

RELEASE NOTES

Polycom RealPresence Distributed Media Application (DMA)

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What's New in This Release

The Polycom RealPresence Distributed Media Application (DMA) system 10.0.0.7 includes the following new features:

- Zoom Conferencing
- Enhancements to Call History and Active Calls on RealPresence DMA Core Systems

Zoom Conferencing

RealPresence DMA 10.0.0.7 supports interoperability with Zoom conferences. In the RealPresence DMA system web interface, you can configure dial rules that enable both cascade dial-out and direct dial-out to Zoom conferences.

Polycom Immersive Telepresence (ITP) room systems are supported. Note that the cascade video stream from the Polycom RealPresence Collaboration Server to the Zoom room includes the video from all connected ITP rooms. Zoom users will see all ITP rooms participating in a single video call.

The following limitations apply to the H.323 cascade dial-out from the RealPresence Collaboration Server to Zoom conferences:

- Only Active Talker layout is supported.
- Virtual Entry Queue (VEQ) isn't supported on the RealPresence Collaboration Server.
- Passwords for Zoom conferences must be included within the dialstring:

```
[Meeting ID]. [Password]. [Layout]. [Host Key]@[IP Address]
```

Or

[Meeting ID]. [Password]. [Layout]. [Host Key]@zoomcrc.com

Entering the meeting password with touch tone isn't supported.

Dial-out Cascading to Zoom Conferences

To enable dial-out cascading to Zoom conferences, you need to add dial rules on the RealPresence DMA core system and edge system.

Add Dial Rules on the RealPresence DMA Core System

- 1 Go to Service Config > Dial Plan > Dial Plans.
- 2 Select the H.323 Dial Plan.
- 3 In Dial Rules, select the Add button to add a new dial rule.
- 4 Complete the following fields:
 - > **Description**: enter a brief description of the dial rule.
 - > Action: select Resolve to conference room with autodial.
 - > **Preliminary**: select this option.
 - > Dial string matching format: select General VaaS Service.
 - > Conference/User ID format: leave the default value.
 - > Domain format: enter zoomcrc.com.
 - > Dial type: select URI by Site Topology for H.323.
- 5 Do one of the following:
 - > Select OK.

RealPresence DMA will use the predefined preliminary script and all originating endpoints will join Zoom conferences via dial-out cascade.

- > Select the **Preliminary** tab and customize the script (see the following instructions).
- 6 Repeat the preceding instructions to add a dial rule to the SIP Dial Plan.

Customize the Preliminary Script in the Dial Rule (Optional)

- 1 In the **Preliminary** tab, select **Use customized script**.
- 2 Do one of the following:
 - To apply the dial rule to specific originating endpoints, add one of the following variables to the preliminary script:

```
CALLER_SIP_URI(sip)
CALLER_SITE_NAME(h.323/sip)
CALLER_E164 (h.323)
CALLER H323ID (h.323)
```

To have specific originating endpoints use cascade dial-out to Zoom conferences and other endpoints use direct dial-out, modify the following sample script as needed for your devices and environment:

```
// This is a sample script that gets the value of the attribute "User-
Agent" from the SIP Header, and stores it in the variable "ua". Please
modify the script for your purposes.
```

```
// The script then checks to see IF the value is either null (H.323
calls will have null user-agent, hence this rule will never match for
an H.323 call) OR it DOES NOT MATCH "PolycomRealPresenceTrio" (it seems
is a common prefix in the User-Agent attribute for all models and
versions of Trio, for example PolycomRealPresenceTrio-Trio_8800-
UA/5.9.3.8724), then it skips this rule and goes to the NEXT_RULE.
// ELSE, that is the User-Agent matches a Trio's ua, it resolves to
this dial rule. Similar match can be done for other types of endpoint
models.
```

```
var ua = getHeader("User-Agent");
```

```
if (ua === null || !ua.match("PolycomRealPresenceTrio")){
   return NEXT_RULE;
}
```

> Select OK.

Add a Dial Rule on the RealPresence DMA Edge System

- 1 Go to Service Config > Dial Plan > Dial Plans.
- 2 Select the H.323 Dial Plan.
- 3 In Dial Rules, select the Add button to add a new dial rule.
- 4 Complete the following fields:
 - > **Description**: enter a brief description of the dial rule.
 - > Action: select Resolve to external address.

- > Relay Media: select this option.
- > Use H.323 url-ID: select this option.
- > Use H.323 email-ID: select this option.
- 5 Select OK.

Direct Dial-out to Zoom Conferences

To enable direct dial-out to Zoom conferences, you need to add dial rules on the RealPresence DMA core system and edge system.

Add a Dial Rule on the RealPresence DMA Core System

- 1 Go to Service Config > Dial Plan > Dial Plans.
- 2 Select the H.323 Dial Plan.
- 3 In Dial Rules, select the Add button to add a new dial rule.
- 4 Complete the following fields:
 - > **Description**: enter a brief description of the dial rule.
 - > Action: select Resolve to external address.
 - > Use H.323 url-ID: select this option.
 - > Use H.323 email-ID: select this option.
- 5 Select OK.

Add a Dial Rule on the RealPresence DMA Edge System

- 1 Go to Service Config > Dial Plan > Dial Plans.
- 2 Select the H.323 Dial Plan.
- 3 In Dial Rules, select the Add button to add a new dial rule.
- 4 Complete the following fields:
 - > **Description**: enter a brief description of the dial rule.
 - > Action: select Resolve to external address.
 - > Relay Media: select this option.
 - > Use H.323 url-ID: select this option.
 - > Use H.323 email-ID: select this option.
- 5 Select OK.

Enhancements to Call History and Active Calls on RealPresence DMA Core Systems

In RealPresence DMA 10.0.0.7, when you configure license sharing between an unlicensed edge system and the core system, the call history and active call details shown on the core system include the hair-pin

calls that occurred on the unlicensed edge system. Hair-pin calls are processed by the edge system but aren't routed to the core system.

In the system web interface of the core system, information about hair-pin calls on the unlicensed edge system displays as follows:

- Reports > Call History > Ingress Cluster displays the FQDN of the unlicensed edge system
- **Reports > Call History > Show Call Details** displays the new **Shared license** field. When viewing a hair-pin call on an unlicensed edge system, the field value is **True**.
- Monitoring > Active Calls > Show Call Details > Call Info displays the new Shared license field. When viewing a hair-pin call on an unlicensed edge system, the field value is **True**.

