

Polycom® RealPresence® Collaboration Server, Virtual Edition

Polycom announces the release of the Polycom RealPresence® Collaboration Server, Virtual Edition version 8.5.12 software. This document provides the latest information about this release.

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What's New in this Release

This RealPresence® Collaboration Server release is a maintenance release that fixes the issues identified in the [Resolved Issues](#) section.

For customers upgrading from releases before 8.5, see the following sections for more information about the new and changed features in this software branch.

RealPresence® Collaboration Server, Virtual Edition 8.5.10 New Features

The following table lists the new feature in Collaboration Server, Virtual Edition 8.5.10

Version 8.5.10 - New Features

Category	Feature Name	Description
Conferencing	Enable Personal Layout in Lecture Mode	Conferences in Lecture mode allow modifying participants' Personal layout

RealPresence® Collaboration Server, Virtual Edition 8.5.4 New Features

The following table lists the new features in Collaboration Server, Virtual Edition 8.5.4.

Version 8.5.4 - New Features

Category	Feature Name	Description
Conferencing	Conference Lock/Unlock	Conference locking and unlocking is now enabled via XML API, Web GUI and RMX Manager.
Lync 2013	RMX failover through DMA - handling Lync 2013 AV MCU connection.	Should the Collaboration Server fall during a RealConnect conference with Microsoft Lync, the DMA re-established both the conference and its link with the AV MCU on an alternate Collaboration Server, and disconnects all links to original MCU.
Lync 2013	Lync Front End Server DNS Failover/Load Balancing.	The Collaboration Server uses a new methodology to ensure Lync Front End Pool load balancing, as well as failover, via DNS
Lync 2013	Support for Microsoft® Skype for Business	Polycom added support for Microsoft® Skype for Business as part of Polycom products' deployment into Microsoft Environment. Note: The latest RPP versions are required.
Lync 2013	MSFT - wait for chair person in case in RMX is in Lync AV MCU lobby.	Imitating definition of conference with chairperson behavior in a RealConnect conference with Microsoft Lync, including the Lync participants.
Cascade	Support chairperson in cascaded conferences.	The behavior of a conference with a chairperson is widened to encompass cascading scenarios. Requires supporting DMA version.
Audio	Disable G.729 codec through flag in favor of G.711.	A system flag allows disabling G.729 in favor of G.711, when there is a requirement for higher audio quality.

Version 8.5.4 - New Features

Category	Feature Name	Description
Lync	Support for Microsoft® Skype for Business	Polycom added support for Microsoft® Skype for Business as part of Polycom products' deployment into Microsoft Environment. Note: The latest RPP versions are required.
Licensing	New CSR Guideline	New CSR guideline introduced.

RealPresence® Collaboration Server, Virtual Edition 8.5 New Features

The following table lists the new features in the Collaboration Server, Virtual Edition 8.5 release.

Version 8.5 - New Features

Category	Feature Name	Description
Administration	Added Administrator User for Polycom Services	Provide a pre-defined admin user (and password) for DMA usage during installation cleanup.
Video	Media Traffic Shaping	The MCU supplies a media traffic shaper to control video bandwidth outbursts within 100ms time intervals.
Audio	Siren7 Audio Codec Support for SIP Calls	The MCU now supports Siren7 Audio Codec for SIP calls (such as Lync client), to prevent failure of calls with audio bit rate under 42Kpbs when 33Kpbs audio bit rate policy is allowed by Lync server.

RealPresence® Collaboration Server, Virtual Edition 8.5 Changed Features

The following table lists the changes to existing features in the Collaboration Server, Virtual Edition 8.5 release.

Version 8.5 - Changes to Existing Features

Category	Feature Name	Description
Capacity	Number of ports per VM instance	Optimization of the video engine has resulted in a Port Capacity increase of 50% over version 8.4 running on the same VM host.
Partners - Microsoft	Lync 2013 Improvements	The following improvements have been made to Lync: <ul style="list-style-type: none"> • HD1080p Resolution Support • FEC (Forward Error Correction) Support • CSS Gateway for RDP and SIP BFCP Content • IPv6 Support for Auto IPv6 Address Assignment • DHCPv6 Support
SVC	Support 1080p Video in SVC Conferences	A new set of operation points (1080p, 360p, 180p) is supported, with 1080p as the highest resolution.
SVC	Support 1080p60 Content in SVC Conferences	The MCU supports SVC calls at line rates of up to 4M, with resolutions of up to 1080p60, and content configuration options similar to those available in AVC calls, such as content settings, protocols, transcoding, etc.

Version 8.5 - Changes to Existing Features

Category	Feature Name	Description
REST API	Added resource license-status	Added resource license-status to allow verifying license validity.
REST API	Add ETag to PUT method	An Etag field is added to REST API PUT methods in supported resources.
REST API	REST DNS configuration and NTP DNS resolution	In PUT method, it is possible to replace the IP address with the NTP server name in the ntp-server-list parameter. The specified DNS server is used for translating this name into an address.
Video	Support 4M a-symmetric video in CP conferences	Added support for 4M a-symmetric video line rate in AVC-CP conferences.
Content	Advanced Network Resiliency	System flag to reduce content rate (in single MCU scenarios) or LPR support (in cascaded scenarios), in order to preserve bandwidth if reducing video rate is insufficient.
Content	System Flag to Enable 768Kbps Content in 1K Conferences	System flag to enable increasing content rate from the usual 512 Kbps to 768 Kbps in 1K conferences.
TIP	TIP Compatibility	The TIP compatibility options "Video Only" and "Video and Content" in the Conference Profile Advanced settings dialog are no longer supported. The "Prefer TIP" option is used instead.
Conferencing	Pre-Conference IVR (VEQ)	While the call is in a Virtual Entry Queue (VEQ) ("External IVR Control" or "IVR Only Service Provider"), the call is always connected as an AVC call irrespective of the conferencing mode. Only when the call is routed to a conference and both the conferencing mode and endpoint enables SVC is the call connected as SVC.
IVR	Pre-Conference MCCF/IVR Allow customized slides	Audio and customized .JPG media files are now locally converted by the MCU into supported formats (263, 264, RTV, and TIP).
Resources	Removal of AVC license limitation	The AVC license limitation on port numbers (20) and maximum SVC capacity in mixed and non-mixed mode has been removed from the Polycom® RealPresence® Collaboration Server, Virtual Edition
Capacity	Support for 400 templates	Support for conference templates on all Collaboration Server platforms has been increased to 400 templates.
TelePresence	Speaker Priority Mode	The Collaboration Server can be used to manage Continuous Presence Video Layouts using <i>Speaker Priority</i> , a new Telepresence Layout Mode.
Security	OpenSSL	Updated third party software addresses security vulnerabilities in OpenSSL.

Products Tested with this Release

The RealPresence Collaboration Server, Virtual Edition systems are tested extensively with a wide range of products. The following list is not a complete inventory of compatible equipment. It indicates the products that have been tested for compatibility with this release.



You are encouraged to upgrade all your Polycom systems with the latest software before contacting Polycom support to ensure the issue has not already been addressed by vendor software updates. Go to http://support.polycom.com/PolycomService/support/us/support/service_policies.html to find the Current Polycom Interoperability Matrix.

Products tested with this release

Device	MCU Type			
	1500	2000/4000	1800	Virtual Edition
Gatekeepers/Proxies				
Polycom® RealPresence® Platform Director™	3.0.0	3.0.0	3.0.0	3.0.0
Polycom® RealPresence® Resource Manager	10.0.1	10.0	10.0	10.0
Polycom® RealPresence® Collaboration Server	8.5.12	8.5.12	8.5.12	8.5.12
Polycom® RealPresence® DMA®	6.4.1	6.4.1	6.4.1	6.4.1
Polycom® RealPresence® DMA®, Virtual Edition	6.4.1/6.3.2	6.4.1/6.3.2	6.4.1/6.3.2	6.4.1/6.3.2
Polycom® RealPresence® Access Director™	4.2.4	4.2.4/4.2.3	4.2.4/4.2.3	4.2.4/4.2.3
Avaya Scopia® ECS Gatekeeper	8.3.0.103.0			
Cisco TelePresence ISDN GW 3241	2.2 (1.111)			
Cisco TelePresence MCU 4505	4.5 (1.85)			
Cisco 5310 MCU	4.5 (1.85)			
Microsoft Lync 2013 server		5.0.8308.956	5.0.8308.956	5.0.8308.956
Microsoft Exchange 2013		CU12 15.00.1178.004	CU12 15.00.1178.004	CU12 15.00.1178.004

Recorders

Products tested with this release

Device	MCU Type			
	1500	2000/4000	1800	Virtual Edition
Polycom® RealPresence® Media Suite	2.7	2.6	2.6	2.6
Virtual Machines for RealPresence Collaboration Server, Virtual Edition Deployment				
VMWare vSphere (vCenter) Client				5.5/6.0
MCUs, Call Managers Network Devices and Add ins				
Polycom® ContentConnect™	1.5.2.209	1.5.2.209/1.5.1.1 96	1.5.2.209/1.5.1.1 96	1.5.2.209/1.5.1.1 96
Avaya Scopia® 100 Gateway P10	5.7.2.0.25			
Cisco Unified Communications Manager		11.5.1	11.5.1	11.5.1
Cisco TelePresence Server		4.2(4.18)		
Cisco TelePresence Video Communication Server	X8.8.1	X8.8.1	X8.8.1	
Endpoints				
Polycom® RealPresence Debut™	1.2.0			
Polycom® RealPresence Trio™ 8800	5.4.3	5.4.3	5.4.3	5.4.3
Polycom® HDX® Family	3.1.11	3.1.11	3.1.11	3.1.11
Polycom® RealPresence® Group Series	6.0.0/4.2.0	6.0.0/4.2.0	6.0.0/4.2.0	6.0.0/4.2.0
Polycom® CMA® Desktop for Windows	5.2.6			
Polycom® CMA® Desktop for MAC	5.2.6			
Polycom® CX5500		1.2.0	1.2.0	1.2.0
Polycom® CX8000		1.00.11.066	1.00.11.066	1.00.11.066
Polycom® RealPresence® Mobile for Apple® iOS	3.6.0	3.6.0	3.6.0	3.6.0
Polycom® RealPresence® Mobile for Android™	3.6.0	3.6.0	3.6.0	3.6.0

Products tested with this release

Device	MCU Type			
	1500	2000/4000	1800	Virtual Edition
Polycom® RealPresence® Desktop for Windows®	3.6.0	3.6.0	3.6.0	3.6.0
Polycom® RealPresence® Desktop for Mac®	3.6.0	3.6.0	3.6.0	3.6.0
Polycom® VVX®1500	5.5.0			
Polycom® VVX®500	5.5.0	5.7.0	5.7.0	5.7.0
Polycom® VVX®600	5.5.0	5.7.0	5.7.0	5.7.0
Polycom® VVX®501/601/1500	5.5.0			
Polycom® SoundPoint® IP 650	4.0.7			
Polycom® SoundStation® IP 7000	4.0.11			
Polycom® Touch Control (for use with HDX)	OS1.17.0-38 / TP1.17.0-58	OS1.12.0 / TP1.12.0	OS1.12.0 / TP1.12.0	OS1.12.0 / TP1.12.0
Polycom® Touch Control (for use with RealPresence Group Series)	OS6.0.0-903 / TP 6.0.0-280932	OS4.3.0 / TP 4.3	OS4.3.0 / TP 4.3	OS4.3.0 / TP 4.3
Polycom® RealPresence Touch	OS 2.0.0-193 TP6.0.0-280932			
Avaya Scopia® XT5000	8.3.2.534			
Avaya Scopia® XT7000	8.3.2.225			
Cisco TelePresence System EX90	7.3.6	7.3.3	7.3.3	7.3.3
Cisco TelePresence Integrator C Series		7.3.3	7.3.3	7.3.3
Cisco TelePresence C20/C40/C90	7.3.6			
Cisco TelePresence SX10	8.2.1	8.2.1	8.2.1	
Cisco TelePresence SX20	8.2.1	8.2.1	8.2.1	8.2.1
Cisco TelePresence SX80	8.2.1	8.2.1	8.2.1	
Cisco MX300 G2		8.2.1	8.2.1	8.2.1

Products tested with this release

Device	MCU Type			
	1500	2000/4000	1800	Virtual Edition
Cisco TelePresence System 3010		1.10.15(4)	1.10.15(4)	
Cisco TelePresence System 1300		1.10.15(4)	1.10.15(4)	
Cisco TelePresence TX9000		6.1.12(4)	6.1.12(4)	
Cisco TelePresence TX1310		6.1.12(4)	6.1.12(4)	
Cisco TelePresence System 500-37		6.1.12(4)	6.1.12(4)	
Cisco TelePresence System 500-32		1.10.15(4)	1.10.15(4)	1.10.15(4)
Cisco TelePresence IX5000		8.1.2(12)	8.1.2(12)	
Cisco DX70/ DX650		10-2-5-212	10-2-5-212	10-2-5-212
Cisco DX80		ce8.2.1	ce8.2.1	
Cisco Jabber for Windows		11.1	11.1	11.1
Cisco Jabber for Mac		11.1	11.1	11.1
Cisco TelePresence System 1700 MXP	F9.3.4			
Cisco TelePresence System Edge 95 MXP	F9.3.4			
Huawei TE30	1.2.100			
Huawei TE40	1.10.100			
LifeSize Icon 600	2.9.1.(2001)			
LifeSize Express 220	5.0.9(2)			
LifeSize Team 220	5.0.9(2)			
Microsoft Skype for Business client		16.0.4318.1000 / 16.0.7127.1021	16.0.4318.1000 / 16.0.7127.1021	16.0.4318.1000 / 16.0.7127.1021
Microsoft Skype for Business (Android)		6.4.0.5	6.4.0.5	6.4.0.5
Microsoft Skype for Business Mobile (iOS)		6.5.0.177	6.5.0.177	6.5.0.177
Microsoft Lync 2013 client		15.0.4809.1000	15.0.4809.1000	15.0.4809.1000

Products tested with this release

Device	MCU Type			
	1500	2000/4000	1800	Virtual Edition
Microsoft Lync 2010 client		4.0.7577.4498	4.0.7577.4498	4.0.7577.4498
Microsoft Mac client		14.3.3	14.3.3	14.3.3
Microsoft Lync client (Android)		5.6.3.15	5.6.3.15	5.6.3.15
Microsoft Lync client (iOS)		5.7	5.7	5.7
Microsoft® Lync™ Phone Edition for Polycom® CX500/CX600		4.0.7577.4487	4.0.7577.4487	4.0.7577.4487
Radvision Scopia XT1000	2.5.416			
Sony PCS-XG80	2.46			
Sony PCS-XG100	1.60	1.60	1.60	1.60
Tandberg 150 MXP	L6.1			

Conferencing Options

The following table summarizes the conferencing capabilities and options available in the different Conferencing Modes.

