As you enter letters or numbers, the meeting list is filtered to show only meetings whose name or address starts with those characters.

Click links in the Action column to do any of the following:

- **Edit** settings for a meeting room, including the maximum call rate and the resolution.  
**Note:** If you edit a meeting room hosting an ongoing conference, new settings only affect attendees that join after the changes are made.
- **Remove** a meeting room. Any conference participants in the room are disconnected.
- **Disable** a meeting room, to make it temporarily unusable. The status changes from Registered to Not Registered in the Status column, and new users cannot call into the meeting room. Click Enable to enable the room again.

## Add a meeting room

Meeting rooms allow multiple callers to join a videoconference. As the meeting room administrator, you can set up a meeting room, then invite attendees.

1. Choose Configuration > Meeting Rooms.
2. Click **Add Meeting Room**.
3. Name the room and assign it a unique number (up to 15 digits). The name appears in the **Name** column on the Meeting Rooms screen. The number is combined with the LifeSize Communicator Multipoint Server host machine number to create the Meeting Room **Address**.

4. Choose a maximum call rate for the meeting. See Meeting room endpoint call rate for more information.
5. Choose an aspect ratio for the video window: 16:9 or 4:3.
6. After selecting an aspect ratio, select the dimensions (width x height, in pixels) for the video window.
7. Click **Save**.

The new meeting room appears in the meeting room list. The address of the room is the room number@the hostname of the machine running LifeSize Communicator Multipoint Server.

## Meeting room endpoint call rate

The Max Call Rate sets the maximum video resolution transmitted from the MCU to endpoint for each meeting room. The call rate you select filters the resolution options available in the Maximum Video Resolution menu. Only resolutions that provide a good video experience are displayed for the selected call rate.

Higher call rates support larger video resolutions and an improved video experience. Larger video resolutions also require the allocation of more Resource Units from the MCU for a videoconference. The table below shows the Resource Units required for various call rates and resolutions, at 16:9 and 4:3 aspect ratios.

16:9 Aspect Ratio		
Resolution	Maximum Call Rate	Resource Units per Endpoint
320 x 176	128 Kbps	7
400 x 224	128 Kbps	10
512 x 288	256 Kbps	16
592 x 336	256 Kbps	22
640 x 368	384 Kbps	26
704 x 400	384 Kbps	30
768 x 432	512 Kbps	36
848 x 480	512 Kbps	43
960 x 544	768 Kbps	55
1024 x 576	768 Kbps	62
1088 x 608	768 Kbps	70
1168 x 656	1024 Kbps	81
1280 x 720 (720p30)	1024 Kbps	97

4:3 Aspect Ratio		
Resolution	Maximum Call Rate	Resource Units per Endpoint
320 x 240	128 Kbps	9
384 x 288	256 Kbps	13
448 x 336	256 Kbps	17
512 x 384	256 Kbps	21
576 x 432	384 Kbps	27

640 x 480	384 Kbps	33
704 x 528	512 Kbps	40
768 x 576	512 Kbps	47
832 x 624	768 Kbps	55
896 x 672	768 Kbps	64
1024 x 768	1024 Kbps	83
1088 x 816	1024 Kbps	93

## Logging

LifeSize Communicator Multipoint Server logs basic usage information via SQL to support troubleshooting and debugging. Both conference-level information and individual usage information is captured, including the following data:

### Conference information

- Meeting Room Name and Address
- Media Processor Host Name
- Start/Stop Time
- End Reason
- Configured Maximum call rate
- All failed attempts to start a conference. Failed attempts include situations due to error or resources not being available

### Conference participant information

- Participant Display Name
- Participant SIP URI
- Participant IP Address
- Participant Call Rate
- Start/Stop time
- End reason

For instructions on setting up logging, see [Configuring Logging](#). For details on database structure, see [Appendix A: Logging Database Schema](#).

## Configuring Logging

1. Create a new database in Microsoft SQL Server 2008. Keep track of the database name and the user and password information needed to access the database.
2. In LifeSize Communicator Multipoint Server, choose Configuration > Logging.
3. Click **Edit** to open the Edit Logging Settings dialog box.
4. Change Status to Enabled.
5. Leave Database Type at the default, Microsoft SQL Server 2008.

6. Enter the Hostname and Port of the computer hosting the database.
7. Enter the name of the database.
8. Enter Username and Password required to access the SQL database.

## Administering user accounts

### About user roles

LifeSize Communicator Multipoint Server supports three levels of administrative roles: Viewer, Administrator, and Superuser.

Role	Description
Viewer	Can view current settings and status of the MCU. Status includes active conferences and the statistics of each participant in the conference.
Administrator	Can manage all aspects of the MCU except for adding and editing user accounts.
Superuser	Can manage all aspects of the MCU, including adding and editing user accounts.

