



▶ Polycom® HDX and RMX™ Systems
Integration with Microsoft Office
Communications Server 2007
Deployment Guide

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Polycom, Inc.
4750 Willow Road
Pleasanton, CA 94588-2708
USA

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About this Guide

This guide describes the steps required to integrate Polycom HDX and RMX systems with Microsoft® Office Communications Server 2007. It includes instructions for configuring the Microsoft Office Communications Server 2007 components and integrating and configuring the Polycom components required for this solution.

For more information about this integration, see the *Polycom® HDX and RMX™ Systems Integration with Microsoft Office Communications Server 2007 Release Notes*.

Note This guide does not describe or provide full administration or maintenance processes or procedures for Microsoft Office Communications Server 2007 components. For any questions or assistance on Microsoft Office Communications Server 2007 components, see the Microsoft documentation and/or Microsoft Support Services.

Prerequisites

It assumes that the installer has:

- Prior knowledge and experience with Microsoft Office Communications Server 2007 components
- Access to Microsoft Office Communications Server 2007 product documentation and relevant software
- Prior knowledge and experience with the Polycom RMX 2000 and HDX systems
- Access to Polycom RMX 2000 and HDX systems product documentation and relevant software

Solution Overview

Polycom® has joined with Microsoft® to provide a unified collaboration solution that integrates presence-based real-time instant messaging (IM), voice, video, and data collaboration.

Microsoft Office Communications Server 2007 and Microsoft Office Communicator 2007 provide IM and presence-enabled unified communications infrastructure. Polycom extends this user experience with a broad portfolio of high definition voice and video endpoints including the CX family of phones, the Polycom HDX family of video conferencing systems, and the Polycom RPX and TPX telepresence suites.

This integrated solution provides users with powerful, one-click video collaboration within Microsoft unified communications platform either from a contact list, as an escalation of an instant messaging session, or as part of a communications enabled business process. Making optimal use of the Microsoft unified communications platform, Polycom's integration will also enhance the customer's ability to deploy video communication seamlessly and securely across corporate boundaries.

Solution Benefits

With this Polycom and Microsoft solution, organizations can:

- Improve productivity
- Lower the cost of operations
- Reduce travel costs
- Protect investment by enabling interoperability with an installed base of video systems

Product Overview

In this solution, Polycom's full suite of Polycom HDX video endpoints and Polycom CX voice endpoints register, authenticate and share presence information with Office Communications Server 2007. This solution makes it simple for users in the Office Communications Server 2007 network:

- To see the presence status of Polycom video endpoints, for example on their Office Communicator 2007 client or on a presence-enabled IP phone.
- To launch video calls by clicking on presence-enabled contacts and see the availability status of Polycom video and telepresence solutions.
- To launch on-demand voice, video, and unified (voice and video) conferences that include other standards-based video and voice endpoints using the Polycom RMX 2000™ real-time media conferencing platform.

With Office Communications Server 2007, the solution supports expanded enterprise environments, enhanced security features, and industry-leading high definition resolution.

Polycom endpoints and infrastructure connect to Office Communications Server 2007 using the session initiation protocol (SIP).

Polycom RPX Telepresence Interoperability

The Polycom Video Network Operations Center (VNOC) can cascade a Polycom RMX 2000 system that is hosting a Polycom RPX Telepresence conference to a Polycom RMX 2000 system in a Microsoft Office Communications Server 2007 environment. In this case, the VNOC uses its managed Polycom RMX system to link (via H.323) the Telepresence Suite to a meeting room on the Polycom RMX system.

For more information on this configuration, see the *Polycom Multipoint Best Practices for Telepresence Deployment Guide*.

Software Versions

The following table shows the software versions required for this solution.

System	Software Version
Microsoft Office Communications Server 2007 and Office Communicator clients	R1 or R2
Polycom RMX 2000	v4.0.1 or v4.1
Polycom HDX Series	v2.5.0.7
Polycom CX Series	All

Prerequisites

This section describes the systems required for this solution. Note that some of these systems must be accessible via a DNS server for the Microsoft® Office Communications Server.