Features	CP Only	Mixed CP and SVC	SVC Only
Reservations	Yes	Yes	Yes
Operator Conferences	Yes	No	No
Entry Queues	Yes*	Yes*	Yes*
Dial Out	Yes	No	No
Cascading	Yes	Yes**	No
IVR	Yes	Yes	Yes Reduced IVR set for SVC endpoints
Permanent Conferences	Yes	Yes	Yes
LPR	Yes	Yes***	Yes***
Auto Redial	Yes	Yes	No
Content	Yes All Content Settings, All Content Protocols	Yes Graphics Only, H.264 Cascade & SVC Optimized	Yes Graphics Only, H.264 Cascade & SVC Optimized
Presentation Mode	Yes	No	No
Lecture Mode	Yes	No	No
Same Layout	Yes	Yes	No
Layout Selection	Yes	Yes AVC endpoints only	Layout set to Auto Layout and defined on the endpoint
Skins	Yes	Yes AVC endpoints only	No
Encryption	Yes	Yes	Yes
Recording	Yes	Yes AVC recording only	No
Site Names	Yes	Yes AVC endpoints only	Managed by the endpoint (not via MCU)
Message Overlay	Yes	No	No

* Entry Queue & Destination Conference must have the same profile (i.e. SVC only to SVC only, Mixed CP and SVC to Mixed CP and SVC)

** Only Basic Cascading is available

*** For AVC, the LPR error resiliency is used, for SVC endpoints other error resiliency methods are used.

RMX Web Client System Requirements

The following table lists the environments (Web Browsers and Operating Systems) with which the RMX Web Client was tested.

Web Browser	Operating System
Internet Explorer 7	Windows Vista™
	Windows 7*
Internet Explorer 8	Windows 7*
Internet Explorer 9	Windows 7* and Windows 8
Internet Explorer 10	Windows 7* and Windows 8
Internet Explorer 11	Windows 8.1 and above



Windows 7 Note

When using Internet Explorer 8 to run the RMX Web Client application, Protected Mode must be disabled before downloading the software to the workstation. To do this:

- 1 Open an IE browser window and go to Internet Options > Security tab.
- 2 Clear the Enable Protected Mode check box for each of the following tabs: Internet, Local intranet, and Trusted sites.
- 3 When the software is successfully installed, recheck the Enable Protected Mode check box for the Internet and Local intranet. Leave it disabled for Trusted sites.



Windows 8 Note

When using Internet Explorer 8 to run the RMX Web Client application, it is important to configure the browser according to the following procedure

- 1 Close all IE browser windows and verify that no iexplore.exe processes are running on the system.
- 2 Open a new IE browser window and go to Internet Options > General tab.
- 3 In the Browsing history section:
 - ▲ Click Delete.
 - ▲ From the Delete Browsing History dialog box, select the Temporary Internet files and Cookies check boxes,
 - ▲ Click Delete.
- 4 In the Browsing history section:
 - ▲ Click Settings.
 - ▲ In the Temporary Internet Files and History Settings dialog box, click View objects.
 - ▲ In the Downloaded Program Files select the EMAClassLoader.dll file.
 - ▲ Click Delete.
- 5 Click OK.

System Upgrade Information

The following sections provide important information about upgrading RealPresence Collaboration Server, Virtual Edition systems to this release.

Virtual Edition Host Server Hardware Profile

The following table describes the minimum VM host deployment settings for an instance of the RealPresence Collaboration Server system, Virtual Edition. It also shows the typical performance capacities of that deployment.

To maximize audio and video quality, Polycom strongly recommends a dedicated VM server per RealPresence Collaboration Server.

Minimum Deployment Settings

Component	Minimum Deployment Settings
CPU	30450 MHz Reservation
Memory	16 GB Reservation 8GB Limit
Storage	46GB
Performance	40 SD ports or 20 HD ports

Because of differences in hardware and VM environments, the performance information is provided for guidance purposes, and does not represent a guarantee of any kind by Polycom.

Upgrade Package Contents

The RealPresence® Collaboration Server version 8.5.12 upgrade package includes the following components:

- RealPresence Collaboration Server, VE documentation:
 - RealPresence Collaboration Server, VE Release Notes V8.5
 - Polycom RealPresence Collaboration Server, VE Getting Started Guide V8.5
 - Polycom RealPresence Collaboration Server, VE Administrator's Guide V8.5

To view the latest Polycom product documentation, visit the DOCUMENTS & DOWNLOADS section of the Polycom website at <http://support.polycom.com>.

Prepare for the Upgrade

To prepare for the upgrade:

- 1 If the Collaboration Server is used with a RealPresence DMA system, disable the RealPresence DMA system connection to the Collaboration Server:

- a Log into the DMA system that handles call transfers for the Collaboration Server.
 - b Select Network > MCU > MCUs.
 - c Select the MCU and choose either Stop Using or Busy Out.
 - d Verify that all conferences, including permanent conferences, have been terminated.
- 2 Backup the configuration file.
 - 3 Perform the upgrade as documented for your system.

Upgrading from Version 8.4 to Version 8.5

To upgrade from version 8.4 to version 8.5:

- 1 Download the Version 8.5.x.x.bin file from the Polycom Support Site.
- 2 On the RMX menu, select Administration> Software Management > Software Download.
- 3 Browse to the Install Path, selecting the Version 8.5.x.x.bin file in the folder where Version 8.5 is saved, and click Install.

The **Install Software** information box indicates the file **Copying files is In progress**.

At the end of the Copying Files process the system displays an indication that the software copying procedure is **Done**.



If the upgrade is not a supported upgrade path, the system will sound an alarm and an error message will appear.



When you acknowledge the error, the installation is aborted, and because the Safe Software Version Installation warning has been activated, your current browser session will block any new installation attempt. This applies to all software versions.

When you have resolved the software compatibility issues, open a new browser session and attempt the installation again. If all issues have been resolved, the installation should complete.

- 4 Click OK.

The upgrade procedure takes approximately 20 minutes.

- The **Install Software** information box indicates that **Software Loading is in progress**.
- A series of Active Alarms are displayed indicating the progress of the upgrade process.
- The **Install Software** information box indicates that **IPMC Burning is in progress**.
- A further series of Active Alarms are displayed indicating the progress of the upgrade process.



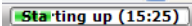
Sometimes, when updating the Version 8.5 license key, the system displays an active alarm: Ignore this Active Alarm and complete this installation procedure.

- 5 If a message alert appears saying Please wait for system reboot, click Next.
Connection to the Collaboration Server is terminated and you are prompted to reopen the browser.
- 6 Close any open browser windows, wait approximately 10 minutes, and restart the browser.
- 7 Reconnect to the RMX by enter the IP address of the RMX Control Unit into the browser.
The version number in the **Welcome** screen has changed to 8.5.
- 8 In the **RMX Web Client – Welcome** screen, enter your **User Name** and **Password** and click **Login**.



NOTE: Browser environment error

If the error “Browser environment error. Please close all the browser sessions” appears, close all the browser sessions, and reconnect to the RMX. If the error message appears again, either run the automatic troubleshooter utility or manually preform the suggested troubleshooting procedures.

In the Main Screen an **MCU State** indicator displays a progress indicator  showing the time remaining until the system start-up is complete.

To use the new features such as Operator Assistance and Gateway Sessions the IVR Services must be updated. For more details, see [Additional/Optional System Updates After Upgrading](#) .

- 9 If the Collaboration Server is used with a RealPresence DMA system, enable the RealPresence DMA system functionality:
 - a Log into the RealPresence DMA system that handles call transfers for the Collaboration Server.
 - b Select Network > MCU > MCUs.
 - c Select the MCU and choose Start Using.
 - d Verify that the version number is updated signifying that the upgrade is complete.

Upgrading from Version 8.3 to Version 8.5

During this procedure your Collaboration Server must be added to your RealPresence Platform Director Environment.

To upgrade from Version 8.3 to Version 8.5:

- 1 Install RealPresence® Platform Director™ from Support Site
- 2 Upgrade your Collaboration Server using the same steps described in the [Upgrading from Version 8.4 to Version 8.5](#) section above.



NOTE: Collaboration Server stops working

The Collaboration Server stops working at this point, and must be added to the RealPresence Platform Director Environment.

- 3 Open the RealPresence Platform Director and add your RealPresence System Component (Collaboration Server) to your RealPresence Platform Director Environment as described in the *RealPresence® Platform Director™ Administrator's Guide*:
http://supportdocs.polycom.com/PolycomService/support/global/documents/support/setup_maintenance/products/network/Platform_Director_ag_1_7_0_us.pdf

Upgrading the RMX Manager Application

The RMX Manager application can be downloaded from one of the RMX systems installed in your site or from Polycom web site at <http://www.polycom.com/support>.

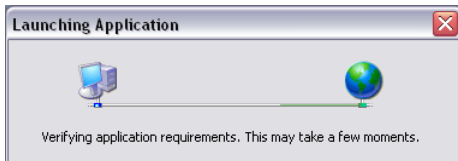
It is recommended to install the latest version of the RMX Manager (version 8.1 and higher are supported).



- When upgrading the RMX Manager application, it is recommended to backup the MCU list using the **Export RMX Manager Configuration** option. For more details, see *Polycom RealPresence Collaboration Server, VE Administrator's Guide, Software Management*.
- When upgrading the RMX Manager from a major version (for example, version 8.0) to a maintenance version of that version (for example, 8.0.1), the installation must be performed from the same MCU (IP address) from which the major version (for example, version 7.0) was installed. If you are upgrading from another MCU (different IP address), you must first uninstall the RMX Manager application using **Control Panel > Add or Remove Programs**.

To install RMX Manager (downloading the application from the RMX):

- 1 Start **Internet Explorer** and connect to the RMX from which the current version was installed. The **Login** screen is displayed.
- 2 Click the **Install RMX Manager** link on the upper right corner of the **Login** screen. The installer verifies the application's requirements on the workstation.





If the following error message is displayed: “You cannot start application RMX Manager 7.8 from this location because it is already installed from a different location” you are upgrading from an MCU that is other than the one used for the installed version (different IP address).

In such a case, first uninstall the RMX Manager application using **Control Panel > Add or Remove Programs**.

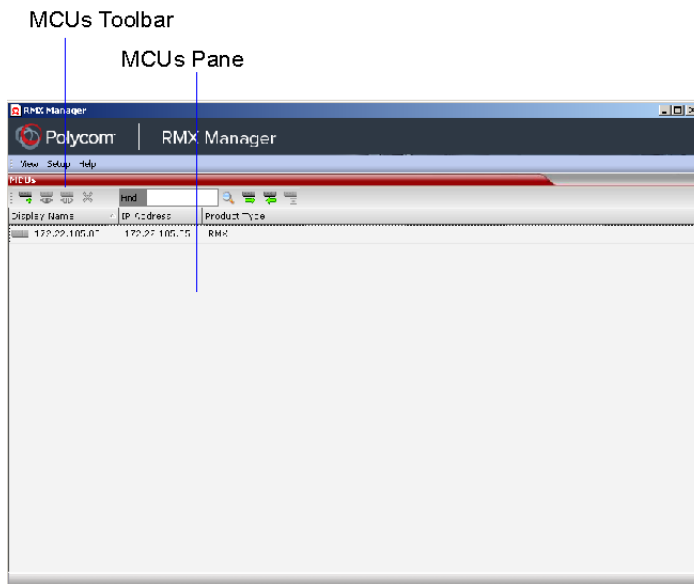


The Install dialog box is displayed.

3 Click **Install**.

The installation proceeds.

The installation completes, the application loads and the **MCUs** screen is displayed.



The list includes the previously defined MCUs.



If the MCUs list is empty, import the backed up list using the **Import RMX Manager Configuration** option. For more details, see the *Polycom RealPresence Collaboration Server, VE Administrator's Guide* [Import/Export RMX Manager Configuration](#).

For example, if the speaker's endpoints has two screens and the participant's endpoint only one, the participant's display is divided into two video layout cells with each video layout cell showing the input of one of the speaker's screens (endpoint).

If the participant endpoint has two screens, and the speaker endpoint only one, the speaker's video will be displayed on one of the participant's screens, while the second screen remains black.

Known Issues

The following table lists the known issues and suggested workarounds for this release of the RealPresence® Collaboration Server, Virtual Edition.

Known Limitations

Issue ID	Category	Description	Detected in Version	Workaround
BRIDGE-16529	Audio	G.722.1 1K audio codec fails negotiation over H.323 but not over SIP	V8.5	
BRIDGE-8132	Content	Content cannot be shared when dialing-out from a CP only conference with content set to H.263 & H.264 to Tandberg Edge95 (MXP) endpoints over H.323.	V8.2	
BRIDGE-13629	Content	On a call set to TIP Video & Content mode some H.323 endpoints may not receive content.	V8.4	Use "Prefer TIP mode"
BRIDGE-13342	Content	On Collaboration Server Virtual Edition, Content is not seen on Cisco H.323 endpoints registered with CUCM when working in TIP Video + Content Mode.	V8.4	Use "Prefer TIP mode"
BRIDGE-25482	General	Site names display in the middle of the video cell when the position of the site names is selected to bottom.	V8.5.12	
BRIDGE-25648	General	At times, endpoints experience video connection problem after fresh deployment of RealPresence Collaboration Server, Virtual Edition.	V8.5.12	Reboot the system.
BRIDGE-1441	General	Automatic reboot fails after modifying system flags even though system prompts reset.	V7.8.0	
BRIDGE-16474	Interoperability	Video on Lync 2013 clients using RealPresence Collaboration Server solution freezes in calls to a VMR when a Lync Room System endpoint joins the VMR.	V8.5	
BRIDGE-2340	IP	Failure to remove first IP address on a list of NT server addresses.	V8.0	
BRIDGE-24958	Partners-Microsoft	In the direct call, after de-escalating to video, the Skype for Business 2016 client connects to RealPresence Collaboration Server with problem.	V8.5.12	
BRIDGE-25257	Partners-Microsoft	In the RealConnect Call, after muting and unmuting a Lync client, the client is no longer the active speaker.	V8.5.12	
BRIDGE-25212	Partners-Microsoft	RealPresence Collaboration Server, Virtual Edition sends stretched video to Lync 2010 client in RealPresence DMA VMR.	V8.5.12	

Known Limitations

Issue ID	Category	Description	Detected in Version	Workaround
BRIDGE-15353	Partners-Microsoft	When an HLB (Hardware Load Balancer) registered as a SIP endpoint, dials-in to a meeting room in Collaboration Server VE, the call is disconnected should the backup server Lync service be off and the primary server Lync service on. However, registration of the endpoint successfully falls back to the primary server.	V8.5	
BRIDGE-1156	RMX Manager	"Insufficient resource" alarm displays after executing "service soft_mcu restart" and then logging in via the RMX Manager.	V7.8.0	
BRIDGE-8004	SIP	SIP endpoints may intermittently disconnect after a conference has run for more than 30 minutes.	V8.2	
BRIDGE-993	SVC	During a conference started from a Profile, after an SVC RPD participant dials-in, the Participants Properties - SDP tab, Remote Capabilities pane lists no information.	V7.8.0	
BRIDGE-16318	TIP	Frozen video in both telepresence endpoints following hard reset performed right after joining a Prefer-TIP unsecured Virtual Meeting Room from a Virtual Entry Queue.	V8.5	
BRIDGE-7307	Video	In a conference with 1 OTX and 2 TPX's with the OTX and 1 TPX connecting using ITP conference room switching, after applying MLA automatic layout, a black bar is displayed on the central monitor of the OTX.	V8.1	
BRIDGE-10140	Video	VSX receives no video in SIP call registered to DMA.	V8.3	

Resolved Issues

The following sections list the issues that have been resolved in the RealPresence® Collaboration Server version 8.5 branch of software.