Note: Not all call details display on the core system. To see complete call details, view them from the edge system.

In the system web interface of the unlicensed edge system, information about hair-pin calls displays as follows:

- Reports > Call History > Ingress Cluster displays the FQDN of the unlicensed edge system
- Reports > Call History > Show Call Details displays the new Shared license field. When viewing a hair-pin call or a call from the unlicensed edge system to a licensed peer, the field value is **True**.
- Monitoring > Active Calls > Show Call Details > Call Info displays the new Shared license field. When viewing a hair-pin call or a call from the unlicensed edge system to a licensed peer, the field value is True.

Security Updates

This release includes the following security updates.

Security Updates

Description	CVE Number(s)
Updated CentOS java-1.8.0-openjdk	CVE-2020-2583
	CVE-2020-2590
	CVE-2020-2593
	CVE-2020-2601
	CVE-2020-2604
	CVE-2020-2654
	CVE-2020-2659
Updated CentOS FreeType font engine	CVE-2015-9381
	CVE-2015-9382
Updated CentOS nss-softokn package	CVE-2019-11745
Updated CentOS sudo package	CVE-2019-14287
Updated CentOS kernel	CVE-2019-0155

Please see the <u>Security Center</u> for the security advisories, bulletins, and related acknowledgments and recognition.

Release History

The following table lists the release history of the RealPresence DMA system.

Release History

Release	API Release	System	Release Date	Features
10.0.0.7	3.6.5	CentOS 6.10 OpenJDK 1.8.0.252 PostgreSQL 10.13-1	July 2020	Support for Zoom conferencing Enhancements to Call History and Active Calls on core systems
10.0.0.6	3.6.5	CentOS 6.10 OpenJDK 1.8.0.232 PostgreSQL 10.11-1	March 2020	SIP transport override for outbound calls DNS timeout configuration Alerts for unlicensed systems Interface stability time for high availability systems KVM distribution Support for Microsoft LDAP channel binding
10.0.0.5	3.6.4	CentOS 6.10 OpenJDK 1.8.0.232 PostgreSQL 10.10-1	November 2019	Licensed VMRs dashboard pane in system web interface ACL rule to block SIP bot calls Support for 5x5 layout in conference templates Media relay support of unidirectional media streams Call routing loop detection Advanced diagnostics for troubleshooting Bug fixes
10.0.0.4	3.6.3	CentOS 6.10 OpenJDK 1.8.0.222 PostgreSQL 10.9-1	August 2019	License sharing and direct call routing Bug fixes
10.0.0.3	3.6.0	CentOS 6.10 OpenJDK 1.8.0.181-3 PostgreSQL 10.4-1	May 2019	Auto dial-out cascading to cloud service-based conferences Bug fixes

Release	API Release	System	Release Date	Features
10.0.0.2	3.6.0	CentOS 6.10 OpenJDK 1.8.0.181-3 PostgreSQL 10.4-1	February 2019	Maintenance release to fix issues
10.0.0.1	3.6.0	CentOS 6.10 OpenJDK 1.8.0_171 PostgreSQL 10.4	December 2018	Maintenance release to fix issues
10.0	3.6.0	CentOS 6.10 OpenJDK 1.8.0_171 PostgreSQL 10.4	October 2018	 Access proxy Access Control Lists (ACLs) Integration with multiple Polycom[®] ContentConnect ™ systems Support for ContentConnect High Availability and georedundancy Clariti VMR licensing and local burst Edge services High Availability (activeactive) Immersive Telepresence (ITP) layout (new) Media traversal MCU conference thresholds NAT Registration sharing from edge to core Pooled conference name synchronizing from the RealPresence Resource Manager system to RMX TURN services TIP version 8 support VPN tunnel
9.0.1	3.5.2	CentOS 6.9 OpenJDK 1.8.0_151 PostgreSQL 9.6.6	January 2018	Load balancer to support multiple Polycom ContentConnect systems Security updates Bug fixes
9.0.0.3	3.5.1	CentOS 6.9 OpenJDK 1.8.0_131 PostgreSQL 9.6.3	November 2017	Maintenance release to fix issues

Release	API Release	System	Release Date	Features
9.0.0.2	3.5.0	CentOS 6.9 OpenJDK 1.8.0_131 PostgreSQL 9.6.3	August 2017	New system web interface Multiple dial plans Enhanced High Availability Peer-to-Peer to MCU Escalation Two-system installation with the USB Configuration Utility Network packet capture troubleshooting utility Single log file downloads Enhanced network settings Revised security settings Licensing changes Revised superclustering Enhanced security features Bug fixes
6.4.1.8	3.4.6	CentOS 6.7 OpenJDK 1.8.0_77 PostgreSQL 9.5.2	December 2017	Maintenance release to fix issues
6.4.1.7	3.4.5	CentOS 6.7 OpenJDK 1.8.0_77 PostgreSQL 9.5.2	September 2017	Maintenance release to fix issues
6.4.1.6	3.4.4	CentOS 6.7 OpenJDK 1.8.0_77 PostgreSQL 9.5.2	July 2017	Maintenance release to fix issues
6.4.1.5	3.4.3	CentOS 6.7 OpenJDK 1.8.0_77 PostgreSQL 9.5.2	July 2017	Maintenance release to fix issues
6.4.1.4	3.4.0	CentOS 6.7 OpenJDK 1.8.0 PostgreSQL 9.4.4	June 2017	Maintenance release to fix issues
6.4.1.1	3.4.0	CentOS 6.7 OpenJDK 1.8.0 PostgreSQL 9.4.4	December 2016	Maintenance release to fix issues