Microsoft® Office Communications Server 2007

Microsoft® Office Communications Server 2007 provides solutions for real-time communications within the organization, between federated networks, and with users on the Internet. The solutions include instant messaging, real-time audio communications, real-time videoconferencing, web conferencing, and playback of recorded video conferences.

For the latest Microsoft Office Communications Server 2007 technical documentation, go to <http://www.microsoft.com>.

Polycom HDX Series

The Polycom HDX Series HD systems provide high-definition (HD) voice, video, and content for medium to large conference rooms. Their leading-edge design, performance, flexibility, and capabilities make them optimal solutions for desktop and meeting spaces in any organization. The Polycom HDX systems can send and receive wide-screen, HD video in point-to-point calls, and they also support small-scale multipoint conferences.

For the latest Polycom HDX Series technical documentation go to: <http://www.polycom.com/support>

Polycom RMX 2000 Conferencing Platform

The Polycom RMX 2000 Multipoint Control Unit (MCU) is a high performance, scalable, IP-network (H.323 and SIP) and PSTN solution that provides feature-rich and easy-to-use multipoint voice and video conferencing.

For the latest Polycom RMX 2000 system technical documentation go to: <http://www.polycom.com/support>

Polycom Desktop Voice Solutions

In addition to video solutions, Polycom's suite of CX phones, optimized for Office Communications Server 2007, include the CX700 IP phone, CX200 desktop phone and CX100 speakerphone. The phones deliver crystal-clear, wideband audio and provide full, convenient access to the advanced presence-enabled features of Office Communications Server 2007.

With Office Communications Server 2007, the CX700 IP phone now supports added features such as tighter integration of the phone with the PC desktop as well as user-selectable display languages and ringtones.

Authentication and Security

The Polycom HDX systems in this solution use NTLM for authentication and Transport Layer Security (TLS) to secure transmissions. AES encryption, which is used by the Polycom HDX system for media encryption of H.323 calls, does not work with this SIP solution. For Polycom HDX systems in this solution, set AES encryption to OFF.

The Polycom RMX systems in this solution can be configured to use TLS to secure transmissions between the RMX and the Microsoft Office Communications Server.

Supported Configurations and Use Cases

The solution described in this document supports Microsoft Office Communications Server 2007 Standard Edition and Enterprise Edition, Expanded Configuration, with or without a third-party hardware load balancer.

The sections below outline the use cases supported by this solution.

Note To support CX phones, Microsoft Office Communications Server must have the Enterprise Voice option implemented, and the users must be enabled for enterprise voice. See Microsoft's [Office Communications Server 2007 Enterprise Voice Planning and Deployment Guide](#).

Point-to-Point Call Use Cases

- 1** A Microsoft Office Communicator user (with or without a Microsoft RoundTable or Polycom CX5000 device) can:
 - a** See a Polycom HDX system registered with Microsoft Office Communications Server 2007 in the contact list and see its presence status (Available, Busy, or Offline).
 - b** From the contact list, make a video call to the Polycom HDX system, with H.263 video (CIF resolution) and G.711 audio, at up to 30 fps.
 - c** From the contact list, make an audio call to the Polycom HDX system, and then click the camera button and escalate to video.
 - d** Call or video call an ordinary (not Polycom HDX) contact list entry with a Companion Mode Polycom HDX system registered to the same

Microsoft Office Communications Server account. The call rings at both devices (call forking), and the recipient can answer using either device.