Issues Resolved in This Release

The following table lists the issues resolved in this release of the RealPresence® Collaboration Server, Virtual Edition.

Issue ID	Category	Description
BRIDGE-24048	Audio	When an audio (POTS) participant is added to an H.323 call that is occurring on the MCU at 720p or 1080p, the call then downgrades to SIF.
BRIDGE-24513	Cascading	When Skype for Business and CSS GW participants are connected in a cascaded conference, the Skype for Business AV MCU participant gets disconnected with MCU INTERNAL PROBLEM alert.
BRIDGE-24258	General	In the Address Book, when participant is moved to a different group using drag and drop, the mouse cursor tooltip shows the icon for a copy operation.
BRIDGE-24031	General	The ConfParty process crashed producing a core dump and resulting in a system outage.
BRIDGE-24317	Interoperability	While connecting to the SIP/H.323 endpoint from RPD registered to DMA, an active alarm indicating Unit failure is observed.
BRIDGE-24555	Interoperability	In DMA system VMR conferences, several endpoints are disconnected from the conference at the same time.
BRIDGE-25690	Partners - Microsoft	When Skype for Business 2016 client starts sharing the content, AVMCU disconnecting from the conference results in Polycom endpoints cannot see Skype for Business 2016 client.
BRIDGE-24671	Partners - Microsoft	When Microsoft Skype for Business and Polycom CSS gateway participants are connected in a cascaded conference, the Skype for Business AV MCU participant gets disconnected with MCU INTERNAL PROBLEM alert on the RealPresence Collaboration Server.
BRIDGE-24133	Security	Vulnerabilities are in OpenSSH versions 7.0 and older. We generally do not document security issues and resolutions as that is one place where transparency in not of value.
BRIDGE-24469	SIP	In a call, the openSSL stack throws an error when the siptask tries to send a reINVITE over TLS.
BRIDGE-23368	Video	When selecting "View Participant Sent Video" or "View Participant Received Video" in RMX Manager on the workstation with AMD GPU, the black video instead of previewed video displays.

Issues Resolved in Version 8.5.11

The following table lists the issues resolved in the 8.5.11 release of the RealPresence® Collaboration Server, Virtual Edition.

Issue ID	Category	Description
BRIDGE-23279	Interoperability	Call from HDX via ACME SBC to DMA VMR with encryption set to whenever available fails because the call is rejected by the RealPresence Collaboration Server.
BRIDGE-22852	IVR	At times, mobile phone participant cannot hear IVR message for typing conference passcode.
BRIDGE-23473	Interoperability	Call speed and resolution mismatch between RealPresence Desktop and VSW high profile of RealPresence Collaboration Server.
BRIDGE-23225	Interoperability	Call speed and resolution mismatch between RealPresence Desktop and VSW high profile of RealPresence Collaboration Server.

Issues Resolved in Version 8.5.10

The following table lists the issues resolved in the 8.5.10 release of the RealPresence® Collaboration Server.

Issue ID	Category	Description
BRIDGE-22259	Audio	When following re-invite, the audio codec is modified by the Collaboration Server, endpoints do not receive the audio.
BRIDGE-22645	Audio	SIP calls from VoIP phone to RMX 1500 fails after the RMX 1500 is upgraded to V8.5.4.107.
BRIDGE-22423	Encryption	Call from HDX via Acme SBC to DMA VMR using "Encrypt When Possible" setting fails with call rejected by Collaboration Server.
BRIDGE-22647	General	When a user displays the Click & View menu and disconnects, the next caller to connect sees the Click & View menu when using RealPresence Collaboration Server, Virtual Edition.
BRIDGE-22412	General	When IP Network service is configured to Microsoft, RealPresence Collaboration Server is unable to receive DTMF in calls to the Virtual Entry Queue.
BRIDGE-22732	General	RealPresence Collaboration Server is no longer able to display Address Book from Resource Manager using port 443 after upgrading Resource Manager from v8.2.1 to v8.4.1, on RealPresence Collaboration Server Appliance and Virtual Edition MCUs.
BRIDGE-22521	General	Duration does not display correctly as configured for Meeting Room.

Issue ID	Category	Description
BRIDGE-22543	IVR	Participants' endpoints do not forward the "Invite Participant" DTMF code in ISDN calls on RealPresence Collaboration Server Appliance and Virtual MCUs.
BRIDGE-20273	Interoperability	The call rate setting in a conference profile on a soft MCU incorrectly limits the call connection rate when calling from an HDX endpoint.
BRIDGE-22262	Partners - Microsoft	Collaboration Server RealConnect cascaded link remains muted, through Presenter of Lync conference unmuted the audience.
BRIDGE-22088	Partners-Microsoft	During a RealConnect conference, Lync participants cannot view non-Lync video participants.
BRIDGE-21289	Partners - Microsoft	Intermittent "Picture in Picture" effect displayed on room systems when Lync Client becomes active speaker when using RealPresence Collaboration Server Virtual Edition MCU.
BRIDGE-22652	Partners - Microsoft	When a Room System joins a RealConnect call initially having had 2 LifeSize Room Systems connected via Lync AVMCU, from which 1 of the initial LifeSize Room Systems has disconnected, twitching video is experienced when using RealPresence Collaboration Server Virtual Edition MCU.
BRIDGE-21890	Security	Exchange integration configuration cannot be updated on RealPresence Collaboration Server Appliance and Virtual Edition MCUs.

Issues Resolved in Version 8.5.4

The following table lists the issues resolved in the 8.5.4 release of the RealPresence® Collaboration Server.

Issue ID	Category	Description
BRIDGE-20248	General	Address Book in Collaboration Server Virtual Edition is inaccessible and empty after restoring backup from Version 8.4.1.

Issues Resolved in Version 8.5.3

The following table lists the issues resolved in the 8.5.3 release of the RealPresence® Collaboration Server.

Issue ID	Category	Description
BRIDGE-18774	General	Collaboration Server faults list indicates Power-off problems.
BRIDGE-18441	General	System is exposed to attacks running arbitrary code using current user permissions, due to a bug in one of the standard libraries.
BRIDGE-16473	Partners-Microsoft	Video from the Collaboration Server freezes when a virtual meeting room (VMR) is cascaded with Lync Server 2013, and Lync 2010 clients are participants in the call.

Issues Resolved in Version 8.5.2

The following table lists the issues resolved in the 8.5.11 release of the RealPresence® Collaboration Server.

Issue ID	Category	Description
BRIDGE-15584	Encryption	Collaboration Server, Virtual Edition, allows participants to enter the conference encrypted by DMA without the encryption license.
BRIDGE-17729	Entry Queue	When several SIP endpoints and H.323 endpoints dial into the EQ, SIP endpoints move from EQ to conference, but H.323 endpoints fail because the UDP ports are occupied.
BRIDGE-16373	General	Unable to set IP address during attempt to load .ova file on Collaboration Server VE.
BRIDGE-17931	Interoperability	Unable to resume calls after being placed on hold from a Cisco phone.
BRIDGE-17663	Interoperability	The Platform Director cannot gather monitoring information from Collaboration Server, Virtual Edition, through SNMP.
BRIDGE-16634	Interoperability	Endpoints disconnect due to internal MCU problem.
BRIDGE-17548	Partners-Microsoft	Lync 2010 or Lync 2013 cannot get video in the RealConnect Conference.
BRIDGE-18087	Upgrade	After upgrading RealPresence Collaboration Server, Virtual Edition to V8.5, it can only make call with CIF resolution.
BRIDGE-17685	Video	When creating a CP conference with Motion video quality, enabling the Message Overlay, setting its Display Repetition to 3, and setting the Display Speed to slow. The Message Overlay stays still without repeatedly displaying.

Issues Resolved in Version 8.5

The following table lists the issues resolved in the 8.5 release of the RealPresence® Collaboration Server.

Issue ID	Category	Description
BRIDGE-12047	Content	On the Collaboration Server VE, some bad pixels may appear on Cisco Telepresence endpoints connected to a conference running in TIP Video + Content mode,
BRIDGE-7341	General	Error message displays before successfully logging into the VMCU via the console: "user/Plcm-Utills/Scripts/SetupMenu.sh: line32:: No such file or directory".
BRIDGE-10808	Interoperability	When an HDX 8000 registered to a SIP server connected to an MCU registered to a DMA 7000 attempt to connect to a mixed AVC-SVC 1920 kbps conference using a line rate of 64 kbps, instead of connecting as audio only the connection failed.
BRIDGE-13591	Interoperability	Sony PCS-XG80 and XG-100 endpoints do not receive content while in a Collaboration Server (RMX) 1800 or VE call.
BRIDGE-13518	Interoperability	When using specific versions of Group Series endpoints, connecting as SVC to a Mixed Mode (SVC/AVC) conference, the Group Series endpoint will, rarely, not see the AVC endpoints.
BRIDGE-8033	IVR	RealPresence Mobile, RealPresence Desktop, and Group Series endpoints do not hear roll call messages when dialing into an SVC conference.
BRIDGE-13499	Partners - Microsoft	Lync mobility client will not connect in a dial out scenario.
BRIDGE-13622	Partners - Microsoft	Lync registered Edge endpoints have packet loss and poor video during RealPresence Collaboration Server conference. Hold and resume intensifies the poor video performance.
BRIDGE-13499	Partners - Microsoft	Lync mobility client will not connect in a dial out scenario.
BRIDGE-13837	Partners- Microsoft	If media over UDP mode is blocked, connection to the ICE server cannot be established
BRIDGE-16254	Platform Director	Platform Director fails to display monitoring information on RealPresence Collaboration Server VE, and logs an exception.
BRIDGE-13470	SIP	RealPresence Collaboration Server dial-out fails when SIP device authentication is enabled in DMA.
BRIDGE-12663	SIP	Hot backup: SIP participants cannot reconnect after switch over between master and slave RealPresence Collaboration Servers.
BRIDGE-5921	Video	Layout pictures display incorrectly when more than 15 participants join the conference.
BRIDGE-13634	Video	In a Siemens environment, VVX fails to connect in a dial out scenario.

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Polycom® RealPresence® Collaboration Server, Virtual Edition

This document describes the new and changed features of the RealPresence® Collaboration Server version 8.5 releases.

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Version 8.5.10 Detailed Description - New Features

Enable Personal Layout in Lecture Mode

Beginning with this version, Personal Layouts can be modified in conferences defined to operate in Lecture Mode. In previous versions Personal Layout was disabled for conferences operating in Lecture Mode.

The Personal Layout of the operator can be modified, allowing the operator to view the video of a participant designated to be the next lecturer. The designated participant can be advised about camera settings, etc. before being assigned by the operator as the new lecturer.

The Personal Layout of the current Lecturer cannot be modified.

In cascaded conferences personal layouts can be modified while in Lecture Mode, but only for participants that are hosted on the local MCU.

DTMF code "0", entered from a remote control or other device will return a user's endpoint to the conference layout. All other Click&View DTMF codes are ignored while the conference is in Lecture Mode.

If **Send Content to Legacy Endpoints** is checked in the conference profile, participants with endpoints that do not support the meeting's Content settings can view Content using the people video channel.

For more information see [Lecture Mode](#) and [Personal Conference Manager \(PCM\)](#).

Version 8.5.4 Detailed Description - New Features

Locking and Unlocking Conference via MCU



Note: Feature Not Supported in Conference Running via DMA

This feature is only supported when the DMA is not acting as the MCU manager, and participants dial-in directly to the MCU and not via VMR.

Locking or unlocking a conference could previously only be carried out via a digital DTMF code. Locking and unlocking a conference can now be enabled or disabled via:

- Web GUI
- RMX Manager
- XML API

Locking and Unlocking a Conference

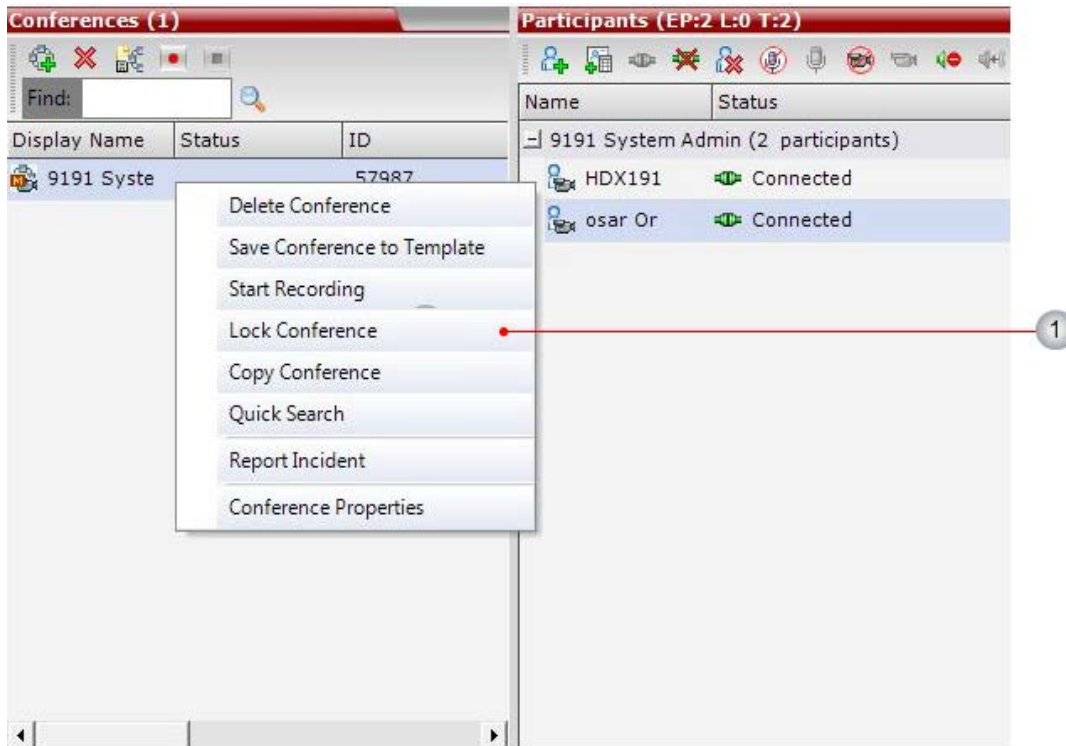


Note: Locking and Unlocking Permissions:

You must be logged in as a chairperson, operator, or administrator to access this feature.

To lock a conference via Web GUI or RMX Manager:

- 1 In the Conference pane, right-click the conference name.
- 2 In the drop-down menu, select **Lock Conference**.