Release	API Release	System	Release Date	Features
6.4.1	3.4.0	CentOS 6.7 OpenJDK 1.8.0 PostgreSQL 9.4.4	September 2016	Maintenance release to fix issues
6.4.0.1	3.4.0	CentOS 6.7 OpenJDK 1.8.0 PostgreSQL 9.4.4	September 2016	Maintenance release to fix issues
6.4.0	3.4.0	CentOS 6.7 OpenJDK 1.8.0 PostgreSQL 9.4.4	August 2016	Microsoft Skype for Business MCU Affinity Integration with the
				Polycom RealPresence Collaboration Server MMCU and RDP content translator
				Scheduled conference support for Microsoft Office 365
				Panoramic layout support for Microsoft Skype for Business
				Cleared SNMP traps API additions and changes
				Resolved some known issues
6.3.2.4	3.1.3	CentOS 6.7 OpenJDK 1.8.0 PostgreSQL 9.4.4		Maintenance release to fix issues
6.3.2.3	3.1.3	CentOS 6.7 OpenJDK 1.8.0 PostgreSQL 9.4.4	July 2016	Maintenance release to fix issues
6.3.2.2	3.1.3	CentOS 6.6 OpenJDK 1.8.0 PostgreSQL 9.4.4	May 2016	Maintenance release to fix issues
6.3.2.1	3.1.2	CentOS 6.6 OpenJDK 1.8.0 PostgreSQL 9.4.4	April 2016	Maintenance release to fix issues
6.3.2	3.1.2	CentOS 6.6 OpenJDK 1.8.0	March 2016	Support for RealPresence Clariti Resolved some known
		PostgreSQL 9.4.4		issues

Release	API Release	System	Release Date	Features
6.3.1.2	3.1.0	CentOS 6.6 OpenJDK 1.8.0 PostgreSQL 9.4.4	February 2016	Maintenance release to fix issues
6.3.1.1	3.1.0	CentOS 6.6 OpenJDK 1.8.0 PostgreSQL 9.4.4	February 2016	Maintenance release to fix issues
6.3.1	3.1.0	CentOS 6.6 OpenJDK 1.8.0 PostgreSQL 9.4.4	December 2015	Maintenance release to fix issues
6.3.0.2	2.7.3	CentOS 6.6 OpenJDK 1.8.0 PostgreSQL 9.3	September 2015	Maintenance release to fix issues
6.3.0.1	2.7.3	CentOS 6.6 OpenJDK 1.8.0 PostgreSQL 9.3	August 2015	Maintenance release to fix issues
6.3.0	2.7.2	CentOS 6.6 OpenJDK 1.8.0 PostgreSQL 9.3	June 2015	Enhanced CSR dialog Enhanced chairperson functionality for cascaded conferences
				External Microsoft Lync system integration
				Lobby support for Polycom RealConnect conferences
				Scheduled backups
				Signaling diagram
				SIP 302 redirect support
				Support for Polycom Rack Server 630 (R630)
				VEQ support for RealConnect conferences
				WebRTC conferencing
6.2.2.2	2.6.3	CentOS 6.6 Java 8u5 PostgreSQL 9.3	October 2015	Maintenance release to fix issues
6.2.2.1	2.6.3	CentOS 6.6 Java 8u5 PostgreSQL 9.3	September 2015	Maintenance release to fix issues

Release	API Release	System	Release Date	Features
6.2.2	2.6.3	CentOS 6.6 Java 8u5 PostgreSQL 9.3	August 2015	Maintenance release to fix issues

Products Tested with This Release

Poly tests the RealPresence DMA system with other products. The following tables list the products tested for compatibility with this release but don't include a complete inventory of compatible equipment.

Poly strives to support any system that is standards-compliant and investigates reports of Poly systems that don't interoperate with other standards-compliant vendor systems.

Note:	Poly recommends that you upgrade your Poly devices with the latest software versions, as
	compatibility issues may already have been addressed by software updates. See the Current
	Polycom Interoperability Matrix to match product and software versions.

Poly and Polycom Devices

Poly tested the following Poly and Polycom devices with this release.

Border Controllers

Product	Tested Versions
Polycom RealPresence Access Director	4.2.x

Call Processors / Gatekeepers / SIP Servers

Product	Tested Versions
Polycom RealPresence DMA Hardware Edition	10.0.0.7
Polycom RealPresence DMA Virtual Edition	10.0.0.7
Polycom RealPresence WebSuite MEA	2.2.1
Polycom RealPresence WebSuite WSP	2.2.1
Polycom Work Flow Server (OTD)	1.6.1

Endpoints

Product	Tested Versions
Poly G7500	3.0.2

Poly Studio X50 Poly Trio 8500	3.0.2 3.0.2 5.9.0
Poly Trio 8500	5.9.0
Poly Trio 8800	<u> </u>
	5.9.0
Polycom CX5500	1.3.4
Polycom RealPresence Centro	6.1.8, 6.2.0
Polycom RealPresence Immersive Studio	6.1.8, 6.2.0
Polycom RealPresence Immersive Studio Flex	6.1.8
Polycom Touch Control for Group Series	2.1.8
Polycom RealPresence Touch	2.1.8
Polycom Debut	1.3.2
Polycom RealPresence Group Series	6.1.8, 6.2.0
Polycom RealPresence Desktop for Mac	3.9.0
Polycom RealPresence Desktop for Windows	3.9.0
Polycom RealPresence Mobile for Android	3.9.0
Polycom RealPresence Mobile for Apple iOS	3.9.0
Polycom VVX UCS	5.8.0

Management Systems

Product	Tested Versions
Polycom RealPresence Resource Manager Hardware Edition	10.8.0
Polycom RealPresence Resource Manager Virtual Edition	10.8

MCUs

Product	Tested Versions
Polycom RealPresence Collaboration Server 1800	8.7.5, 8.8.0, 8.8.1, 8.9.0
Polycom RealPresence Collaboration Server 2000	8.7.5, 8.8.0, 8.8.1, 8.9.0
Polycom RealPresence Collaboration Server 4000	8.7.5, 8.8.0, 8.8.1, 8.9.0
Polycom RealPresence Collaboration Server Virtual Edition	8.7.5, 8.8.0, 8.8.1, 8.9.0

Recorders / Content Servers

Product	Tested Versions
Polycom Content Connect	1.6.2
Polycom Pano	1.1.1
Polycom Pano App	1.1.0
Polycom RealPresence MediaSuite Virtual Edition	2.8.2

Third-Party Devices

Poly tested the following third-party devices with this release.