- e** Use a contact list in Microsoft Outlook or Sharepoint to initiate each of the preceding calls (the Exchange or Sharepoint server must have been provisioned with Microsoft Office Communications Server 2007).
 - f** Call a Polycom CX700 phone user. Have the phone user transfer the call to a Polycom HDX system. Then click the camera button and escalate to video.
- 2** A Polycom HDX system user (registered with Microsoft Office Communications Server 2007) can:
- a** See contacts registered with Microsoft Office Communications Server 2007 (including other Polycom HDX systems) in the contact list.
The contact list must have been populated in advance. See [“Add Contacts to the Conference Room Local Address Book”](#) on page 14.
 - b** Call a Microsoft Office Communicator user in the contact list.
 - c** Call a Polycom HDX system in the contact list.
 - d** Call a Microsoft Office Communicator user with a Companion Mode Polycom HDX system registered to the same Microsoft Office Communications Server account. The call rings at both devices (call forking), and the recipient can answer using either device.
 - e** Call a Microsoft Office Communicator user with a Polycom CX100 or CX200 USB phone, establishing an audio connection with the Polycom CX phone.
 - f** Call a Polycom CX700 phone user, establishing an audio connection with the Polycom CX phone.
- 3** A Microsoft Office Communicator user with a Polycom CX100/200 USB phone can use Microsoft Office Communicator to:
- a** Call a Polycom HDX system, establishing an audio connection with the Polycom CX phone.
 - b** Place the call on hold and take it off hold.
 - c** Forward calls to a Polycom HDX system.
- 4** A Polycom CX700 phone user (registered with Microsoft Office Communications Server 2007) can use its touch screen to:
- a** Find a Polycom HDX system (registered with Microsoft Office Communications Server 2007) in the contact list and see its presence status (Available, Busy, or Offline).
 - b** Call the Polycom HDX system.
 - c** Place the call on hold and take it off hold.

- d** Transfer a call from another Polycom CX phone to a Polycom HDX system.
- e** Transfer a call from a Microsoft Office Communicator user to a Polycom HDX system.
- f** Forward audio calls to a Polycom HDX system.

Polycom RMX Multipoint Conferencing Use Cases

- 1** A Microsoft Office Communicator user (with or without a Microsoft RoundTable or Polycom CX5000 device) can:
 - a** Make an audio call to the SIP URI of a Polycom RMX meeting room. Then click the camera button and escalate to video (H.263 CIF, up to 30 fps, with G.711 or Siren audio).

The SIP URI is the E.164 address of the meeting room plus the domain name of Microsoft Office Communications Server 2007. For example:

755386@polycom.com
 - b** Save the called meeting room (which appears in the Recent Contacts list without presence information) to the contact list or a group folder in it.
 - c** Access a passcode-protected conference by using the Office Communicator keypad to send DTMF tones to the Polycom RMX.
- 2** A Microsoft Office Communicator user with a Polycom CX100/200 USB phone can use Microsoft Office Communicator to:
 - a** Make an audio call to a Polycom RMX meeting room as described in case 1, establishing an audio connection with the Polycom CX phone.
 - b** Place the call on hold and take it off hold.
 - c** Forward calls to a Polycom RMX meeting room.
- 3** A Polycom CX700 phone user (registered with Microsoft Office Communications Server 2007) can use its touch screen to:
 - a** Make an audio call to the SIP URI of a Polycom RMX meeting room.
 - b** Save the called meeting room (which appears in the Recent Contacts list without presence information) to the contact list or a group folder in it.
 - c** If the user has a Microsoft Office Communicator registered to the same account as the phone, save the called meeting room to its contact list.
 - d** Place the call on hold and take it off hold.
 - e** Transfer a call from another Polycom CX phone to a Polycom RMX meeting room.

- f** Forward calls to a Polycom RMX meeting room.
- 4** A Polycom HDX system user (registered with Microsoft Office Communications Server 2007) can:
 - a** Make a video call to the SIP URI of a Polycom RMX meeting room.
 - b** Save the called meeting room to the local address book.
- 5** A user with an H.323 or ISDN (H.320) video endpoint can make a video call to the dial-in number of a Polycom RMX meeting room.
- 6** A user with a PSTN phone can make an audio call to the phone number of a Polycom RMX meeting room.
- 7** A Polycom RMX meeting room user or administrator can dial out to any of the SIP, H.323, ISDN (H.320), and PSTN devices in the preceding items.

Multipoint conferences on the Polycom RMX system support any combination of SIP, H.323, ISDN (H.320), and PSTN participants up to the system's port capacity.