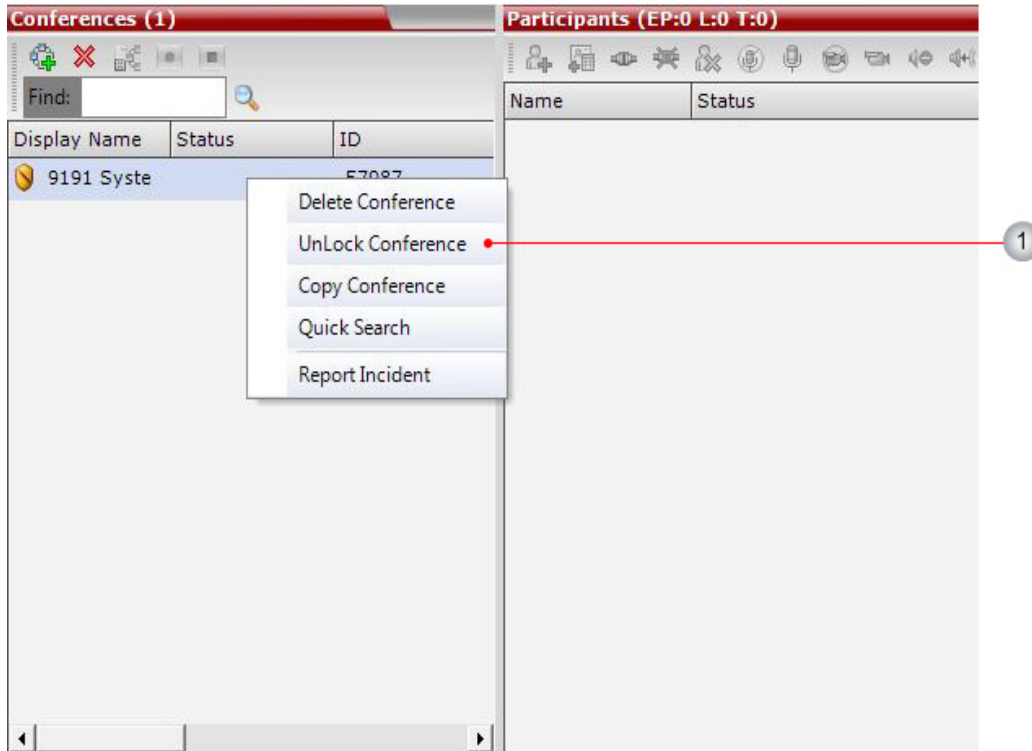
Reference Number	Description
1	Lock conference

To unlock a locked conference via Web GUI or RMX Manager:

- 1 To unlock a locked conference via Web GUI or **RMX Manager**:
- 2 1 In the **Conference** pane, right-click the conference name.
- 3 In the drop-down menu, select **Unlock Conference**.



Caution: Conference Locking via Web GUI or RMX Manager hides Participant List
 Locking the conference via Web GUI or RMX Manager hides the list of conference participants in the **Participants** pane.



Reference Number	Description
1	Unlock conference



Notification of Locked (Unlocked) Conference:

- If the conference is locked, a voice prompt informs users that the conference is secured and they cannot join. Also, there is no display of participants taking part in the conference.
- If the conference is unlocked, a voice prompt informs users that they are free to join the conference and all participants taking part in the conference are displayed.
- If lock/unlock is enabled in the MCU and without any interaction with a Lync cascaded conference, both the Polycom and Lync sides of the conference restrict adding new participants.

Conference locking via XML API

A new boolean element, SET_LOCK, was added to trans_conf_2.xsd schema.

Setting its value to TRUE locks the conference.

It's default value is FALSE - unlocked.

Reestablishing Connection via DMA to AV MCU Following Collaboration Server Failure

Polycom RealPresence Collaboration Server supports conferencing with Microsoft Lync clients via a VMR in the DMA, where the Collaboration Server is connected through a cascading link to Microsoft AV MCU. Should the Collaboration Server fail, the DMA containing the VMR to which both MCUs were connected, is capable of recreating the conference on an alternate Collaboration Server.

To complete this capability, from version 8.6 and on, the DMA has the added capability to re-establish the cascading link to the AV MCU as well. This is done by the Collaboration Server providing the AV MCU Focus (SIP) URI to the DMA, as part of the conference information, even for Ad-Hoc conferences.

In addition, two additional values are passed via the XML API from the Collaboration Server to the DMA within the conference information, to enable proper termination of the recreated conference (as explained in the conference termination below):

- The original AV MCU conference type - scheduled (AV MCU), scheduled (PCM), Ad-Hoc, or none (meaning non-AV MCU conference).
- The value of the “To” field in the original invitation.

Cascading Conference Reestablishment Process

- 1 Once the DMA detects a Collaboration Server failure (via XML API or ping), it disconnects all the Collaboration Server SIP connections (legs) except the SIP connection to the AV MCU.
- 2 The DMA recreates the conference on an alternate Collaboration Server, and passes to it (via XML API) the AV MCU Focus URI, the conference type, and the value of the original “To” field in the Microsoft invite, as preserved from the original conference.
- 3 The Collaboration Server uses the Focus URI to recreate the cascading link to the AV MCU, and recreates the conference using the conference type retained from the original conference.
- 4 The Collaboration Server uses the original “To” field value to create SIP sessions to the “leftover” SIP connections from the AV MCU to the original Collaboration Server in order to disconnect them.

Reestablished Cascading Conference Termination

Once all the Collaboration Server participants are disconnected, the Collaboration Server uses the retained conference type to determine whether or not the cascading link to the AV MCU should be disconnected:

- For scheduled conferences - The cascading link is disconnected.
- For Ad-Hoc conferences - The cascading link is not disconnected.

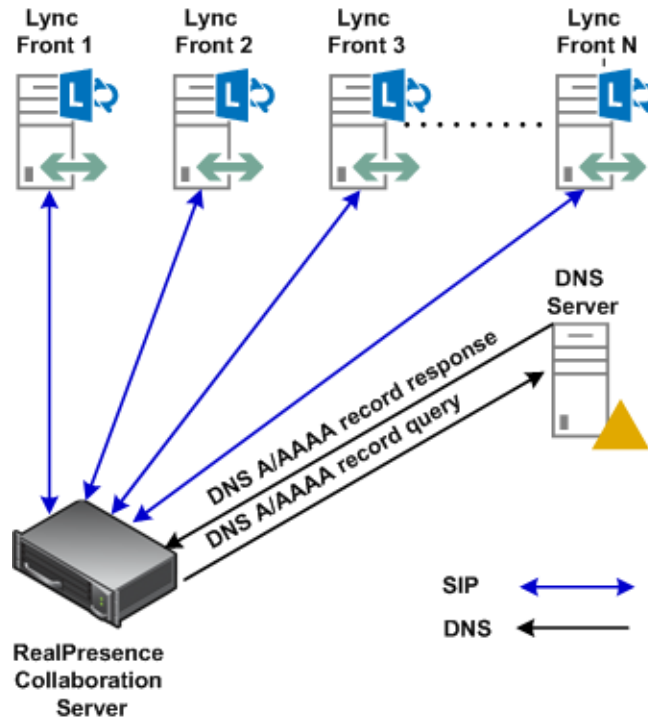
DNS Load Balancing on Lync Front End Pool

In the Lync environment, the Front End server is the SIP server, Focus server and A/V MCU.

Polycom® RealPresence® Collaboration Servers 1800/2000/4000, and Virtual Edition, support DNS load balancing that balances the SIP traffic to maximum up to 12 Front End servers in the same Front End Pool.

The Collaboration Server supports DNS load balancing on Lync Server 2010 and Lync Server 2013.

Following figure shows how the Collaboration Server supports DNS load balancing.

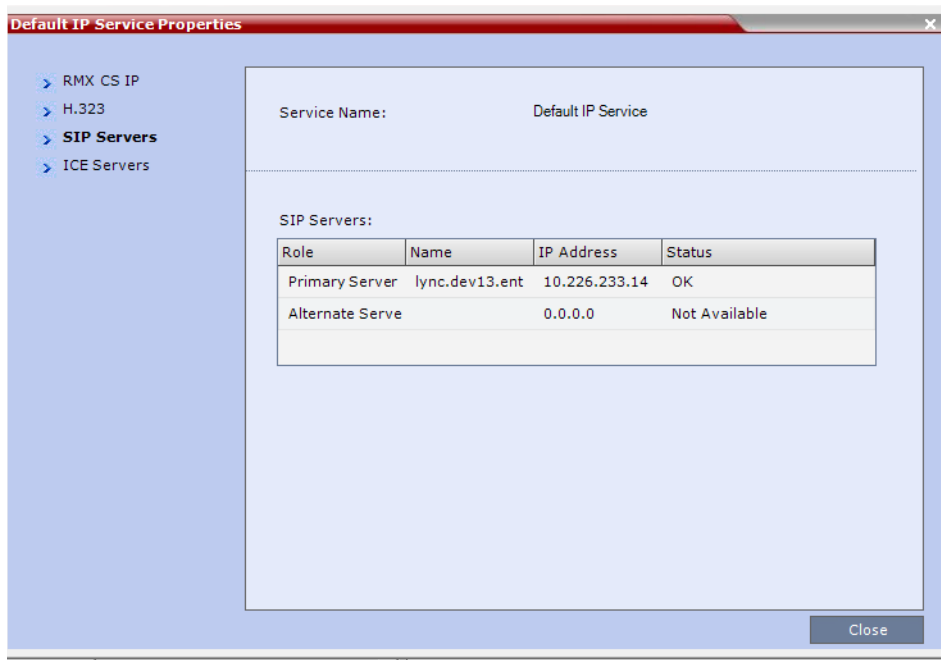


All Front End (FE) servers in the pool register themselves in DNS server with the same FQDN but different IP addresses (both IPv4 and IPv6 are supported).

The Collaboration Server supports both FE Load Balancing and FE Failover.

- FE Load Balancing, is implemented by the DNS server. Each DNS query is replied by the DNS server with different priorities, and the Collaboration Server connects with the FE with the highest priority.
- FE Failover, in case the Collaboration Server fails to communicate with the first FE in the DNS list, it will try and gain connection with the second FE in the list, and so on.

The Collaboration Server presents the FE IP connected in the **Default IP Service Properties > SIP Servers** tab as shown below:



Support for Skype for Business

All descriptions applicable for Lync 2013 are also applicable for Skype for Business.



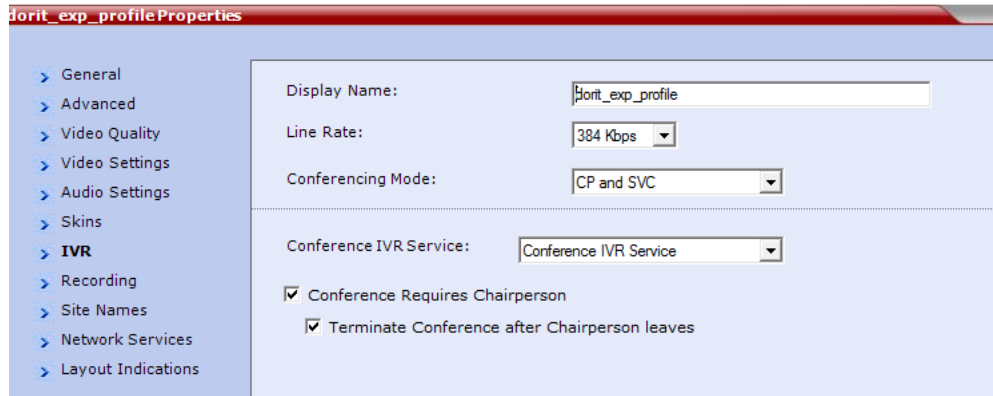
Note: Support for Microsoft® Skype for Business

- The latest RPP versions are required.
- The Polycom product versions and the Microsoft® Skype for Business versions tested can be found in the Release Notes for Polycom Unified Communications for Microsoft Environments - June 2015 at Polycom Unified Communications for Microsoft Environments.

Wait for Chairperson when Collaboration Server is in Lync AV MCU Lobby

In Microsoft Outlook, you can determine that all the participants in the conference should await the Organizer in the AV MCU lobby. This feature in AV MCU is, in fact, the equivalent of Collaboration Server chairperson concept, where participants await the chairperson presence before the conference can begin, depending on conference/profile configuration.

From now on, in a cascading conference, where the Collaboration Server cascaded link is awaiting the Organizer attendance in the AV MCU lobby, the participants connected to the Collaboration Server will also await his presence in the lobby, provided the conference profile is configured to begin upon first chairperson connecting (first check-box below), either by DMA via API specification, or by the Collaboration Server Administrator user following DMA request to use a certain profile with this option set.



The purpose of this is to maintain conferencing stability, which suffered in the past due to discrepancy between Lync and the Collaboration Server conferencing chairperson settings. It also prevents mis-usage of Polycom VMR and conferencing services during the two weeks following the meeting, which was possible due to Lync keeping the meeting VMR open for that duration, thus allowing its unauthorized re-usage.




If the conference is configured to be without a chairperson, the participants connected to the Collaboration Server can freely view and hear each other, whereas the participants connected to the AV MCU have both video and audio muted.

Once the Organizer leaves the conference, the conference should not end automatically. Instead the Collaboration Server should imitate the client behavior.

If the cascading link to the AV MCU is disconnected, the Collaboration Server should follow the conference configuration, meaning, terminate the conference only if the **Terminate Conference after Chairperson leaves** (second check-box in the figure above).

The AV MCU cascaded link is considered as chairperson, resulting in the participants connected to the Collaboration Server awaiting the connection to AV MCU in the lobby, with no actual chairperson required on the AV MCU side or at an endpoint.

The Master AV MCU participant will have a chairperson icon () attached to its name in the Collaboration Server conference participants screen.

Since chairperson password is not supported in Microsoft Outlook, it is bypassed by exploiting the fact, that the Collaboration Server does not request a chairperson password if the conference password was entered. Therefore, the DMA generates a conference password, and uses this password when calling all the participants in the conference, which in turn use it to connect the conference, without the chairperson password being required.



All ContentConnect (Polycom content sharing for Microsoft environments) related actions begin only after the Collaboration was moved from the AV MCU lobby into the conference.

New Certificate Signing Request (CSR) Guideline

You can add an Management and Signaling Certificates through **Setup > RMX Secured Communication > Certification Repository > Personal Certificates** dialog box.

The only Certificate Method you can selected for adding Management and Signaling Certificates is **CSR**, then you can create a new certificate request by entering following attributes according to the new CSR guidelines:

Common Name (DNS): Your network administrator may have specific requirements for the content of these fields. The field is empty by default. In the absence of any other guidance, it is recommended that the following information be contained in this field:

- If DNS is being used, enter the DNS Fully Qualified Domain Name (FQDN) of the Collaboration Server Management Network Interface. This should match the Host Name and Domain configured in the Management Network Properties dialog box.
- If DNS is not being used in your deployment, enter the IP Address of the Collaboration Server Management Network Interface.

Subject Alternative Name (SAN): This field is required when using EAP-TLS in conjunction with a Network Policy Server (MS-NPS), you can fill up to 20 SANs. The field is selected by default, and when it is selected, you can modify the example values provided, to match local certificate requirements and delete those that are not applicable.