Call Processors / Gatekeepers / SIP Servers

Product	Tested Versions
Cisco TelePresence Video Communication Server	8.8.1
Cisco Unified Communications Manager	12.0(1)
Microsoft Exchange 2016	15.1(Build-1466.3)
Microsoft Skype for Business 2015 (SfB) Server	6.0.9319.516

Endpoints

Product	Tested Versions
Avaya Scopia XT5000	08.03.07.0051 V8_3_7_51
Cisco DX70 / DX650	SIP10.2.5 & CE9.2.4
Cisco DX80	CE9.2.4
Cisco MX300 G2	CE9.2.4
Cisco TelePresence 500-32	6.1.13
Cisco TelePresence C40	TC7.3.14
Cisco TelePresence C60	TC7.3.14
Cisco TelePresence C90	TC7.3.14
Cisco TelePresence EX60	TC7.3.14
Cisco TelePresence EX90	TC7.3.12
Cisco TelePresence IX5000	8.3.1.1
Cisco TelePresence SX10	CE9.2.4

Product	Tested Versions
Cisco TelePresence SX20	CE9.2.4
Cisco TelePresence SX80	CE9.3.0
Cisco TelePresence TX1310	6.1.13
Cisco TelePresence TX9000	6.1.13
LifeSize Express 220	LS_EX2_5.0.9(2)
LifeSize Icon 600	LS_RM3_2.9.0 (1982)
Microsoft Lync Mac Client	16.17.65
Microsoft Skype for Business (SfB) 2016 Client	16.0.10228.20080
Microsoft SfB Client (Android-Phone)	6.21.0
Microsoft SfB Mobile Client (iOS-Phone)	6.21.1
Microsoft SfB Client (Android-Tablet)	6.21.0
Microsoft SfB Mobile Client (iOS-Tablet)	6.21.1
Microsoft Teams	1.3.00.4461

Hypervisor Environments for Virtual Edition

Product	Tested Versions
VMware vSphere®	6.5, 6.7
VMware vCenter® Server	6.5, 6.7
Microsoft Hyper-V	Microsoft Windows Server 2016, Datacenter edition
Kernel-based Virtual Machine (KVM)	1.5.3

Note: Poly supports mixed hypervisor environments but hasn't tested all configurations and combinations.

Compatible Products

The following table lists third-party products that use standard, open protocols and Poly expects these products to be compatible with this release. The list isn't exhaustive but includes many products tested with previous versions of the RealPresence DMA system.

Border Controllers

Product

Sonus SBC

Call Processors / Gatekeepers / SIP Servers

Product

Avaya Aura CM

Avaya Aura SM

Broadsoft Server

Cisco 3241 ISDN Gateway

Radvision Scopia P10 ISDN Gateway

Radvision ECS Gatekeeper

Microsoft Lync 2013 Server

Microsoft Skype for Business 2019 (SfB) Server

Unify OpenScape Branch

Unify OpenScape SBC

Unify OpenScape Voice Server

Endpoints

Product

Avaya 10XX

Avaya 1X Communicator

Avaya ADVD

Avaya Flare Desktop

Avaya Flare Mobile (iOS)

Avaya Scopia XT7000

Avaya Voice Phone

Broadsoft BTBC_Android (Mobile)

Broadsoft BTBC_Android (Tablet)

Broadsoft BTBC_iOS (Mobile)

Broadsoft BTBC_iOS (Tablet)

Broadsoft BTBC_PC

Cisco TelePresence 1300

Cisco TelePresence 150 MXP

Cisco TelePresence 1700 MXP

Cisco TelePresence 3010

Cisco TelePresence 500-37

Huawei TE30

Huawei TE40

IBM SameTime

TCSPI Adapter

LifeSize Team 220

Microsoft CX500/CX600

Microsoft Lync 2010 Client

Microsoft Lync 2015 Client

Microsoft Skype for Business 2019 (SfB) Client

Radvision Scopia XT1000

Sony PCS-XG100

Sony PCS-XG80

Unify OpenScape UC

Unify OpenScape UC Client

Unify OpenStage 60/80

MCUs

Product

Cisco 5310 MCU

Cisco TelePresence MCU 4505

Cisco TelePresence Server

System Requirements

Your client system and network performance must meet the following requirements before you install or upgrade to this release.

Hardware Requirements

Poly determined the following hardware requirements based on test scenarios. Your system's actual performance may vary based on software or hardware configurations.

To access the system web interface, use a client system running Microsoft Windows with the following hardware:

- 1280x1024 (SXGA) minimum display resolution; 1680x1050 (WSXGA+) or greater recommended
- USB and Ethernet ports
- DVD-RW drive or an external DVD burner (Appliance Edition only)

Software Requirements

The client system used to access the system web interface requires a web browser that supports HTML5. Microsoft Internet Explorer must be version 11 or later.

Network Performance Requirements

The following table describes RealPresence DMA system network connections and the related network performance requirements.

RealPresence DMA System Network Connections	Network Performance
Between clusters of a RealPresence DMA supercluster – core configuration	 Bandwidth above 10 Mbps, regardless of packet loss or latency
	 Less than 1 percent packet loss if network latency is 300 ms or less (one-way)
	or
	 No packet loss if network latency is below 350 ms (one-way)
Between two RealPresence DMA systems configured for High Availability – edge and core configurations	100 Mbps link
	Less than 200 ms round-trip latency
Between the RealPresence DMA system and all MCUs – core and combination system configurations	Less than 200 ms round-trip latency
	Less than 2 percent round-trip packet loss
	Since this network carries only signaling traffic (the RTP stream goes directly from the endpoint to the MCU), bandwidth is not an issue.

RealPresence DMA System Network Connections	Network Performance
Between the RealPresence DMA system and video endpoints – core, edge, and combination system configurations	Less than 200 ms round-trip latencyLess than 6 percent round-trip packet loss
Between the RealPresence DMA system and Microsoft Active Directory (if integrated) – core, edge, and combination system configurations	Less than 200 ms round-trip latencyLess than 4 percent round-trip packet loss

System Capabilities

The RealPresence DMA system is available in an Appliance Edition and a Virtual Edition.

If your RealPresence DMA system is licensed for more than 200 concurrent calls, the server you use must have 16 GB of RAM.

- If you use the Virtual Edition, you need to create a new virtual machine (VM) with the required 16 GB of RAM and at least 146 GB of hard disk space.
- If you use the Appliance Edition, you must use an R630 or R640 server, or a combination of two servers (see <u>Supported High Availability Cluster Configurations</u>). These servers come with 16 GB RAM.

Supported High Availability Cluster Configurations

The RealPresence DMA system supports two-system clusters configured for High Availability (HA) only with certain server and virtual instance combinations. The following table details the combinations of server models and Virtual Edition instances that can be configured for HA.