Polycom HDX MP Option Multipoint Conferencing Use Cases

- 1** Multiple Microsoft Office Communicator users (with or without Microsoft RoundTable or Polycom CX5000 devices) can:
 - a** See a Polycom HDX system with the MP option (and registered with Microsoft Office Communications Server 2007) in the contact list and see its presence status (Available, Busy, or Offline).
 - b** Make a video call to the Polycom HDX system and join a multipoint conference.
- 2** Multiple Polycom HDX system users (registered with Microsoft Office Communications Server 2007) can:
 - a** See a Polycom HDX system with the MP option (and registered with Microsoft Office Communications Server 2007) in the contact list and see its presence status (Available, Busy, or Offline).
 - b** From the contact list, make a video call to the Polycom HDX system and join a multipoint conference.
- 3** A Microsoft Office Communicator user with a Polycom CX100/200 USB phone can use Microsoft Office Communicator to make an audio call to a Polycom HDX system (as described in [Point-to-Point Call Use Cases](#)) and join a multipoint conference.
- 4** A Polycom CX700 phone user (registered with Microsoft Office Communications Server 2007) can use its touch screen to make an audio call to a Polycom HDX system (as described in [Point-to-Point Call Use Cases](#)) and join a multipoint conference.
- 5** A user with an H.323 or ISDN (H.320) video endpoint can make a video call to the dial-in number of a Polycom HDX system and join a multipoint conference.

- 6** A user with a PSTN phone can make an audio call to the phone number of a Polycom HDX system and join a multipoint call.

Multipoint conferences on the Polycom HDX system support any combination of SIP, H.323, ISDN (H.320), and PSTN participants up to the system's port capacity.

Microsoft® Office Communications Server 2007 System Configuration

This chapter describes how to configure the Microsoft Office Communications Server 2007 as required for this solution. You must perform these tasks in this order:

- 1 [Configure Authentication in Office Communications Server](#)
- 2 [Add Conference Rooms with Polycom HDX Systems to Active Directory](#)
- 3 [Enable Conference Rooms in Office Communications Server](#)
- 4 [Add Contacts to the Conference Room Local Address Book](#)
- 5 [Set the Routing for the Polycom RMX 2000 Systems](#)
- 6 [Create a Certificate for the Polycom RMX to Support TLS](#) (if TLS transport is selected in the previous step)
- 7 [Change Communicator 2007 R2 Server Encryption Settings](#)

Note Your Microsoft Office Communicator users should already be properly configured in Microsoft Active Directory and Microsoft Office Communications Server. See your Microsoft Active Directory and Office Communications Server administrators or the Microsoft website if you have questions regarding the configuration of Microsoft Active Directory and Office Communications Server 2007.

Configure Authentication in Office Communications Server

The Polycom HDX and RMX 2000 systems support only NTLM authentication, not Kerberos. For this solution, you must enable NTLM in Microsoft Office Communications Server.

To set authentication correctly in Office Communications Server

- 1 Go to **Start > Office Communications Server 2007**.
Office Communications Server opens.
- 2 In the tree, go to **Enterprise pools > pool > Properties > Front End Properties**.
- 3 In the **Front End Properties** dialog box, select the **Authentication** tab.
- 4 Set **Authentication protocol** to either **NTLM** or **Both NTLM and Kerberos**. Then click **OK**.

Add Conference Rooms with Polycom HDX Systems to Active Directory

In Active Directory, you must first create a conference room user for each conference room that will have a Polycom HDX system. You can use a script, Microsoft Management Console (MMC), or custom software for this purpose. The procedure below describes adding a conference room user manually in the MMC.

Note If these conference room users have an expiring password, you must keep track of the users and passwords and make sure to update the accounts as required. We recommend setting the passwords to never expire.

To add a conference room user to the Active Directory

- 1 Go to **Start > Run** and open the Active Directory MMC by entering:
`dsa.msc`
- 2 In the console tree, go to **Users > New > User**.
- 3 In the **New User** wizard, enter the required conference room user information and click **Next**.
- 4 Set the user password. We recommend that you also set the **Password never expires** option.
- 5 Click **Next** and then **Finish**.
- 6 Repeat for each conference room that has a Polycom HDX system.