To display the specific list of privileges available to each user level:

1. Choose Users > Roles.
2. Select a user role in the top part of the screen: administrator, superuser, or viewer.
3. Click the **Details** tab in the lower part of the screen.

### View users

Choose Users > Users to display current LifeSize Communicator Multipoint Server user accounts. User Name, Login ID and Email address are listed for each user, as well as whether the user account is currently active. For the selected user in the list, the **Details** section below shows additional information, including the users Role: viewer, administrator, or superuser.

You can also [View users by roles](#).

Use links in the **Action** column to Edit or Remove a user account.

Enter a letter in the **Filter by Last Name** field to display only users whose names start with that letter. Enter additional letters to make the filter more specific.

## View users by roles

Choose Users > Roles to view user roles, and the permissions that are assigned to each role. Click on a role in the top part of the screen: administrator, superuser, or viewer. On the **Details** tab in the lower part of the screen, the associated permissions for that user role are listed.

Click the **Users** tab to show all current users assigned to the selected role.

- In the **Action** column, click **Remove** to remove the currently selected role from a user. Any remaining roles for that user are left unchanged.
- Click the user name link to edit the user's information.

## Add a user

1. On the **Users** tab, click **Add New User**.
2. In the Add User dialog, enter information for the new user. Starred (\*) fields are required. All fields can be edited later, except Login ID and Domain.
3. In the Login ID field, type the user's Windows login username.
4. Select the user's Domain from the domains listed in the pull-down menu.
5. Enter the user's first and last names.
6. Enter the email address if desired.
7. In the Client Ref ID field, insert any ID used by your organization as a unique employee identifier.
8. The Division, Job Function, and Title fields contain optional information that may be helpful.
9. Select one or more roles for the new user: Viewer, Administrator, or Superuser. See About user roles.
10. An Active user can log into and administer LifeSize Communicator Multipoint Server according to his assigned role. If a user is not active, his account information remains in the LifeSize Communicator Multipoint Server database, but he does not have access to the program and to administrative functions.
11. Click **Yes** in Not Expire to prevent the account from expiring if the user doesn't log in for a specified number of days. (Go to the Configuration > Settings tab to view or edit this time period). The account of at least one Superuser must be set to Not Expire, to prevent the possibility (however remote) of all users being locked out of the system.

## Edit a user

1. Choose Users > Users. Users are listed in the top part of the screen.
2. Click on a line to select a user.
3. Do one of the following:
  - Click the **Edit** link in the **Action** column.
  - Click the **Edit** button in the **Details** area.

The Edit User dialog box displays. Required fields are marked with a red asterisk.

4. Click **Save**.

### **Remove a user**

1. Choose Users > Users. Users are listed in the top part of the screen.
2. Click on a line to select a user.
3. Do one of the following:
  - Click the **Remove** link in the **Action** column.
  - Click the **Remove** button in the **Details** area.
4. When prompted to delete the user, click **Yes**.

## Appendix A: Logging Database Schema

LifeSize Communicator Multipoint Server logs MCU usage data in the following SQL database tables:

Table name	Stores information about
CONFERENCE_HISTORY	Conference creation and termination for a particular meeting room
PARTICIPANT_HISTORY	Details about each participant in a conference
SIGNALING_INFO	Additional information about call signaling (SIP) for a call
STREAM_INFO	RTP statistics for a single media stream
AVERAGE_STATISTICS	RTP statistics for a single media stream
TOTAL_STATISTICS	RTP statistics for a single media stream (overall information)
LOST_STATISTICS	Lost statistics records

### CONFERENCE\_HISTORY

A new record is added to this table every time a conference is created and it should be updated when the conference is destroyed. Notifications can be obtained through the ConferenceListener interface.

Column Name	Column Type	Value
ConferenceId	CHAR(32), NOT NULL, Primary Key	Conference identifier, primary key. The value is automatically generated by conference engine for new conference.
Type	VARCHAR(64), NOT NULL	Identifies conference type as MeetingRoom or AdHocConference.
RoomNumber	VARCHAR(64), NULL	Meeting room number. NULL for ad-hoc conferences.
Address	VARCHAR(256), NOT NULL	Address of the conference. It can be different for the same meeting room within this table because it depends on SIP registrar settings.
Name	VARCHAR(256), NOT NULL	Name of the conference. Usually it is the meeting room name.
Hostname	VARCHAR(256), NOT NULL	LifeSize Communicator Multipoint Server hostname, to separate logs from different controllers
MediaProcessorHostname	VARCHAR(256), NULL	Media processor host name. Can be NULL if there are no free media processors.
StartTime	TIMESTAMP, NOT NULL	Start time of the conference. Must be indexed because data usually will be sorted by StartTime.
EndTime	TIMESTAMP, NULL	End Time, in UTC. Set to NULL if the conference is still active.
EndReason	VARCHAR(256), NULL	End Reason. Set to NULL if the conference is still active.
CallRate	INT, NOT NULL	Configured maximum call rate.
MaxVideoResolutionWidth	INT, NULL	Configured maximum video resolution, width in pixels. NULL for audio-only conferences.
MaxVideoResolutionHeight	INT, NULL	Configured maximum video resolution, height in pixels. NULL for audio-only conferences.