	Polycom Rack Server 630 (R630)	Polycom Rack Server 640 (R640)	Polycom Rack Server 220 (R220)	Polycom Rack Server 230 (R230)	RealPresence DMA Virtual Edition
Polycom Rack Server 630 (R630)	Supported	Supported	Not Supported	Not Supported	Supported ¹
Polycom Rack Server 640 (R640)	Supported	Supported	Not Supported	Not Supported	Supported ¹
Polycom Rack Server 220 (R220)	Not Supported	Not Supported	Supported	Supported	Supported ²
Polycom Rack Server 230 (R230)	Not Supported	Not Supported	Supported	Supported	Supported ²

Supported Two-System Combinations for High Availability Configuration

	Polycom Rack	Polycom Rack	Polycom Rack	Polycom Rack	RealPresence
	Server 630	Server 640	Server 220	Server 230	DMA
	(R630)	(R640)	(R220)	(R230)	Virtual Edition
RealPresence DMA Virtual Edition	Supported ¹	Supported ¹	Supported ²	Supported ²	Supported

¹ The default OVA settings for the VM match the specifications of the R630 and R640 servers.

² The default OVA settings for the VM must be adjusted to match the specifications of the R220 and R230 servers.

Appliance Edition

This version of the RealPresence DMA system, Appliance Edition, can be installed on the following Polycom servers:

- Polycom Rack Server 630 (R630)
- Polycom Rack Server 640 (R640)
- Polycom Rack Server 220 (R220) deployments with 200 or fewer licensed concurrent calls
- Polycom Rack Server 230 (R230) deployments with 200 or fewer licensed concurrent calls

Maximum Capabilities of Servers – Core Configuration

The maximum capabilities of the system differ with the server you are using. The following table lists the maximum capabilities of Polycom Rack Servers running a core configuration of the RealPresence DMA system software.

Maximum Capability	Polycom Rack Server 220/230	Polycom Rack Server 630/640
Number of sites	100	500
Number of subnets	1000	5000
Number of RealPresence DMA clusters in a supercluster	3	10
Number of clusters enabled for conference rooms	3	3
Number of MCUs enabled for conference rooms	5	64
Number of concurrent SIP<->H.323 gateway calls	200	500
Size of Active Directory supported	1,000,000 users and 1,000,000 groups (up to 10,000 groups maybe imported)	1,000,000 users and 1,000,000 groups (up to 10,000 groups maybe imported)

Maximum Capability	Polycom Rack Server 220/230	Polycom Rack Server 630/640
Number of contacts registered to a Skype for Business server per cluster	25000	25000
Number of network usage data points retained per cluster	8,000,000	8,000,000
Concurrent registrations per cluster	1600	15000
Total concurrent conference room (VMR) calls per cluster	200	1200 H.323 only 3600 SIP only
Total point-to-point concurrent calls per cluster	200	5000
Total concurrent conference room (VMR) calls for a supercluster ¹	600	3600 H.323 only 10800 SIP only ¹
Total point-to-point concurrent calls for a supercluster	600	50000

¹ To support 3600 H.323 or 10800 SIP calls, the supercluster must contain at least three clusters.

Maximum Capabilities of Servers – Edge/Combination Configuration

The following table lists the maximum capabilities of Polycom Rack servers with an edge or combination configuration of the RealPresence DMA system software.

Maximum Capabilities for Polycom Rack Servers 220/230 and 630/640 - Edge/Combination Configuration

Maximum Capability	Polycom Rack Server 220/230	Polycom Rack Server 630/640
Registrations	2000	5000
Concurrent calls ¹	200	1000
HTTPS tunnel calls (RealPresence Web Suite SIP guest calls only)	200	200
Throughput (Mbps)	700	700

¹ In a VPN tunnel configuration, the maximum concurrent call capacities are reduced.

Trial Licenses

All new RealPresence DMA Appliance Edition systems include a trial license for five concurrent calls. After you install purchased licenses, the trial license for five concurrent calls is no longer available.

If you deploy two RealPresence DMA Appliance Edition systems as an HA pair, the two systems combined include a trial license for five concurrent calls.

Virtual Edition

This version is available in an edition packaged for virtual-based deployment. Polycom supports the RealPresence DMA, Virtual Edition, in VMware, Microsoft Hyper-V, Microsoft Azure, Kernel-based Virtual Machine (KVM), and Amazon Web Services (AWS) environments.

Polycom supports mixed environments but hasn't tested all configurations and combinations.

New RealPresence DMA Virtual Edition systems don't include a trial license for calls.

Host Installation Guidelines

The RealPresence DMA, Virtual Edition, software package requires 146 GB hard disk capacity for standard installations.

Note: The only benefit to having greater hard disk capacity is the ability to store more log files.

If you deploy two systems as a high availability pair, one of which is a virtual instance and the other is a Polycom server, the profile of the VM should be consistent with the server's profile.

The following table describes the recommended VM host deployment settings for each instance of the RealPresence DMA system, Virtual Edition. It also shows the typical performance capacities of that deployment.

Recommended VM Host Deployment Settings

Component	Recommended Small Deployment Settings	Recommended Medium-Large Deployment Settings
Virtual Cores	6	12
Min. CPU Speed	2.4 GHz	2.4 GHz
Total Required GHz	14.4 GHz	28.8 GHz
Min. CPU Family	Haswell	Haswell
Memory	16 GB	16 GB
Storage	146 GB	146 GB
Random IOPS	110 total	210 total

Component	Recommended Small Deployment Settings	Recommended Medium-Large Deployment Settings
Performance	200 concurrent calls	RealPresence DMA core system: 5000 concurrent calls
		 Up to 1200 H.323 calls, not to exceed 5000 total calls
		 Up to 3600 SIP calls (encrypted or unencrypted), not to exceed 5000 total calls
		 Up to 5000 point-to-point calls, not to exceed 5000 total calls
		RealPresence DMA edge and combination systems: 1000 concurrent calls

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

Installation and Upgrade Notes

You can upgrade previous versions of the RealPresence DMA system software to version 10.0.0.7 (see <u>Supported Upgrade Paths – RealPresence DMA System</u>). You can also upgrade the RealPresence Access Director system to version 10.0.0.7 of the RealPresence DMA system (see <u>Supported Upgrade Paths – RealPresence Access Director System</u>).

When you log into the <u>Poly Online Support Center</u>, you can download the 10.0.0.7 upgrade package and any interim upgrade packages you need for both the Appliance Edition and Virtual Edition.

See the *Polycom RealPresence DMA System Administrator Guide* for instructions on how to upgrade the RealPresence DMA system or RealPresence Access Director system.