Enable Conference Rooms in Office Communications Server

After adding the conference room users to the Active Directory, you must enable and configure them in Microsoft Office Communications Server. You can use a script or the Active Directory MMC for this purpose. Both procedures are described below.

Use a Script to Enable and Configure Multiple Conference Room Users

You can use the `LCSEnableConfigureUsers.wsf` script from the Microsoft Office Communications Server 2007 Resource Kit to enable and configure multiple conference room users at once.

The script accepts two text files as parameters – a list of users, `users.txt`, and a file of configuration settings to apply to the users, `config.txt`.

The users file can contain distinguished names or SIP addresses. If it contains the distinguished name of a container or user group, all the users in that container or user group are enabled and configured.

Here are some examples of users file entries:

```
dn:OU=HdxConfRms,DC=polycom,DC=com
dn:CN=WestConf2,CN=Users,DC=eng,DC=polycom,DC=com
sip:westconf2@polycom.com
sip:westaspen@polycom.com
sip:hdx4000rjones@polycom.com
```

The configuration file should look like this:

```
Enabled:=true
PoolName:=OCS2007Pool
EnabledForFederation:=true
EnabledForInternetAccess:=true
PublicNetworkEnabled:=true
RemoteCallControlTelephonyEnabled:=false
ArchiveInternalCommunications:=false
ArchiveFederatedCommunications:=false
AllowOrganizeMeetingWithAnonymousParticipants:=false
EnabledForEnhancedPresence:=false
IPPBXSoftPhoneRoutingEnabled:=false
UCEnabled:=true
UCPolicy:=VoIP Policy for Users in Abc
```

Each line contains a configuration setting name followed by `:=` and the configuration value. The settings shown above are WMI properties of the `MSFT_SIPESUserSetting` class, except for `PoolName`. For your convenience, the script does a lookup of that value and gets the corresponding DN.

The settings shown above are generally appropriate. You may need to change some of them, depending on your OCS configuration and rules. But be sure the `EnabledForEnhancedPresence` parameter is set to `false`.

To enable and configure a list of conference room users

- 1 Create a `users.txt` file as described above, specifying in it the conference room users that you want to enable and configure in Microsoft Office Communications Server.
- 2 Create a `config.txt` file as described above, specifying in it the configuration settings to be applied to the conference room users in the `users.txt` file.
- 3 At the command prompt, run the script by entering (all on one line):

```
cscript %csenableconfigureusers.wsf /usersFile:users.txt  
/configFile:config.txt [>userslog.txt]
```

The script writes detailed output to the command console, showing the result of each operation for each user. Optionally, you can use the redirection operator (`>`), as shown above, to redirect this output to a log file.

After the script is finished, you may want to spot-check a few of the new conference room users, especially to be sure enhanced presence is turned off. See step 5 of [“Disable Enhanced Presence for a Conference Room User”](#) on page 13.

Manually Enable and Configure a Conference Room User

The manual process consists of two parts:

- Enable a conference room user manually in the Active Directory MMC.
- Disable enhanced presence for the conference room user.

Enable a Conference Room User Manually

To enable a conference room user in Office Communications Server 2007

- 1 Expand the Active Directory MMC console tree **Users** list.
- 2 Select the conference room user, right click, and select **Enable for Communications Server**.
- 3 In the **Enable Office Communications Server Users Wizard**, select the correct server and click **Next**.
- 4 In the **Specify Sign-in Name** dialog box, select the format used to generate the conference room’s SIP URI and click **Next**.
- 5 In the **Enable Operation Status** dialog box, click **Finish**.