- Principle Name: The default example will display as below:
Principle Name=user@example.com
- DNS Name: If DNS/MCU Host name is configured, the configured name will display, otherwise a default example will display as below:
DNS Name=myhost.example.com
Replace myhost.example.com with either FQDN of the Collaboration Server Management Network Interface or the MCU Host name.
- IP addresses:
 - If RMX is configured with IPv4, then the IPv4 address will display.
 - If RMX is configured with IPv6, then the IPv6 address will display, besides you can also enter additional IPv6 addresses.

- If RMX is configured with both IPv4 and IPv6, then both IP addresses will display.

Following is a complete example as your reference:

Example:

```
DNS Name=rmx1.polycom.com
IP Address=10.11.12.13
IP Address=fe80::592f:6a4c:87b:b69a
IP Address=fe80::2e0:dbff:fe0b:f9e4
```

If an incorrect SAN type is entered, an error message, Unsupported SAN type, is displayed when the **Send Details** button is clicked.



The SAN field option - DNS Name (FQDN) is not used for Machine Account validation. For example, the DMA will not validate the Collaboration Server unless the FQDN field in the User Properties dialog box is correctly filled in.

Hash Method: Select the output value for the Secure Hash Algorithm:

- **SHA-256:** the output value is 256 bits.
- **SHA-1:** the output value is 160 bits.

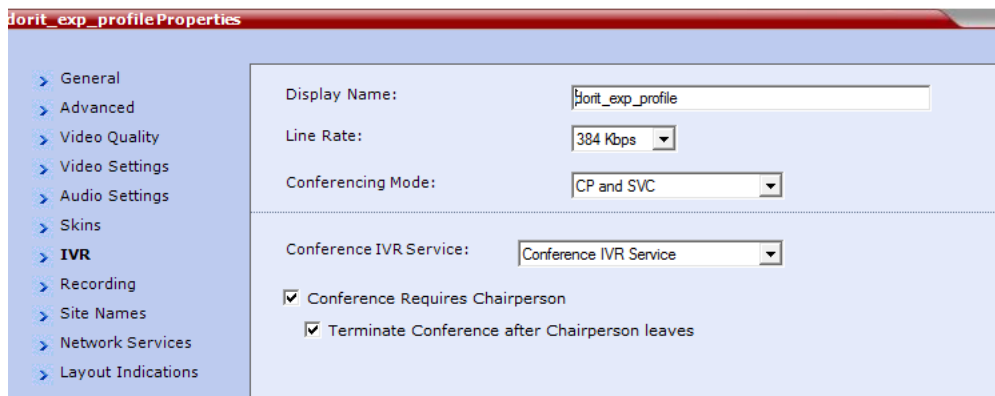
For backward compatibility, with previous versions, either SHA-1 or SHA-256 can be selected as the hash algorithm used in the creation of CSRs.

Enable Chairperson Managing Cascaded Meetings

From version 8.6 and on, a conference may be started or terminated based on a chairperson presence in any MCU within a cascading topology.

This feature depends on conference profile configuration as shown in the figure below:

- The conference begins upon first chairperson connecting (first check-box).
- The conference terminates upon last chairperson disconnecting (second check-box).



Process Description

Once a chairperson connects an MCU in the cascading topology, the conference begins locally at this MCU.

The DMA polls (via API), from all the MCUs in the cascading topology, information on the cascading conference and its participants, which includes information of chairperson participants. The DMA sends the conferences information to all the MCUs, registered for conference notifications (via EventPackage).

Through these notifications each of the subscribed MCUs can determine the point at which the first chairperson joins the conference, and begin transmitting the conference audio/video to the connected participants. Similarly, each MCU can determine at which point the last chairperson disconnects from the conference, and terminate the conference.

During the conference, a new MCU may link to the cascading conference. This MCU subscribes to the DMA for conference notifications. Should a chairperson be connected to the conference on that MCU, this chairperson presence is passed (as explained above) to the other MCUs in the cascading topology, so each of the MCUs can process the information and act accordingly.

The DMA server used for subscribing to the EventPackage conference notifications is reached using a URI, obtained by the MCU through the XML API.

Chairperson in Cascading Environment Guidelines

- The IP network service related to the conference should support SIP:
 - The IP network service and the EventPackage use the same transport type.
 - It is recommended not to use UDP as transport type.
- Participants connecting the conference via a gateway, are required to enter the chairperson password in order to be considered chairperson.

Error Handling

The following error handling measures are taken:

- If the EventPackage SIP connection to one of the MCUs fails to establish following 3 consecutive attempts, that MCU generates an active alarm specifying the specific conference and VMR. This alarm is cleared upon conference end. The failing MCU will join the conference based on a local chairperson presence, instead of anywhere within the cascading topology.
- On the off chance that one of the cascaded links breaks, EventPackage functionality continues, and connected MCUs continue based on the EventPackage notifications. Possible unexpected behavior due to this broken link may occur.

Version 8.5 Detailed Description - New Features

New Admin User for Polycom Services

From version 8.5, a default user with administrator authorization is provided by all MCU types to be used with Polycom products, having the following details:

- **User name** - SA_PLCM_Integration
- **Password** - Polycom_CS

This user is not considered a new user. Therefore, when upgrading the MCU from a previous version to version 8.5, no `New SA_PLCM_Integration user` message should be generated.

Since this user is provided in secure mode (JITC) as well, an active alarm is displayed upon login, indicating the existence of an `SA+PLCM_Integration` default user, and recommending replacing it with an alternate one for security reasons.

This user should be recognized by the DMA/XMA as well, thus enable their logging into the MCU without any undue messages, with the exception of the active alarm stated above upon logging into a secure machine.

Media Traffic Shaping



Traffic shaping is applicable for all RealPresence Collaboration Server types.

Polycom integrated traffic shaping capabilities into the RealPresence Collaboration Server to enable deploying Collaboration Server systems in networks limiting packet bursts within 100ms time intervals (or more). Setting router policies to limiting of bandwidth within a time interval, causes the router to drop packets exceeding the allowed bandwidth within this interval. Therefore, using this feature enables the Collaboration Server to flatten the traffic, and minimize traffic bursts, without exceeding the bandwidth allowed within the time interval.

Though the Collaboration Server supports high level network features, high quality of service requires end-to-end video network operation. The Collaboration Server traffic shaping capabilities cannot compensate for network level violations/limitations generated by elements outside the Collaboration Server, such as endpoints, routers, etc.

Traffic shaping can flatten a momentary burst (meaning, within a 100ms time interval). However, it cannot “flatten” longer bursts resulting from endpoints sharing content in video switching conferences. Similarly, this feature helps reducing packets dropping by routers following momentary traffic bursts, yet it does not resolve packet lost by faulty network connections or network congestion.

Note that during VSW content sessions, should source endpoint exceed the negotiated content rate for over 100ms, the Collaboration Server can flatten the video channel but not the incoming content channel.

Traffic Shaping Guidelines

- Traffic shaping is applied in the following conferencing modes and scenarios:
 - AVC conferences (both CP and VSW)
 - Mixed CP and SVC conferences - applied only on AVC endpoints
 - Content VSW

This feature is **not** applied on TIP endpoints.

- Capacity of CIF/SD resolutions on MPMx cards is reduced when traffic shaping is on: CIF capacity is reduced from 90 to 70 (20% reduction), and SD capacity is reduced from 60 to 50, in terms of ports. Capacity of mixed AVC/SVC calls is also reduced when traffic shaping is enabled.

Capacities of 720p and up are unaffected.

- License entitlement ratio for SD and CIF is reduced from 1:2 to 1:1.5 on Collaboration Servers with MPMRx media card(s); license entitlement ratio for SD is reduced from 1:2 to 5:3, and for CIF - from 1:2 to 7:3 on Collaboration Servers with MPMx media card(s).
- Traffic shaping code is embedded in the DSP ART modules thus requiring enlarging PCI memory size to 18Mbps, and content memory size to that of video.
- In MPMx MCUs, if all DSP units are defined as ART, each MPMx-D card can allocate 360 audio-only ports. Yet, if all DSP units are set to full video (meaning, no voice), a CIF port is allocated for audio only, resulting in audio capacity reduction similar to that of CIF capacity reduction (see [Maximum Capacity in MPMx and MPMRx MCUs](#)).
- Should license port capacity be lower than the number of hardware ports, the unlicensed ports are used for traffic shaping to decrease capacity reduction.
- Traffic shaping is applied on the aggregation of both content and people channels.
- Delays due to traffic shaping, if any, are limited to 10ms.
- This feature is not applied on audio, since the encoder output audio rate is constant.
- When LPR is enabled, traffic shaping is applied following packets repair and prior to packets sending.

System Flags

Traffic shaping usage is controlled by Collaboration Server configuration system flags (for the entire bridge):

- **ENABLE_RTP_TRAFFIC_SHAPING** - Enables traffic shaping. When set to **YES**, traffic shaping is applied to all ports, resulting in some port capacity reduction in MCUs with MPMx/MPMRx cards (see [Maximum Capacity in MPMx and MPMRx MCUs](#)). When set to **NO**, traffic shaping is disabled.

Values:

- **YES** - Traffic shaping is enabled.
- **NO** - Traffic shaping is disabled.

Default value: **NO**

- **VIDEO_BIT_RATE_REDUCTION_PERCENT** - Indicates the percentage of actual reduction in bit rate sent from the MCU to the endpoint (negotiated bit rate is not reduced). This flag is applicable only when traffic shaping is enabled (**ENABLE_RTP_TRAFFIC_SHAPING** set to **YES**).

Range: **0-60**; Default value: **15**

- **TRAFFIC_SHAPING_MTU_FACTOR** - Used for the MTU (Maximum transmitting Unit - the size of transmitted packets) dynamic calculation:

$$\text{New MTU} = \text{video bit rate} / \text{TRAFFIC_SHAPING_MTU_FACTOR}$$

where the new MTU value is guaranteed to be a minimum of 410, and a maximum of 1460 (MAX_MTU). The purpose of this calculation is to match video rate in outgoing video to call rate, yet force lower encoder bit rates to avoid overflow.

This flag is applicable only when traffic shaping is enabled.

Range: **0-5000**, where **0** signifies no change in MTU; Default value: **800**

To modify any of these flags, manually add them into the MCMS user parameters section of the system configuration flags, and then modify their value (see).

Capacity During Traffic Shaping

The table below describes the maximum capacity after reduction due to traffic shaping in Collaboration Servers 1500/2000/4000. There is no capacity reduction in Collaboration Servers 1800 and Virtual Edition.

Maximum Capacity in MPMx and MPMRx MCUs

Resolution	MPMx		MPMRx	
	Non-mixed Mode	Mixed Mode	Non-mixed Mode	Mixed Mode
CIF	70	40	150 *	100 *
SD	50	40	150 *	100 *
HD720p	30	20	100	66
HD1080p	15	10	50	40
Audio Only	70/360	40/360	300	150

* Assuming conference bit rate ≤ 1024 Kbps

Siren 7 Audio Codec Support for SIP Calls



Siren7 audio codec support for SIP calls is applicable for all RealPresence Collaboration Servers.

When a Lync server is configured to allow 33Kbps audio rate, Lync clients connecting the MCU, and using audio rates smaller than 42Kbps, fail, thus disconnecting the call.

To prevent that, from version 8.5 and on, Siren7 audio codec is supported by the MCU, and is the preferred codec for SIP/Lync calls.

System Flag

The Siren7 audio codec support depends on the **ALLOW_SIREN7_CODEC** System Flag:

- When set to **YES** - Siren7 audio codec becomes the preferred audio codec for SIP/Lync calls.
- When set to **NO** - Siren7 audio codec is not supported.

Default value: **NO**

To modify this flag value, manually add it into the MCMS user parameters section of the system configuration flags, and then modify its value (see).

No system reset is required to make the change effective.

Version 8.5 Detailed Description - Changes to Existing Features

Supporting 1080p Video Resolution in SVC Conferences



This feature is applicable for Collaboration Server 2000/4000 with MPMRx media cards, Collaboration Servers 1800, and Virtual Edition.

Up until version 8.5, in Polycom RealPresence Collaboration Server, SVC-enabled (meaning, **SVC Only** and **Mixed CP and SVC**) conferences supported resolutions of up to 720p. From version 8.5, SVC-enabled conferences support 1080p resolution as well, and allow using 4Mb as conference bit rate.

To enable this, an additional simulcast layer is added for 1080p resolution support in SVC endpoints, which obsoletes the ENABLE_1080_SVC system flag.



- 720p-capable endpoints can receive 720p resolution video only from 1080p-capable endpoints. Video from lower capability endpoints is limited to 360p resolution video.
- AVC endpoint functionality is unaffected.

Operation Points

The table below describes the operation points in SVC-enabled conferences supporting 1080p resolution.

SVC 1080p Operation Points

Conference Line Rate	Simulcast Stream-1	Simulcast Stream-2	Simulcast Stream-3	Audio
2M ≤ conf. rate ≤ 4M (360 alternative)	Resolution:180p30 Bit rate: 192 kbps Profile: Base	Resolution:360p30 Bit rate: 384 kbps Profile: High	Resolution:1080p30 Bit rate: 1232 kbps Profile: High	48kpps
1472 ≤ conf. rate < 2M	Resolution:180p30 Bit rate: 192 kbps Profile: Base	Resolution:360p30 Bit rate: 384 kbps Profile: High	Resolution:720p30 Bit rate: 768 kbps Profile: High	48kpps
1152 ≤ conf. rate < 1472	Resolution:180p30 Bit rate: 192 kbps Profile: Base	Resolution:360p30 Bit rate: 384 kbps Profile: High	Resolution: 720p15 Bit rate: 512 kbps Profile: High	48kpps
1M ≤ conf. rate < 1152	Resolution:180p30 Bit rate: 192 kbps Profile: Base	Resolution:360p15 Bit rate: 256 kbps Profile: High	Resolution:720p15 Bit rate: 512 kbps Profile: High	48kpps

SVC 1080p Operation Points

Conference Line Rate	Simulcast Stream-1	Simulcast Stream-2	Simulcast Stream-3	Audio
768 ≤ conf. rate < 1M	Resolution:180p30 Bit rate: 96 kbps Profile: Base	Resolution:360p30 Bit rate: 192 kbps Profile: High	Resolution:720p15 Bit rate: 432 kbps Profile: High	48kpps
512 ≤ conf. rate < 768	Resolution:180p30 Bit rate: 96 kbps Profile: Base	Resolution:360p30 Bit rate: 192 kbps Profile: High		48kpps
256 ≤ conf. rate < 512	Resolution:180p15 Bit rate: 64 kbps Profile: Base	Resolution:360p15 Bit rate: 128 kbps Profile: High		48kpps
192 ≤ conf. rate < 256	Resolution:180p30 Bit rate: 96 kbps Profile: Base			48kpps
128 ≤ conf. rate < 192	Resolution:180p15 Bit rate: 64 kbps Profile: Base			48kpps

SVC endpoint transmission/reception resolutions

Transmission	Reception			
	1080p Endpoint	720 Endpoint	360 Endpoint	Mobile Endpoint
1080p Endpoint	1080p	360p	360p	180p
720 Endpoint	720p	360p	360p	180p
360 Endpoint	360p	360p	360p	180
Mobile Endpoint	270p	270p	270p	135p

When observing the values in the table above, you can see that though endpoints send video using their own resolution, they can receive video only using one of the existing multicast streams.