See the *Polycom RealPresence DMA System Getting Started Guide* for instructions on how to install and license your product.

Supported Upgrade Paths – RealPresence DMA System

You can upgrade to version 10.0.0.7 of the RealPresence DMA system only from version 9.0.x or 10.0.x.

If your RealPresence DMA system is running a version prior to 9.0.x, you must perform interim upgrades before you can upgrade to version 10.0.0.7.

Do not perform a new installation of version 10.0.0.7 and then restore a backup of a non-supported version. You must upgrade a non-supported version to one of the supported versions before upgrading to 10.0.0.7.

Note: If you have a system running version 6.4.x that has two default territories and is integrated with a RealPresence Resource Manager system, you must delete one of the territories before you upgrade to version 10.0.x. If you upgrade without deleting one of the default territories, the

system displays an error when you attempt to change some user settings. To resolve the error, remove your integration with the RealPresence Resource Manager system, then reintegrate.

Your upgrade to version 9.0.1 or 10.0.0.7 may be blocked if you are running one of the following versions of the RealPresence DMA system on a Polycom Rack Server 630 (R630). In this case, you must upload and install DELL-HW-Utility.bin before upgrading to 9.0.1 or 10.0.0.7.

- 6.4.1.3
- 6.4.1.4
- 6.4.1.5
- 6.4.1.6
- 6.4.1.7
- 9.0.0
- 9.0.0.1
- 9.0.0.2

The following table outlines the supported paths you can use to upgrade to this version. Read the release notes for each version in your upgrade path to review any upgrade notes.

Supported Upgrade Paths: RealPresence DI	MA System to RealPresence	DMA System, Version 10.0.x
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Current Version		Intermediate Upgrade		Intermediate Upgrade		Intermediate Upgrade		Final Upgrade	New License Required?
5.0.x 5.1.x 5.2.0	<i>→</i>	5.2.1	<i>></i>	6.2.2.2	<i>></i>	6.4.1.1	<i>></i>	9.0.1	Yes
5.2.1 5.2.2.x 6.0.x	<i>→</i>	6.2.2.2			<i>></i>	6.4.1.1	<i>></i>	9.0.1	Yes
6.1.x 6.2.x 6.3.x					<i>></i>	6.4.1.1	<i>></i>	9.0.1	Yes
6.4.0.x 6.4.1 6.4.1.1 6.4.1.2							<i>→</i>	9.0.1	Yes
6.4.1.3 6.4.1.4 6.4.1.5 6.4.1.6 6.4.1.7					→	DELL-HW Utility (only if using Polycom R630 server)	<i>></i>	9.0.1	Yes
6.4.1.8							<i>></i>	9.0.1	Yes

Current Version	Intermediate Upgrade	Intermediate Upgrade		Intermediate Upgrade		Final Upgrade	New License Required?
9.0.0 9.0.0.1 9.0.0.2			<i>></i>	DELL-HW Utility (only if using Polycom R630 server)	→	10.0.0.7	Yes
9.0.0.3					\rightarrow	10.0.0.7	Yes
9.0.1.x					\rightarrow	10.0.0.7	Yes
10.0.x					\rightarrow	10.0.0.7	No

Supported Upgrade Paths – RealPresence Access Director System

The following table outlines the supported path you can use to upgrade the RealPresence Access Director system to this version of the RealPresence DMA system.

Supported Upgrade Paths: RealPresence Access Director System to RealPresence DMA System, Version 10.0.x

Current Version	Intermediate Upgrade	Intermediate Upgrade		Intermediate Upgrade		Final Upgrade	New License Required?
4.1.x or earlier		-	>	4.2.x	>	10.0.0.7	Yes

Upgrading the RealPresence DMA System

Upgrading the RealPresence DMA system typically takes approximately 30 to 60 minutes but can sometimes take longer. Once you start the upgrade process, don't reboot the server.

If you upgrade a RealPresence DMA system from version 9.0.x to 10.0.x and a RealPresence Access Director system from version 4.2.x to 10.0.x at the same time, Poly recommends the following:

- First, upgrade your RealPresence DMA system from version 9.0.x to version 10.0.x. The 10.0.x system automatically includes a core configuration.
- Next, upgrade your RealPresence Access Director system from version 4.2.x to version 10.0.x The 10.0.x system automatically includes an edge configuration.

Note the following:

- A RealPresence Access Director system, version 4.2.x, operates with a RealPresence DMA coreconfigured system (version 10.0.x or later).
- A RealPresence DMA edge-configured system (version 10.0 or later) doesn't operate with any older versions of the RealPresence DMA system.

If your RealPresence DMA system is integrated with a RealPresence Collaboration Server, upgrade the RealPresence DMA system to version 10.0.x before upgrading the RealPresence Collaboration Server to version 8.8 or later.

Upgrading the RealPresence Access Director System to the RealPresence DMA System

You can upgrade version 4.2.x of the RealPresence Access Director system to version 10.0.x of the RealPresence DMA system. A new license is required.

Upgrading a RealPresence Access Director system to a RealPresence DMA system is a major upgrade. Configuration changes are required after upgrading to ensure that the RealPresence DMA edge system functions like your RealPresence Access Director system did.

Resolved Issues

The following table lists the issues resolved in this release.

Resolved Issues

Category	Issue ID	Found in Release	Description
Backup and Restore	EN-173725	10.0	Users can't restore certificate and audit information on a supercluster node without removing it from the supercluster.
Call Detail Records	EN-177024	10.0	The REST API user pass-through to CDR information isn't populated in the CDR report.
Call History	EN-174331	10.0.0.6	The RealPresence DMA system displays an invalid originator name and IP address in Call History > Call Details > Call Info .
Certificates	EN-173257	10.0	A RealPresence DMA edge system doesn't allow the & symbol in the Organization name in a certificate signing request.
Certificates	EN-175268	10.0	During Joint Interoperability Test Command (JITC) testing, a RealPresence DMA system fails to validate a certificate when Online Certificate Status Protocol (OCSP) is enabled.
Dial Rules	EN-176426	10.0.0.6	The RealPresence DMA core system uses UDP to send an outbound call to the RealPresence DMA edge system, even when the SIP Transport override option in the dial rule specifies a different transport protocol.
H.323 Calls	EN-166211	10.0.0.5	A RealPresence DMA core system doesn't remove the string partadial - from the dial-out cascade call to a Zoom conference, causing the call to fail.