Disable Enhanced Presence for a Conference Room User

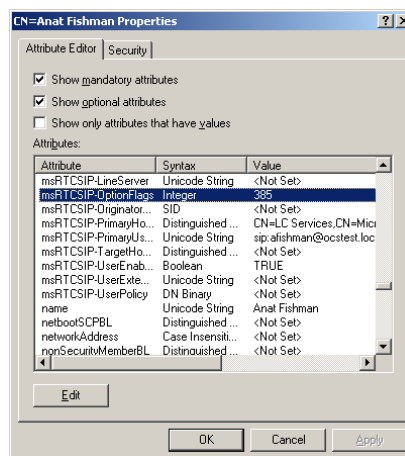
This procedure is necessary for conference room users enabled and configured manually.

Caution Be sure to disable enhanced presence for all conference room users before adding contacts to them and before connecting them to Office Communications Server for the first time.

Disable enhanced presence for conference room users only. Traditional endpoint users should have enhanced presence enabled.

To disable enhanced presence for a conference room user

- 1 Go to **Start > Run** and open the Active Directory Service Interfaces MMC by entering:
adsiedit.msc
- 2 In the console tree, select and expand the **CN=Users** list.
- 3 Select the user of interest, right-click and select **Properties**.
- 4 In the **Attribute Editor** tab of the **Properties** dialog box, locate the **MsRTCSipOptionFlags** attribute, change its value to 0, and click **OK**.



- 5 Verify that enhanced presence was turned off:
 - a At a command prompt, display a user report for the conference room user by entering (all on one line):

```
C:\Program Files\Microsoft Office Communications Server 2007
R2\ResKit\DBAnalyze.exe /report:user /user:<name>@<domain>
/sqlserver:<IP of OCS SQL server>
```
 - b Find the RichMode setting and ensure that the value is False.

Add Contacts to the Conference Room Local Address Book

You can use the `LCSAddContacts` script from the Microsoft Office Communications Server 2007 Resource Kit to add a list of contacts to the local address books of conference rooms with Polycom HDX systems.

Office Communications Server will provide real-time presence information for these contacts, called buddies in some applications. A Polycom HDX system can have up to 200 such contacts.

The script accepts two text files as parameters – a users list file and a file of contacts for the users. If you used the `LCSEnableConfigureUsers.wsf` script to enable and configure conference room users, you can reuse the `users.txt` file that it used.

Caution Be sure to disable enhanced presence for all conference room users before adding contacts to them and before connecting them to Office Communications Server for the first time.

To add a list of contacts to each conference room user

- 1 If you created a `users.txt` file earlier (see [“Use a Script to Enable and Configure Multiple Conference Room Users”](#) on page 11), use that file. Otherwise, create such a file, specifying in it the conference room users you enabled and configured in Microsoft Office Communications Server.

The users file can contain distinguished names or SIP addresses. If it contains the distinguished name of a container or user group, the contacts list is applied to all the users in that container or user group.

- 2 Create a `contacts.txt` file containing the list of contacts to be added to the conference room users in the `users.txt` file. The contacts must be active and enabled Microsoft Office Communications Server users.

For each entry in the `contacts.txt` file, specify the name to display in the contacts list followed by the SIP address of that contact. For example:

```
JanDuncan sip:jfduncan@polycom.com
ConfRoom1 sip:conf1@polycom.com
HelpDesk sip:helpdesk@polycom.com
...
```

- 3 At the command prompt, run the script by entering (all on one line):

```
cscript lcsaddcontacts.wsf /usersFile:users.txt
/contactFile:contacts.txt [/contactsGroup:<contactsGroupName>]
[>contactslog.txt]
```

The optional `/contactsGroup` parameter lets you specify a group name for the contacts being added. If you omit it, the contacts are added to the default group, All Contacts.

The script writes detailed output to the command console, showing the result of each operation for each user. Optionally, you can use the redirection operator (>), as shown above, to redirect the output to a log file.

Set the Routing for the Polycom RMX 2000 Systems

Perform the following procedure for each Polycom RMX 2000 system you want to include in this solution.