Endpoint Experience

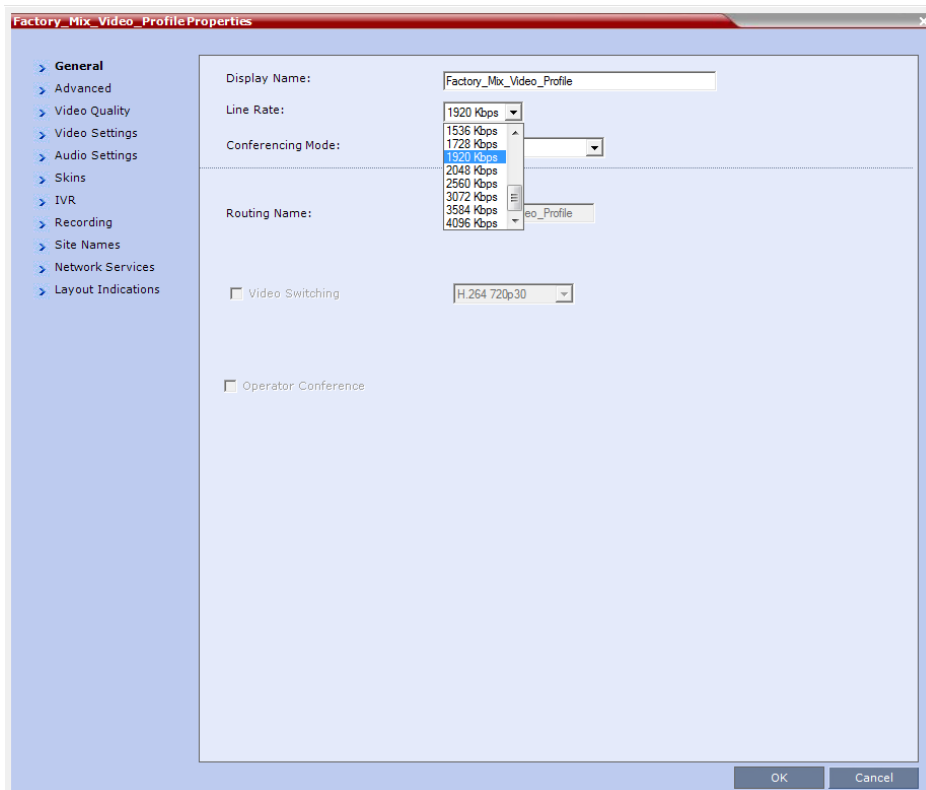
Image Resolution per Layout and Conference Line Rate

Layout	720p Endpoint		1080p Endpoint	
	Line rate ≤ 1920	Line rate > 2048	Line rate ≤ 2048	Line rate > 2048
1x1	360p	360p	1080p / 720p *	1080p
1x2	360p each	360p each	360p each	360p each
2x2	360p each	360p each	360p each	360p each
1+Z	<ul style="list-style-type: none"> 1 - 360p Z - 180p each 	<ul style="list-style-type: none"> 1 - 360p Z - 180p each 	<ul style="list-style-type: none"> 1 - 360p Z - 180p each 	<ul style="list-style-type: none"> 1 - 360p Z - 180p each

* Depending on image source

User Interface Aspects

The conference **Line Rate** pull-down list contains values up to 4M (4096 Kbps).



1080p Content in SVC Mode and Legacy Content in Mixed Mode



This feature is applicable for Collaboration Servers 1500/1800/2000/4000, and Virtual Edition.

Up until version 8.5, in Polycom RealPresence Collaboration Server, SVC-enabled (meaning, **SVC Only** and **Mixed CP and SVC**) conferences content parameters were limited to:

- Settings - Graphics
- Resolution / frame rate - HD720p5fps
- Profile - Base
- Bit rate - 128 Kbps

From version 8.5 and on, SVC-enabled conferences may use content parameters similar to those supported by the MCU for AVC only conferences, meaning:

- Content settings - Graphics, HiRes-Graphics, LiveVideo, Customized Content Rate.
- Content protocols - H.263, H.264
- Profiles - H.264 base and high profiles
- Resolution / frame rate- Up to 1080p60 fps
- Conference rate - Up to 4M (4096 Kbps)

In addition, instead of using fixed rates, the Highest Common principle is applied to protocol, profile, content rate, and resolution. This allows higher capability endpoints to enjoy better experience.

The remaining limitations are:

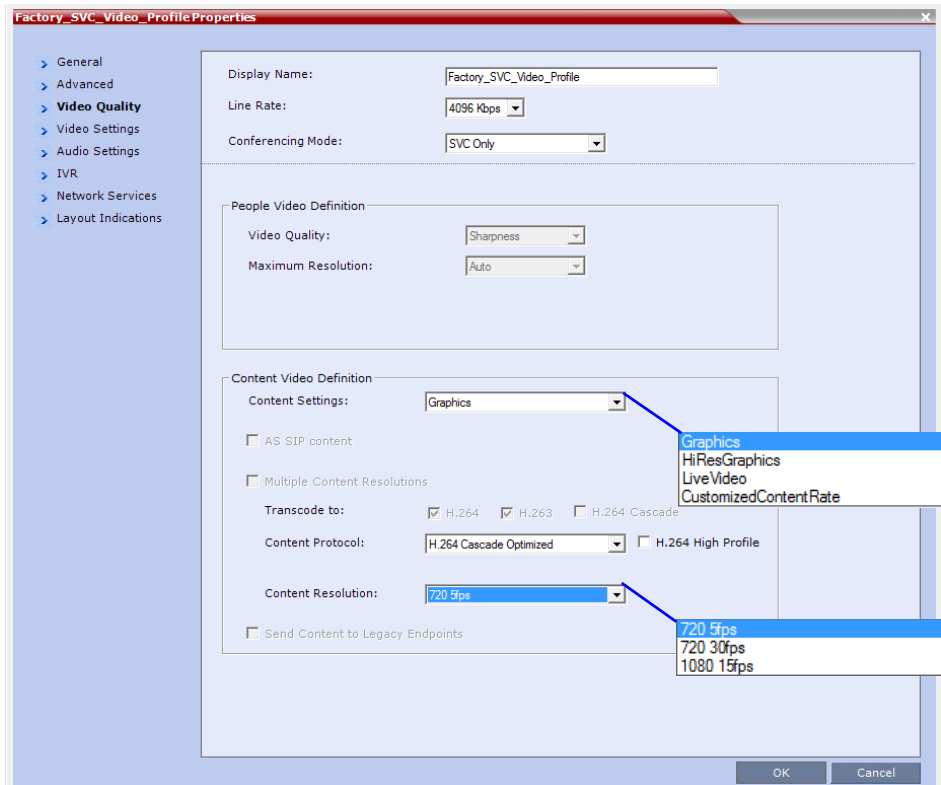
- **MPM Media card** - Collaboration Servers 1500/2000/4000 with MPMx media cards support only base profile, and content rates up to 1080p15 fps.
- **Soft MCU** - Though now supporting H.264 high profile, the Collaboration Server Virtual Edition supports content resolutions of up to 1080p15 fps.
- **Transcoding** - Content transcoding is performed on streams of up to 1080p15 fps.
- **TIP** - In TIP compatible conferences (**Prefer TIP** or **Video and Content**), content parameters are inherited from TIP content definitions. Since currently, TIP content is not supported in SVC-enabled conferences, the upgrade in content parameters cannot be observed.
- **RPD/RPM** - These endpoints support content limited to 720p5fps at 128 Kbps. Therefore, should the conference content setting be higher than these, the applying of the Highest Common principle, might result in downgrading of content sharing parameters.

Additionally, the option to send content to Legacy content endpoints is now enabled in Mixed AVC and SVC conferences. However, content can be sent only to AVC Legacy endpoints, since it utilizes the people

channel for the content, and in SVC conferences, this channel uses a technology which does not support content viewing.

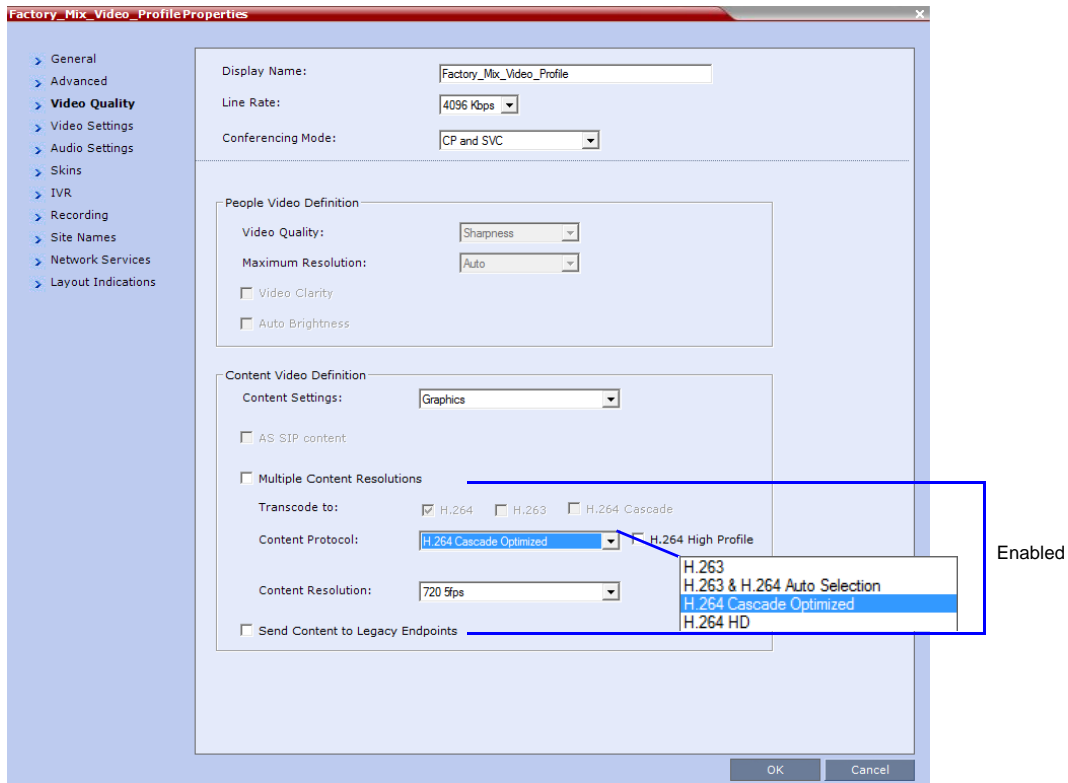
User Interface Aspects

- The option **H.264 Cascade** and **SVC Optimized** is now replaced with **H.264 Cascade Optimized**, since sharing content in SVC conferences is not limited to fixed rates from version 8.5.

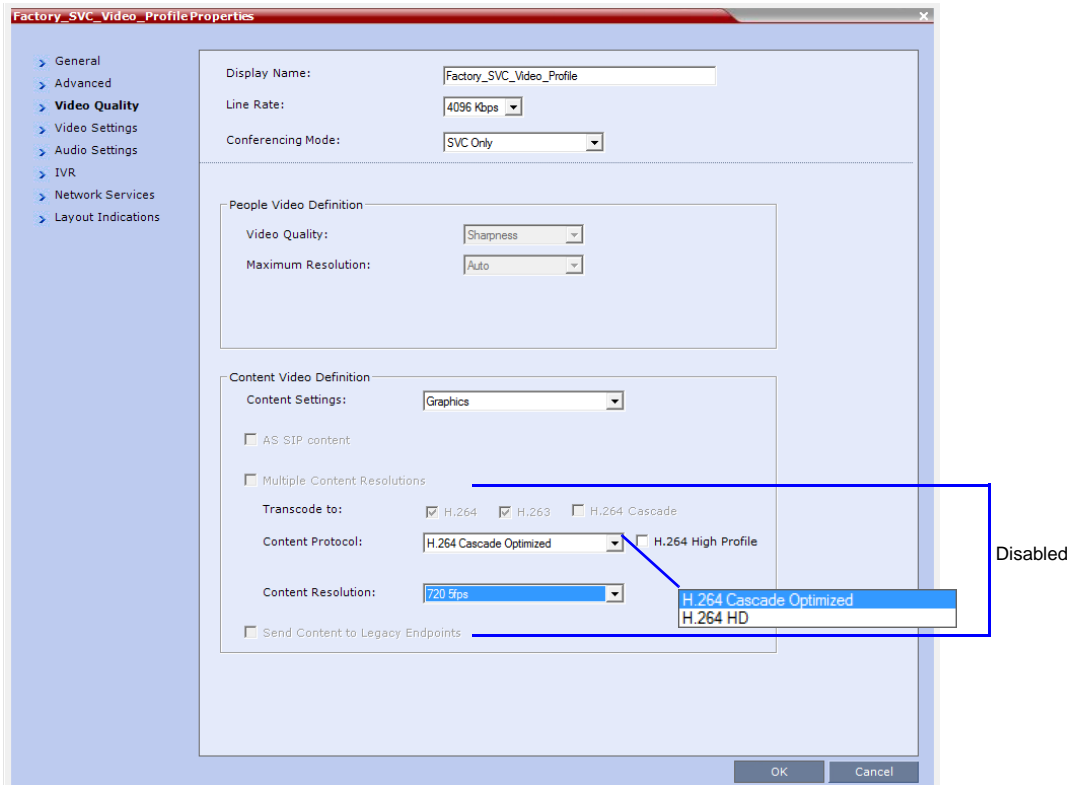


- All settings may be selected (before v8.5 - only **Graphics**)
- Content resolutions pull-down list includes 1080p30 and 1080p60 supposing conference rate is 4M, unless either **Multiple Content Resolutions** is selected, or in MCUs with MPMx media cards.

- In **Mixed CP and SVC** conferences:
 - **Multiple Content Resolutions** may be selected, though it is limited to 1080p15 resolution, as opposed to being limited to VSW content.
 - All **Content Protocol** usage modes can be selected, as opposed to being limited to **H.264 Cascade Optimized**.
 - **Send Content to Legacy Endpoints** can be selected (thus is enabled).



- In **SVC Only** conferences:
 - **Multiple Content Resolutions** cannot be selected, allowing VSW content only (no transcoding).
 - Both **H.264 HD** and **H.264 Cascade Optimized** may be selected, as opposed to being limited to **H.264 Cascade Optimized**.
 - **Send Content to Legacy Endpoints** cannot be selected (thus is disabled).



Performance Tables



- High profile is not applicable for Collaboration Servers 1500/2000/4000 with MPMx media cards.
- High profile in Collaboration Server Virtual Edition is limited to 1080p15 resolution.

Negotiation Rates for Base and High Profiles

The tables below describe the resolution as negotiated by the MCU according to the content rate, for base and high profiles.