Category	Issue ID	Found in Release	Description
MCU	EN-175352	10.0.0.6	An MCU pool order can't be deleted after deleting the MCU pools.
Presence Publishing	EN-157662	10.0.0.3	A RealPresence DMA supercluster with presence publishing enabled for VMRs displays incorrect presence status for Active Directory-synced VMRs.
Provisioning	EN-175075	10.0.0.6	The Polycom RealPresence Desktop application can't be provisioned.
RealPresence Access Director Integration	EN-175791	10.0.0.6	A RealPresence DMA single-NIC edge system federated with a RealPresence Access Director doesn't change the internal signaling IP address to the NAT/public IP address in the callSignalAddress field of the Location Confirm message.
RealPresence Resource Manager Integration	EN-158249	10.0.0.4	In the RealPresence Resource Manager system web interface, the Endpoint > Monitor View page displays incorrect statuses for Synced RealPresence DMA Endpoints .
Registration Policy	EN-177082	10.0	The REG_SITE_NAME variable is always empty in the Registration Policy script debugging tool.
System Log Files	EN-160257	10.0.0.5	The System Log Files page refreshes automatically but should require users to refresh the page manually.
System Performance	EN-167943	9.0.1	RealPresence DMA API subscription updates may have a slow response time.
System Performance	EN-168874	10.0.0.4	After a primary RealPresence DMA system reboots, the host VMR service doesn't resume for approximately 30 minutes.
System Performance	EN-169045	10.0.0.5	A RealPresence DMA edge system has packet loss when media packets arriving at the system are bursty, which reduces call audio and video quality.
System Performance	EN-173586	10.0.0.4	An external endpoint provisioned by RealPresence Resource Manager through the RealPresence Access Director has intermittent one-way video when dialing in to a RealPresence DMA VMR.
System Performance	EN-176154	10.0.0.6	An H.323 Radvision stack issue causes H.323 calls to fail.
System Performance	EN-176258	10.0.0.5 10.0.0.6	The RealPresence DMA system runs out of memory when a SIP dialog leak occurs if no response is received from a remote system.
System Web Interface	EN-175137	10.0	After uploading a backup file on a superclustered RealPresence DMA system, the Confirm Restore window automatically displays with options to restore system backup components.

Category	Issue ID	Found in Release	Description
System Web Interface	EN-178246	10.0.0.6	The Max Participants field in User > Users > Manage Conference Rooms is blank after searching for Room ID.
System Web Interface	EN-178251	10.0.0.6	A user can search for another user's meeting rooms and also view the conference passcode for the meeting rooms.
System Web Interface	EN-178856	10.0.0.6	The Max Participants specified in User > Users > Add/Edit Conference Room doesn't work accurately because the RealPresence DMA double-counts H.323 calls across a supercluster.
Upgrading	EN-174643	10.0.0.6	After upgrading a non-HA RealPresence DMA system to version 10.0.0.6, Skype direct VMR calls and some endpoint TLS calls fail.
VMR Calls	EN-172148	10.0	When a RealPresence DMA system in a supercluster processes a large number of queries for the /api/rest/mcus page, VMR calls to a separate RealPresence DMA in the supercluster fail.
Zoom Calls	EN-178949	10.0.0.6	A Zoom client doesn't receive content when calling through a RealPresence DMA edge system.

Known Issues

The following table lists the known issues in this release.

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IMPORTANT: These release notes do not provide a complete listing of all known issues for the software.
Issues not expected to significantly impact customers with standard voice and video conferencing environments may not be included. In addition, the information in these release notes is provided as-is at the time of release and is subject to change without notice.
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Known Issues

Category	Issue ID	Found in Release	Description	Workaround
Access Control Lists	EN-128836	10.0.x	When using Internet Explorer to access the system web interface, a RealPresence DMA edge system doesn't save the custom variable values that can be added to ACL Variables.	
API	EN-130890	9.0.1	The RealPresence DMA system has replication delays caused by excessive API updates from the workflow server.	

Category	Issue ID	Found in Release	Description	Workaround
API	EN-165058	10.0	The RealPresence DMA system doesn't provide output when querying /api/rest/active-calls?page=2 and the number of active calls is greater than 500.	
Backup and Restore	EN-109539	9.0.1	The backup-restore.sh file fails to restore a configuration backup if the filename contains special characters such as parentheses. The system web interface doesn't prevent the file upload.	
Backup and Restore	EN-156465	10.0	The RealPresence DMA proximo service doesn't load if you restore a backup from another RealPresence DMA system without restoring the IP configuration.	
Call Detail Record (CDR)	EN-104927	9.0.1	A CDR exported from the RealPresence DMA system contains no data.	
Call Event Details	EN-125424	10.0.0.2, 10.0.0.3	During RealConnect calls with the Polycom ContentConnect system, the RealPresence DMA system's call event details show the PCC IP address with the name of the RealPresence Collaboration server instead of the name of the PCC system.	
Conference Template	EN-107775	9.0.1	An error occurs when setting the line rate in Conference Templates back to 1920 Kbps: The customized content rate value '1920' is not valid for specified line rate value '1920' and H239 settings value 'HIREGRAPHICS.'	
DNS	EN-112724	9.0.1.1	RealPresence DMA delays 5 to 10 seconds to respond to an inbound SIP INVITE if the primary DNS server doesn't respond. The RealPresence DMA system doesn't display an alert or include an error in the logs to indicate the primary DNS is unresponsive.	
High Availability	EN-158408	10.0	High Availability can't be enabled from a RealPresence DMA edge system.	
Logs	EN-148417	10.0.0.3	Unable to roll logs or download active logs on a RealPresence DMA system.	

Category	Issue ID	Found in Release	Description	Workaround
Microsoft Lync Integration	EN-158321	10.0	The RealPresence DMA system can't allocate MS Lync Conference Auto Attendant (CAA) contacts and CAA calls fail.	
Network Settings	EN-130185	10.0	The RealPresence DMA system's network settings can't be changed after allocating the management service to a bonded interface.	
Network Usage	EN-164650	10.0	A Network Usage file exported from the system web interface can't be opened (networkUsageExport.zip)	
Network Usage	EN-170805	10.0.0.5	Network Usage reports include cluster names but not site names and display inconsistent values for Bitrate limit , Bandwidth limit , Bandwidth usage , and Bandwidth usage percent .	
RealPresence Access Director to RealPresence DMA Upgrade	EN-150437	10.0.0.4	A RealPresence Access Director upgrade to a RealPresence DMA edge system generates a <i>port conflict</i> <i>detected</i> alert. Restoring the defaults changes the ports to a different range and resolves the alert, but H.323 calls fail since the range changed and the firewall wasn't configured for the change.	
RealPresence Collaboration Server	EN-91544	9.0.1	When you set a RealPresence Collaboration Server's Microsoft AVMCU cascade link to auto- reconnect, the cascade link auto- reconnects even when there are no participants in the conference and a new Skype for Business client can't join the conference.	
RealPresence Resource Manager Integration	EN-148061	10.0	Integration with a RealPresence Resource Manager fails and the error message Invalid RPRM version displays on the RealPresence DMA.	