**PARTICIPANT\_HISTORY**

A new record is added to this table every time a participant is added to a conference and it should be updated when the participant is removed. Notifications can be obtained through the ConferenceListener interface. For outbound calls, SIP-related information is unavailable but can be updated on an EndpointListener.statusChanged(...) event when the endpoint status becomes CONNECTED.

Column Name	Column Type	Value
CallId	CHAR(32), Primary Key	Call identifier, primary key. The value is automatically generated for a new call.
ConferenceId	CHAR(32), NOT NULL	Conference identifier, foreign key to CONFERENCE_HISTORY.
CallType	VARCHAR(64), NOT NULL	Identifies the call as Inbound or Outbound.
DisplayName	VARCHAR(256), NULL	The display name of the remote user. This property may be NULL if the display name is not available. For outgoing calls, remote display name is optionally provided in ConferenceControl.addParticipant(...). For incoming calls, the field is retrieved from the From header of the incoming INVITE.
SipUri	VARCHAR(256), NOT NULL	Participant SIP URI. Typically, this will be its Address Of Record.
Contact	VARCHAR(256), NOT NULL	Contact URI of the remote endpoint.
FromAddress	VARCHAR(40), NULL	Participant IP Address.
SipCallId	VARCHAR(64), NULL	The SIP call ID of the call. It can be NULL if the participant is added when the outgoing call is in the initialization state.
CallRate	INT, NOT NULL	Participant Call Rate.
StartTime	TIMESTAMP, NOT NULL	Start time of the call, in UTC. Must be indexed.
ReferredBy	VARCHAR(64), NULL	User name of the user who brought this endpoint into the conference.
AcceptTime	TIMESTAMP, NULL	The accept time of the call, in GMT. The accept time is defined as the time when 200 was sent for inbound calls, or when Conference receives the 200 response to the INVITE for outbound calls. It is NULL if the call never gets answered.
EndTime	TIMESTAMP, NULL	End time of the call, in UTC. Set to NULL if the call is still in progress.
EndReason	VARCHAR(256), NULL	Records the reason for ending the call.
SessionType	VARCHAR(64), NOT NULL	Identifies the call by media type as Audio or Video.
MaxUnits	INT, NOT NULL	Maximum number of resource units allocated within the conference.
ActiveSpeaker	TIME, NOT NULL	Total time during participant was the current speaker.

**SIGNALING\_INFO**

A new record is added to this table every time endpoint changes status to DISCONNECTED. Notifications can be obtained through the EndpointListener interface.

Column Name	Column Type	Value
CallId	CHAR(32), Primary Key, Foreign Key	Call identifier, primary key and foreign key to PARTICIPANT_HISTORY table.
SipRoute	TEXT, NULL	The route set for the call. In the current implementation, this string will include the SIP proxy URL, if configured. The route set may be updated by Record-Route headers in incoming messages. This property includes zero or more SIP URLs separated by pairs of CR LF characters (\u000D\u000A).
SipVias	TEXT, NULL	The set of Via header fields for the call. This property returns a non-empty value only if one or more SIP requests are received for this call. This property includes zero or more SIP Via header field values separated by pairs of CR LF characters (\u000D\u000A).
SipUserAgent	VARCHAR(64), NULL	Contains the value of the User-Agent header.
SipInviteResponseCode	INT, NULL	Contains the response code for the SIP INVITE. Only valid for outgoing calls.
SipInviteResponseMessage	VARCHAR(256), NULL	Contains the response message for the SIP INVITE. Only valid for outgoing calls.
SipInviteWarningCode	INT, NULL	Contains the warning code for the SIP INVITE. Only valid for outgoing calls that fail and return a response with a Warning header field; otherwise NULL.
SipInviteWarningHost	VARCHAR(64), NULL	Contains the warning host for the SIP INVITE. Only valid for outgoing calls that fail and return a response with a Warning header field; otherwise NULL.
SipInviteWarningMessage	VARCHAR(256), NULL	Contains the warning message for the SIP INVITE. Only valid for outgoing calls that fail and return a response with a Warning header field; otherwise NULL.

### STREAM\_INFO

A new record is added to this table or updated on CallStatisticsListener.callStatistics (...) event.