Maximum Negotiated Resolution and Frame Rate per Content Rate for H.264 Base Profile

Bit Rate Allocated to Content Channel (Kbps)	Maximum Negotiated Content	
	Resolution	Frames/Second
64-512	H.264 HD720	5
512-768	H.264 HD720	30
768-1536	H.264 HD1080	15
1536-3072 *	H.264 HD1080	30
3072-4096 *	H.264 HD1080	60

* These line rates apply **only** to MCUs with MPMRx media cards, and Collaboration Server 1800.

Maximum Negotiated Resolution and Frame Rate per Content Rate for H.264 High Profile

Bit Rate Allocated to Content Channel (Kbps)	Maximum Negotiated Content	
	Resolution	Frames/Second
64-384	H.264 HD720	5
384-512	H.264 HD720	30
512-768	H.264 HD1080	15
768-2048	H.264 HD1080	30
2048-4096	H.264 HD1080	60

Highest Common

The tables below summarize the Highest Common, base and high profiles maximum content rates as negotiated by the MCU in single MCU (non-cascading) conferences. Newly introduced content rates are colored in Gold.

Highest Common Content Bit Rate for H.264 Base Profile

Content Settings / Resolution	64	128	256			768		1152				1920		3072		6144 *
	96	192	320	384	512	832	1024	1280	1472	1536	1728	2048	2560	3584	4096	
Graphics 33%																
≤ 1080p15		64	64	128	128	256	256	384	384	512	512	512	768	768	1280	1280
≤ 1080p30 **																2048
Hi-res Graphics 50%																
≤ 1080p15		64	128	192	256	384	512	512	512	768	768	1024	1280	1536	1536	1536
≤ 1080p30 **															2048	2048
≤ 1080p60 **																3072
Live Video 66%																
≤ 1080p15, AVC only		64	128	256	384	512	512	768	768	1024	1024	1280	1536	1536		1536
≤ 1080p15, SVC / Mixed								512		768						N/A
≤ 1080p30 **								768		1024				2048	2560	2048
≤ 1080p60 **																4096

* This line rate is applicable only for RealPresence Collaboration Server 1500/1800/2000/4000, non SVC-enabled conferences.

** These resolutions are applicable only for Collaboration Server 1500/2000/4000 with MPMRx media cards, and Collaboration Server 1800.

Highest Common Content Bit Rate for H.264 High Profile

Content Settings / Resolution	64	128	256	384	512	768	1024	1152	1472	1536	1728	1920	2560	3072	4096	6144 *
	96	192	320			832		1280				2048		3584		
Graphics 33%																
≤ 1080p15		64	64	128	128	256	256	384	384	512	512	512	768	768	1280	1280
≤ 1080p30																2048
≤ 1080p60																
Hi-res Graphics 50%																
≤ 1080p15		64	128	192	256	384	512	512	512	768	768	1024	1280	1280		
≤ 1080p30														1536	2048	2048
≤ 1080p60																3072
Live Video 66%																
≤ 1080p15		64	128	256	384	512	512	768	768	1024	1024	1280	1280			1280
≤ 1080p15, SVC-enabled					256			512		768						N/A
≤ 1080p30					384			768		1024			1536	2048	2048	2048
≤ 1080p60															2560	4096

* This line rate is applicable only for RealPresence Collaboration Server 1500/1800/2000/4000, non SVC-enabled conferences.

Fixed Rates

The tables below summarize the base and high profiles content rates as they are determined by the MCU in cascading conferences. The values in these tables are the same as in the H.264 Cascade and SVC Optimized from version 8.4, only the SVC is not included, since it now uses the Highest Common principle instead of fixed rates.

H.264 Cascade Optimized Content Bit Rate for H.264 Base Profile

Cascade Resolution	64	128	256	384	512	768	832	1152	1280	1472	1920	2048	3072	3584	4096	6144 *
	96	192	320				1024			1536		2560				
Graphics 33%																
720p5		64	64	128	128	256	256	256	256	256	256	512	512	512	512	512
720p30										512	512	512	512	512	512	768
1080p15											768	768	768	1152	1152	1152
1080p30 **																2048
1080p60 **		N/A														

H.264 Cascade Optimized Content Bit Rate for H.264 Base Profile

Cascade Resolution	64	128	256	384	512	768	832	1024	1152	1280	1472	1536	1728	1920	2048	2560	3072	3584	4096	6144 *
	96	192	320								1728				2560					
	Hi-res Graphics 50%																			
720p5		64	128	192	256	384	384	384	512	512	512	512	512	512	512	512	512	512	512	512
720p30									512	512	512	512	768	768	768	768	768	768	768	
1080p15											768	768	768	768	768	1152	1152			
1080p30 **																		2048	3072	
1080p60 **																				3072
Live Video 66%																				
720p5		64	128	256	384	512	512	768	768	768	768	768	768	768	768	768	768	768	768	768
720p30							512	768	768	768	768	768	768	768	768	768	768	768	768	768
1080p15									768	768	768	768	1152	1152	1152	1152	1152			
1080p30 **															2048	2048	2560	3072		
1080p60 **																				4096

* This line rate is applicable only for RealPresence Collaboration Servers 1500/1800/2000/4000, non SVC-enabled conferences.

** These resolutions are applicable only for Collaboration Servers 1500/2000/4000 with MPMRx media cards, and Collaboration Server 1800.

H.264 Cascade Optimized Content Bit Rate for H.264 High Profile

Cascade Resolution	64	128	256	384	512	768	832	1024	1152	1536	1728	1920	2048	2560	3072	3584	4096	6144 *		
	96	192	320						1280					2560						
	Graphics 33%																			
720p5		64	64	128	128	256	256	256	384	384	512	512	512	512	512	512	512	512		
720p30									512					768	768	768				
1080p15															768	1280	1280			
1080p30 **															768	1280	2048			
1080p60 **																				2048

H.264 Cascade Optimized Content Bit Rate for H.264 High Profile

Cascade Resolution	64	128	256						1152					2560		6144 *
	96	192	320	384	512	768	832	1024	1280	1536	1728	1920	2048	3072	4096	
									1472					3584		
Hi-res Graphics 50%																
720p5		64	128	192	256	384	384	384	512	512	512	512	512	512	512	512
720p30						384	384	512	512	512	768	768	768	768	768	768
1080p15								512	512	768	768	768	768	1280	1280	1280
1080p30 **										768	768	768	1024	1024	2048	2048
1080p60 **															2048	3072
Live Video 66%																
720p5		64	128	256	256	384	512	512	512	512	512	512	512	512	512	512
720p30						512	512	512	768	768	768	768	768	768	768	768
1080p15							512	512	512	768	768	768	1280	1280	1280	1280
1080p30 **									768	1024	1024	1280	1280	1280	2048	2048
1080p60 **															2560	4096

* This line rate is applicable only for RealPresence Collaboration Servers 1500/1800/2000/4000, non SVC-enabled conferences.

** These resolutions are applicable only for Collaboration Servers 1500/2000/4000 with MPMRx media cards, and Collaboration Server 1800.

4M A-symmetric Video at 1080p60 and Content at 1080p30 in Soft MCU



This feature is applicable for RealPresence Collaboration Server VE.

Before version 8.5, Polycom RealPresence Collaboration Server VE supported conferences with line rates limited to 1920Kbps.

From version 8.5 and on, 4M (4096 Kbps) lines rates are supported for AVC-CP conferences. This results in MCU supporting:

- Line rates of 4M at HD 720p and 1080p resolutions, and 2M at SD and CIF resolutions.
- A-symmetric 1080p60 video conferencing (in motion mode), with endpoint reception at 1080p60 and transmission at 720p60 - requires 4 HD720p30 resources.

Guidelines

- HD720p/1080p participants connecting 4M AVC-CP conferences use 4M call rates, in both motion and sharpness modes; however, CIF/SD participants connecting such a conference use only 1M call rates. The same applies when the same types of participants connect to 4M AVC-CP conferences via AVC-CP Entry Queues.
- In terms of capacity, 4M AVC-CP conferences connect to up to:
 - 20 HD720p30 4M participants.
 - 10 HD1080p30 4M participants.
 - 6 HD1080p60 4M participants.
- In terms of resources, Collaboration Server Virtual Edition includes:
 - 30 AVC-CP 720p30 ports
 - 15 AVC-CP 1080p30 ports
 - 10 AVC-CP asynchronous 1080p60 ports

These numbers apply to Collaboration Server Virtual Edition - high (32-core 2.9 GHz) systems. In Mid-24, Mid-16, and Small-8 systems, these numbers are reduced relatively to the number of cores (except Mid-24 which aspires to 1/2 capacity only, and not 3/4).
- A-symmetric 1080p60 video conferencing exists only in motion settings, with endpoints reception at 1080p60 and transmission at 720p60.
- The line rates are dependant on:
 - Configuration mode - Resource-Quality Balanced, Resource Optimize, Video Quality Optimize
 - Profile - Base, High
 - Mode - Sharpness, Motion

For bit rate values see [Bit Rate Specification](#) below.

Bit Rate Specification

Bit rates per configuration and resolution in Sharpness mode

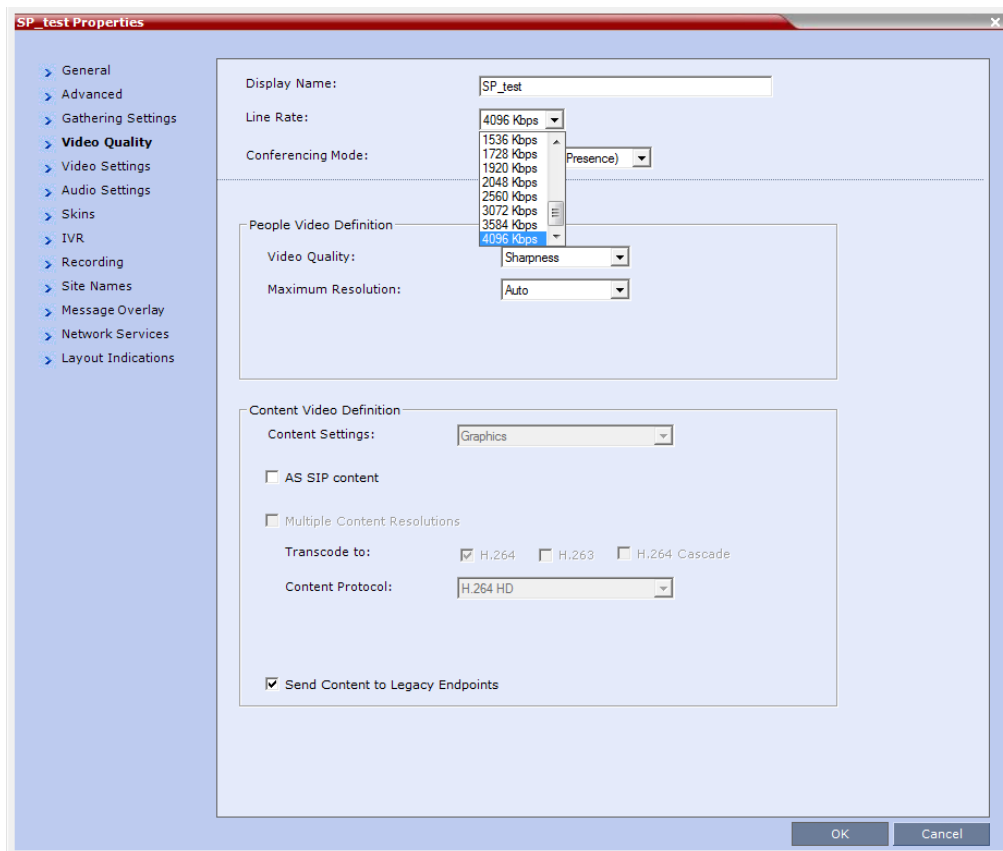
Resolution	Base Profile			High Profile		
	Resource-Quality Balanced	Resource Optimize	Video Quality Optimize	Resource-Quality Balanced	Resource Optimize	Video Quality Optimize
CIF 30						
SD 30	256	384	256	256	384	256
HD720 30	1024	1536	832	832	1280	512
HD1080 30	2048	2560	1728	1536	2560	1024

Bit rates per configuration and resolution in Motion mode

Resolution	Base Profile			High Profile		
	Resource-Quality Balanced	Resource Optimize	Video Quality Optimize	Resource-Quality Balanced	Resource Optimize	Video Quality Optimize
CIF 30						
CIF 60	384	384	256	256	384	256
SD 60	1024	1024	768	768	1024	512
HD720 60	1920	2560	1280	1280	2048	832
HD1080 60	3584	4096	3072	2560	3584	1728

User Interface Aspects

- Conference line rates in AVC-CP conferences may be up to 4096 Kbps, as shown below.

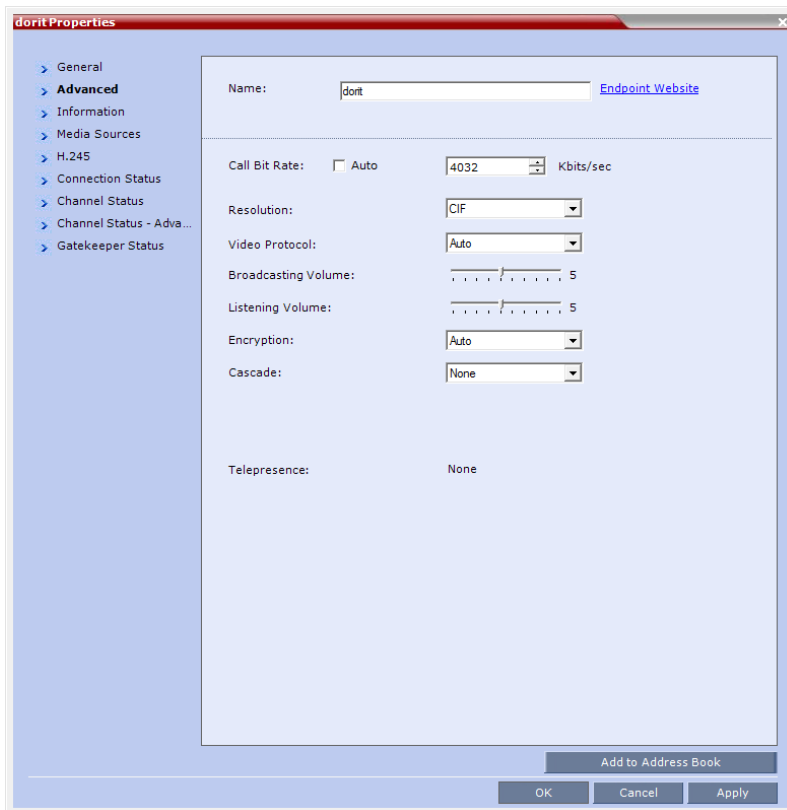


- In the **Resolution Configuration** window:
 - The slider reaches 4M.
 - The HD 1080p60 resolution appears only in **Motion** setting.

The screenshot shows the 'Resolution Configuration' window with the 'Motion' tab selected. It displays two sections: 'Base Profile' and 'High Profile', each with sliders for different resolutions. The 'Motion' tab is highlighted in blue.

Profile	Resolution	Current Setting (kbps)
Base Profile	CIF 30	64
	CIF 60	384
	SD 60	1024
	HD 720p60	1920
	HD 1080p60	3584
High Profile	CIF 30	64
	CIF 60	256
	SD 60	768
	HD 720p60	1280
	HD 1080p60	2560

- In the participant properties window, the maximum call rate is 4032 Kbps.