Category	Issue ID	Found in Release	Description	W	orkaround
Registration Policy Script	EN-181151	10.0.0.7	An illegal argument exception occurs when you attempt to debug a registration policy script before you save the registration policy.	1.	In the system web interface, go to Service Config > Access Control > Registration Policies.
				2.	Select Add.
				3.	Enter a Registration policy compliance script.
				4.	Select OK.
				5.	Select the registration policy, then select Edit .
				6.	Select Debug this Script.
Sites	EN-147536	10.0.0.3	Direct VMR calls from Microsoft Skype for Business clients fail from sites that don't have a site link to the internet site.		
System Web Interface	EN-178546	10.0	After performing a restart from the system web interface, the interface is unavailable.		
System Web Interface	EN-179452	10.0	The system web interface doesn't allow use of the \ character in the Username field within the remote FTP backup configuration menu.		
VMR	EN-155765	10.0	The RealPresence DMA system routes calls originally destined for a VMR to the RealPresence Collaboration Server's default entry queue.		

System Constraints and Limitations

The following table lists limitations of the RealPresence DMA system or other products that may cause interoperability issues.

Interoperability Limitations

Product	Description	Workaround
Polycom RealPresence DMA	SIP calls to any SIP endpoint or Video as a Service (VaaS) won't connect if the far-end endpoint requests an increase in bandwidth.	 Possible solutions: Use total bandwidth limits for sites and site links in the RealPresence DMA system instead of bandwidth limits percall. Reconfigure endpoints/VaaS service bandwidth limits to values like the bandwidth values set in the RealPresence DMA system. Re-evaluate the use of bandwidth limitations in the network and in the RealPresence DMA system.
Polycom RealPresence Group Series	When a RealPresence Group Series system is registered to a RealPresence DMA system and hosts an encrypted conference, Cisco C-series endpoints that are registered to the RealPresence DMA system and dial in to the conference can't complete the SSL handshake with the RealPresence Group Series system's MCU.	Dial out from the RealPresence Group Series system to the Cisco endpoints.
Polycom HDX endpoints	A Polycom HDX endpoint using the RealPresence DMA system as its SIP registrar is unable to complete a point- to-point call to a Microsoft Lync or Skype for Business client.	In the RealPresence DMA system, edit the Microsoft external SIP peer on the External SIP Peers page and enable the Postliminary feature.
Polycom HDX endpoints	Polycom HDX endpoints can be used with Lync Server but don't support Skype for Business video conferencing.	
Polycom HDX endpoints, Poly Trio	DMA does not support H.264 high profile (HP) for SIP <-> H.323 calls.	
Sony, Radvision, Avaya, and Polycom VVX endpoints	In the RealPresence DMA system, the Terminate calls based on failed responses to IRQs call server setting is enabled by default, causing some Sony, Radvision, Avaya, and Polycom VVX endpoints to be disconnected during conferences.	In the RealPresence DMA system, disable the Terminate calls based on failed responses to IRQs call server setting.

Product	Description	Workaround
Various endpoints	The RealPresence DMA system version 6.4 or later doesn't support certificates with an RSA key size less than 1024 bits in length. Manufacturers of some endpoints have not yet enhanced their software to support more secure encryption. As a result, TLS connections made from the RealPresence DMA system to some endpoints no longer work.	
Cisco SX endpoints	When Cisco SX devices running CE 8.X software are registered to the RealPresence DMA system using SIP/TLS, SSL handshake failures between the Cisco SX and RealPresence DMA system during establishment of SIP/TLS connections can result in call failures.	Add a certificate to the Cisco SX device and enable the certificate for use with SIP. See the <i>Cisco SX CE 8.X Administrator Guide</i> on the Cisco website for additional details.
Microsoft Skype for Business and Polycom RealPresence Desktop	When Microsoft Skype for Business and Polycom RealPresence Desktop are connected in a point-to-point call, the call doesn't include video media. When Microsoft Skype for Business and Polycom RealPresence Desktop are connected in a VMR call, the call does include video.	As an alternative to a point-to-point call, if Skype for Business joins a VMR or RealConnect conference with RealPresence Desktop, the conference includes video.
Microsoft Skype for Business and Polycom RealPresence DMA virtual entry queues	On RealPresence DMA systems, virtual entry queues (VEQs) don't support direct dialing from Skype for Business clients into the RealPresence Platform.	
Microsoft Skype for Business and Polycom RealPresence DMA presence publishing	After editing a VMR in the RealPresence DMA system, Skype for Business clients experience a delay in updating presence information.	

Get Help

For more information about installing, configuring, and administering Poly products or services, go to the <u>Poly</u> site, click Support, and choose the option best suited to your needs.

Related Poly and Partner Resources

See the following sites for information related to this product.

- The <u>Poly Online Support Center</u> is the entry point to online product, service, and solution support information including Licensing & Product Registration, Self-Service, Account Management, Product-Related Legal Notices, and Documents & Software downloads.
- The <u>Polycom Documentation Library</u> provides support documentation for active products, services, and solutions. The documentation displays in responsive HTML5 format so that you can easily access and view installation, configuration, or administration content from any online device.
- The <u>Polycom Community</u> provides access to the latest developer and support information. Create an account to access Poly support personnel and participate in developer and support forums. You can find the latest information on hardware, software, and partner solutions topics, share ideas, and solve problems with your colleagues.
- The <u>Polycom Partner Network</u> are industry leaders who natively integrate the Poly standards-based RealPresence Platform with their customers' current UC infrastructures, making it easy for you to communicate face-to-face with the applications and devices you use every day.
- The <u>Polycom Collaboration Services</u> help your business succeed and get the most out of your investment through the benefits of collaboration.

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