Column Name	Column Type	Value
StreamId	INT, AutoIncrement, Primary Key	Stream identifier, primary key. The value is automatically generated for new records.
CallId	CHAR(32), Foreign Key	Call identifier, foreign key to PARTICIPANT_HISTORY table.
Type	VARCHAR(64), NOT NULL	Describes direction of this stream. It can be Sending or Receiving.
MediaType	VARCHAR(64), NOT NULL	The media type for the stream. This corresponds to the media type field in SDP (e.g., "audio", "video", "application").

MediaProcessorIP	VARCHAR(40), NULL	IP address of the media processor.
MediaProcessorRTPPort	INT, NULL	Media processor local port number used by RTP protocol for this stream.
MediaProcessorRTCPPort	INT, NULL	Media processor local port number used by RTCP protocol for this stream.
RemoteIP	VARCHAR(40), NULL	Remote IP address
RemoteRTPPort	INT, NULL	Remote port number used by RTP protocol for this stream.
RemoteRTCPPort	INT, NULL	Remote port number used by RTCP protocol for this stream.

### **AVERAGE\_STATISTICS**

A new record is added to this table or updated on CallStatisticsListener.callStatistics (...) event.

Column Name	Column Type	Value
StreamId	INT, Primary Key, Foreign Key	Stream identifier, primary key and foreign key to STREAM_INFO.
WireDataRate	BIGINT, NOT NULL, DEFAULT 0	The data rate used by this stream, including IP, UDP and RTP overhead, in kilobits per second.
PayloadDataRate	BIGINT, NOT NULL, DEFAULT 0	The data rate used by this stream, excluding IP, UDP and RTP overhead (e.g., payload data only), in kilobits per second.
PacketRate	BIGINT, NOT NULL, DEFAULT 0	The packet rate for this stream, in packets per second.
FrameRate	BIGINT, NOT NULL, DEFAULT 0	The frame rate for this stream, in frames per second. Typically, for audio streams frame rate will equal the packet rate, while for video streams the packet rate will be higher.
Jitter	BIGINT, NOT NULL, DEFAULT 0	The average delay for incoming packets in the jitter buffer, in milliseconds. Returns 0 for RTP sending statistics.

### **TOTAL\_STATISTICS**

A new record is added to this table or updated on CallStatisticsListener.callStatistics (...) event.

Column Name	Column Type	Value
StreamId	INT, Primary Key, Foreign Key	Stream identifier, primary key and foreign key to STREAM_INFO.
Codec	VARCHAR(64), NOT NULL	The name of the codec used for this stream. If more than one codec was used, the last codec used for the call will be reported here.
VideoResolutionWidth	INT, NULL	The last used video resolution width, in pixels, for this stream. NULL for non-video streams.
VideoResolutionHeight	INT, NULL	The last used video resolution height, in pixels, for this stream. NULL for non-video streams.
WireBytes	BIGINT, NOT NULL,	The total number of bytes sent or received, including IP/UDP/RTP overhead.

	DEFAULT 0	
PayloadBytes	BIGINT, NOT NULL, DEFAULT 0	The total number of bytes sent or received, not including IP/UDP/RTP overhead.
Packets	BIGINT, NOT NULL, DEFAULT 0	The total number of packets sent or received.
Frames	BIGINT, NOT NULL, DEFAULT 0	The total number of frames sent or received.
LostPackets	BIGINT, NOT NULL, DEFAULT 0	The total number of packets lost in the network. Returns 0 for the RTP sending statistics.
LatePackets	BIGINT, NOT NULL, DEFAULT 0	The total number of late packets (packets that are received too late to be decoded). Returns 0 for the RTP sending statistics.
DroppedPackets	BIGINT, NOT NULL, DEFAULT 0	The total number of dropped packets (packets that were received in time but for any reason were not submitted for decoding). Returns 0 for the RTP sending statistics.
DroppedFrames	BIGINT, NOT NULL, DEFAULT 0	The total number of dropped frames. Returns 0 for the RTP sending statistics.
SkippedFrames	BIGINT, NOT NULL, DEFAULT 0	The total number of skipped frames. Returns 0 for the RTP sending statistics.

### LOST\_STATISTICS

Column Name	Column Type	Value
LostId	INT, Primary Key	Lost statistics identifier, primary key. The value is automatically generated for new records.
Hostname	VARCHAR(256), NOT NULL	LifeSize Communicator Multipoint Server hostname, to separate logs from different controllers
StartTime	TIMESTAMP, NOT NULL	Time of the first missed record, in UTC.
Reason	TEXT, NOT NULL	Error description which caused lost records.
EndTime	TIMESTAMP, NOT NULL	Time when logging was restored, in UTC.
Count	BIGINT, NOT NULL, DEFAULT 0	Number of missed records/updates.

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