Lync 2013 Improvements

HD1080p Resolution Support

The Collaboration Server Hosted deployment supports HD1080p30 video resolution symmetrically for direct calls.

The MS AV MCU Cascade deployment supports HD1080p30 video resolution only if [Video Optimized](#) mode is selected and according to the settings of the **LYNC_AVMCU_1080p30_ENCODE_RESOLUTION** System Flag:

NO (Default) Video streams sent to and received from the MS AV MCU are HD720p30, SD, and CIF.

YES Video streams sent to the MS AV MCU are HD1080p30, SD, CIF. Video streams received from the MS AV MCU are 720p30, SD, and CIF.

Limit Maximum Resolution for MS SVC Using a System flag

The **MAX_MS_SVC_RESOLUTION** System Flag can be used to minimizing the resource usage by overriding the default resolution selection and limiting it to a lower resolution.

Range: AUTO, CIF, VGA, HD720, HD1080

Default: AUTO

The **MAX_MS_SVC_RESOLUTION** System Flag operates independently from the **MAX_RTV_RESOLUTION** System Flag allowing differing maximum resolutions to be selected for the MS SVC and RTV protocols.

If you want to modify System Flag values, the flags must be added to the System Configuration file. For more information see: [Modifying System Flags](#), [Video Resource Requirement Selection in Lync 2013 AVMCU Cascade](#) and [Controlling Resource Allocations for Lync Clients Using RTV Video Protocol](#) in the *RealPresence Collaboration Server (RMX) Administrator Guide*.

CSS Gateway for RDP and SIP BFCP Content

The CSS (RealPresence Content Sharing Suite) Gateway improves the Content interoperability between Lync clients and non Lync clients in a conference. Lync clients connected to a Lync AV MCU use their native Content protocol, RDP (Remote Desktop Protocol) and Polycom endpoints, use their native SIP BFCP Content protocol, to send or receive Content, to or from the CSS Gateway, which renders a RDP ↔ SIP BFCP Content stream.

The Gateway functionality was previously enabled by a combination of: Content Add-on for Lync; Content Sharing Server; and BFCP Content-Only Client Plug-in. These functionalities have been incorporated into the CSS, eliminating the need for plug-ins.

For more information see:

[RealPresence® Content Sharing Suite Administrator Guide](#)

[Unified Communications Deployment Guide for Microsoft Environments](#)

CSS Gateway Usage Guidelines

MS AV MCU Cascade is the only Deployment Architecture that is supported.

For more information see [Deployment Architecture 2 - MS AV MCU Cascade](#) in the *RealPresence Collaboration Server (RMX) Administrator Guide*.

One CSS RDP Gateway connection is supported per conference in the Collaboration Server, initiated by the DMA through the CSS server.

There is no Lync client associated with the CSS Gateway connection and even if the AV MCU is empty the CSS will be still be connected. The Collaboration Server does not consider the CSS RDP Gateway connection as a participant and if the conferences on both the Collaboration Server and the AV MCU are empty it will disconnect the CSS RDP Gateway and the AV MCU link.

When a Content sharing endpoint is detected by the Collaboration Server side the CSS RDP Gateway will receive BFCP message triggering the RDP session on the Lync side of the topology.

For backward compatibility the Collaboration Server will support Content sharing using either the CSS Gateway or the previous plug-in based Content sharing solution, however not in the same conference.

FEC (Forward Error Correction) Support

FEC is supported for RTV and MS SVC video protocols.

- FEC will be automatically turned on by the VSR (Video Source Request) message.

Redundant Audio Data (RED) is supported for the following Audio CODECS:

- G.722

- G.711A
- G.711U

The Collaboration Server transmits RED when packet loss is reported and stops sending RAD when packet loss is stopped.

For more information see [Lost Packet Recovery](#) in the *RealPresence Collaboration Server (RMX) Administrator Guide*.

IPv6 Support

In addition to IPv4, IPv6 is supported in Lync 2013 environments.

Following IP modes are supported for all network connections—ICE, Media, Management, Signaling, etc.:

- IPv4 only
- IPv6 only
- IPv4 & IPv6

As in previous versions, IPv4 Candidates are advertised first in the SDP.

IPv6 is not supported by Lync 2010. All dial out calls from the Collaboration Server are considered Lync 2010 calls and utilize IPv4.

Dial out calls from DMA to Lync environments are considered to be dial in calls from the Collaboration Server perspective.

The ANAT (Alternative Network Address Types) option is not applicable in Lync environments.

For more information see [IPv6 Addressing Guidelines](#) in the *RealPresence Collaboration Server (RMX) Administrator Guide*.

DHCPv6 Support for Auto IPv6 Address Assignment

DHCPv6 Auto IPv6 Addresses Assignment, as required by Lync 2013 environments is now supported.

As in previous versions, SLAAC (Stateless Address Auto Configuration) continues to be supported.

System behavior can be controlled by adding the **IPV6_AUTO_ADDRESS_CONFIGURATION_METHOD** System Flag and setting its value as required.

AUTO—(default) Use DHCPv6 first in case of failure use SLAAC.

SLAAC—Use SLAAC only.

For more information see, [Modifying System Flags](#) in the *Collaboration Server (RMX) Administrator Guide*.

Collaboration Server Managing Telepresence CP Layouts for AVC Endpoints

The Collaboration Server can be used to manage Continuous Presence Video Layouts using *Speaker Priority*, a new Telepresence Layout Mode.

Speaker Priority

The purpose of Speaker Priority Mode is to ensure that the current speaker in the conference is always displayed in the video layout, and displayed in the best way possible. If there is space in the layout while the current speaker is displayed, previous speakers are also displayed.

Reserved Screens

When Speaker Priority mode is selected:

- Each Room System reserves screens for displaying the active speaker in the largest video layout cell available.
- The Video Layout is not changed if a new active speaker is already displayed in the largest cell in the current layout.

The Speaker Priority option is selected in the Video Settings tab of the Profile dialog. For more information see [Changes to the Profile - Video Settings Dialog](#)

Screens are reserved according to the following table:

Number of Room System Screens	Reserved Screens per Maximum Number of Cameras in Conference (Local Camera Excluded)			
	1 Camera	2 Cameras	3 Cameras	4 Cameras
1	1	1	1	1
2	1	1	1	2
3	1	1	3	2
4	1	1	3	3 (If 3 cameras.)

The number of reserved screens depends on the maximum number of room-cameras connected to the conference.



Reserved screens include an Overlay Layout (Filmstrip) that is populated with other conference participants after the Grid Screen(s) have been fully populated with additional conference participants. See [Video Layout Examples](#).

Grid Screens

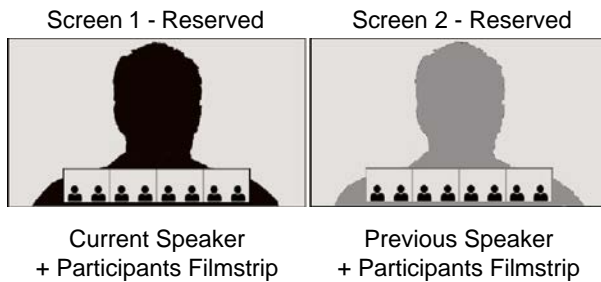
Grid screens are symmetric video layouts (2x2, 3x3, 4x4) that are populated with other conference participants after the Reserved Screens are populated with the current and previous speakers. See [Video Layout Examples](#).

Video Layout Examples

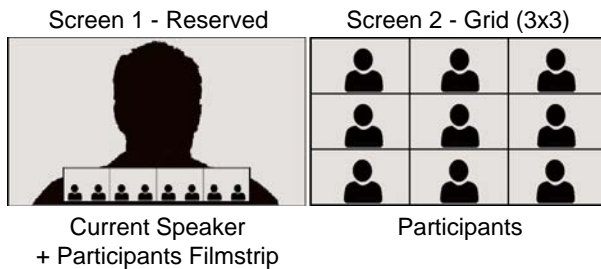
- A three-screen Room System will reserve three screens if another three-camera Room System participates in the conference. If the current speaker is using a single camera endpoint, the current speaker is displayed on the center screen while the two previous speakers are displayed, each on one of the other two screens.
- Irrespective of whether the receiving Room System has more screens than the active speaker's Room System:

- An active speaker’s two-camera room is displayed on one screen 
- An active speaker’s four-camera room is displayed on two screens. 
- Three-screen Room Systems (OTX / ATX) will not zoom out when Speaker Priority is selected.
- If a two-screen Room System is displaying a current speaker using a one-camera endpoint, and a previous speaker also using a one-camera endpoint, the following layouts will be displayed on the Room System’s two screens.

Room System - 2 Reserved Screens



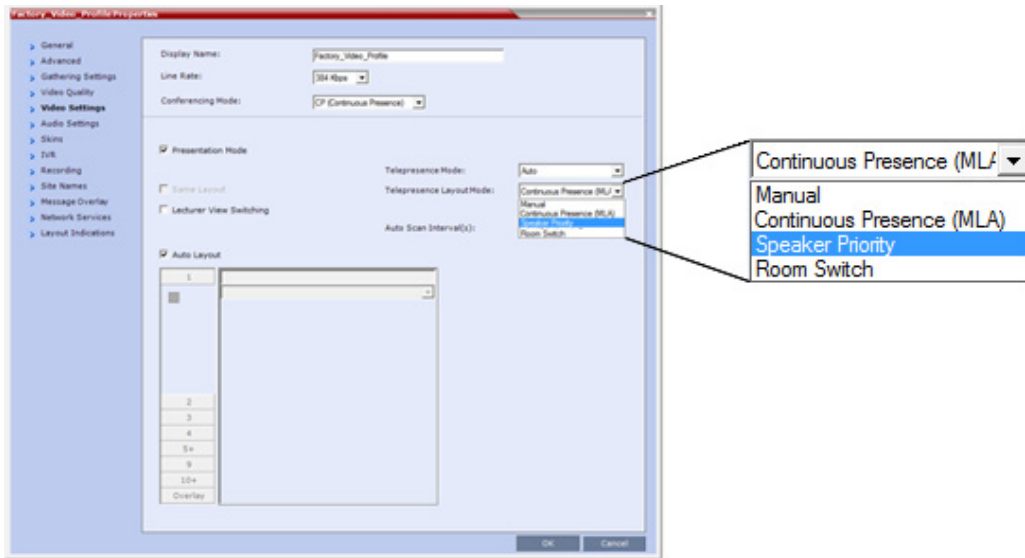
Room System - 1 Reserved Screen



Changes to the Profile - Video Settings Dialog

In the Video Settings tab of the Profile dialog, the Telepresence Layout Mode menu has been modified:

- Speaker Priority has been added as an option.
- Continuous Presence has been renamed Continuous Presence (MLA).



Telepresence Mode License

The Telepresence Layout Mode field is enabled only if the Collaboration Server system is licensed for Telepresence Mode.



AVC endpoints only

Telepresence features are currently only supported in AVC-CP conferences. SVC or SVC and CP Mixed Mode conferences are not supported.

RPP REST API Support in Version 8.5

In version 8.5, some changes were introduced into the REST (REpresentational State Transfer) API used by the RMX.

This mechanism uses the REST API interface as used across Polycom RealPresence Platform solution/products. For Polycom REST API documentation, see

The changes in the REST API support are described in the table below.

RMX REST API Modifications

RMX Property	Resources	Methods	Addition/Modification	Platforms
All REST API functionalities	All resources supported by RMX	PUT	Addition of Etag to PUT method. Allows clients to store data in Etag, retrieve updated resource via GET, modify to new resource in Etag, and update resource with data stored in Etag via PUT.	All MCUs
NTP plcm-time	https://localhost:8443/api/rest/config/time-config	PUT	When using PUT, allow replacing IP address with site name (via DNS) in the parameter ntp-server-list (NtpServerList).	All MCUs
Licensing server (FLEXERA)	https://localhost:8443/api/rest/config/licenses/license-status	GET	Added resource. Allows retrieval of license validity.	Virtual Edition

The table below summarizes the elements currently supported by the RMX.

RMX REST API supported functionalities

RMX Property	Resources	Methods	Functionality Description	Platforms
External CDRs plcm-cdr-client-config	https://localhost:8843/api/rest/config/cdr-client-config	GET PUT	CDR server configuration (IP/name, port, username, password, etc.)	All MCUs
NTP plcm-time	https://localhost:8443/api/rest/config/time-config	GET PUT	Time settings (enable/disable NTP, list of NTP servers)	All MCUs
Licensing server (FLEXERA) plcm-license	https://localhost:8443/api/rest/config/licenses/refresh-licenses	POST	Licensing server configuration (IP/name, port, and authentication information).	Virtual Edition
	https://localhost:8443/api/rest/config/licenses/authority-config	PUT	License refreshing.	
	https://localhost:8443/api/rest/config/licenses/license-status	GET	Returns the license status and associated features associated with this product.	

Advanced Network Resiliency

LPR-related content rate flags

Flag Name	Description	Range / Default	Modifying
LPR_CONTENT_RATE_ADJUST_WEAK_LPR	<p>When LPR is initiated by an endpoint in an AVC-CP conference due to experienced packet loss, the MCU reduces video rate (minimum is 64K) to avoid exceeding bandwidth.</p> <p>At times, further reduction is required to preserve the bandwidth, which is regulated by this system flag.</p> <p>Set this flag value to YES, to enable H.323 endpoints to reduce their content rate or LPR strength as follows:</p> <ul style="list-style-type: none"> • For single MCU conferences: <ul style="list-style-type: none"> ▲ VSW content - Drop content rate upon packet loss condition. ▲ Transcoding - Drop content rate upon packet loss condition for the protocol used by the endpoint experiencing the packet loss. • For cascaded conferences: <ul style="list-style-type: none"> ▲ VSW content - Decrease LPR strength (from 5% to 2%). ▲ Transcoding: <ul style="list-style-type: none"> <u>If packet loss occurs at one of the local endpoints</u>, drop content rate upon packet loss condition for the protocol used by the endpoint experiencing the packet loss. <u>If packet loss occurs at the cascaded link</u>, decrease LPR strength (from 5% to 2%). <p>If you set this flag to NO, the content rate is not reduced, and MCU packet loss protection is guaranteed for 5%.</p> <p>Note: This flag should not be set to YES in systems using TIP conferencing.</p>	YES, NO / NO	Requires manual addition with no system reset.

Added System Flag

Content rate system flag

Flag Name	Description	Range / Default	Modifying
ENABLE_CONTENT_OF_768_FOR_1024_LV	<p>Generally, the content rate used for 1024 Kbps conferences with a Live Video settings, is 512 Kbps.</p> <p>Set this flag to YES to increase the content rate in such a scenario to 768 Kbps. However, remember that video rate will decrease to 192K with typical audio rate of 64K.</p> <p>This flag is applicable for protocols supporting H.264 media protocol usage:</p> <ul style="list-style-type: none">• H.263 and H.264 auto selection• H.264 HD• H.264 Cascade Optimized	YES, NO / NO	Requires manual addition with no system reset.

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