To set the Polycom RMX 2000 system as a trusted host with a static route

- 1 Go to **Start > Office Communications Server 2007**.
Office Communications Server opens.
- 2 In the tree, expand **Enterprise pools**, right-click the server pool entry, and select **Properties > Front End Properties**.
- 3 In the **Front End Properties** dialog box, select the **Host Authorization** tab and click **Add**.
The **Add Authorized Host** dialog box appears.
- 4 Select **FQDN** and enter the fully qualified domain name for the Polycom RMX 2000 system.
- 5 Select the **Throttle As Server** and **Treat As Authenticated** check boxes. Then click **OK**.
- 6 In the **Front End Properties** dialog box, select the **Routing** tab and click **Add**.
The **Add Static Route** dialog box appears.
- 7 In the **Domain** field, enter the domain name to use for the Polycom RMX 2000 system.
- 8 To use encrypted SIP signaling and enable the Polycom RMX 2000 system to dial out to SIP endpoints, set the **Transport** field to **TLS**. If you want to support only dial-in conferences, leave it set to **TCP**. Then click **OK**.

Note If you enable TLS encryption, you must also install a security certificate on the Polycom RMX 2000 system and configure the system to use TLS. See [“Create a Certificate for the Polycom RMX to Support TLS”](#) on page 16. For more detailed information, see Appendix F and Appendix I of the *Polycom RMX 2000 Administrator’s Guide*.

The Polycom RMX 2000 system is now set as a trusted host, and calls from an Office Communicator client to a SIP address in the Polycom RMX 2000 system’s domain will be routed to a meeting room or conference on that system.

Create a Certificate for the Polycom RMX to Support TLS

If in the previous procedure, you elected to use TLS transport, you must install a security certificate on the Polycom RMX 2000 system so that Microsoft Office Communications Server 2007 trusts it. This can be accomplished in two ways:

- Purchase and install a certificate from a commercial Trusted Root Certificate Authority (CA) such as VeriSign or Thawte. Use the procedures in Appendix F of the *Polycom RMX™ 2000 Administrator's Guide* entitled "Purchasing a Certificate" and "Installing the Certificate."
- Request and obtain a certificate from your enterprise CA. You can do this in two ways:
 - If your organization permits the submission of certificate requests directly to the enterprise's CA server, use the Office Communications Server Certificate Wizard. From it, you can then download an export file of the certificate to your PC for later installation on the Polycom RMX 2000 system.
 - If certificate requests must be submitted through the enterprise's CA team or group, use the OpenSSL open source toolkit to create the CSR (certificate signing request file).

Both procedures are described below, along with the procedure for converting a PFX certificate file into the PEM files if necessary.

Each Polycom RMX 2000 system must have its own security certificate. Perform the appropriate procedures below for each Polycom RMX 2000 system you want to include in this solution.

Note

Before you proceed, make certain that:

- You have the fully qualified domain name (FQDN) of each RMX 2000 MCU for which you're creating a certificate.
- These host names are in the primary DNS server of the environment.
- These host names resolve correctly to the RMX 2000 MCUs in question.

If the host information in DNS is wrong, the certificates will not work.

To request a security certificate in Office Communications Server

- 1 Go to **Start > Office Communications Server 2007**.

Office Communications Server opens.

- 2 In the tree, expand **Enterprise pools** and the server pools list, right-click the pool front end entry, and select **Certificate**.

The Office Communications Server Certificate Wizard appears.

- 3 Follow the steps in the wizard, making the following choices:
 - a Select **Send request immediately to an online certification authority**.
 - b Select **Mark cert as exportable**.

- c For **Subject** name, select the Polycom RMX 2000 system's fully-qualified domain name (FQDN) and leave **Alternate name** set to the default.
- d Select a certificate authority from the list, choosing the local Office Communications Server front end entity.
- e Skip assignment, selecting **Assign certificate later**.
- f When done, click **Finished** to close the Wizard.

To export the received security certificate from Office Communications Server to your PC

- 1 In the Office Communications Server tree, expand **Enterprise pools** and the server pools list, right-click the pool front end entry, and select **Certificate**.
The Office Communications Server Certificate Wizard appears.
- 2 Follow the steps in the wizard, making the following choices:
 - a Select **Export a certificate to a *.pfx file**.
 - b Select the certificate you created for the Polycom RMX 2000 system.
 - c Specify a path and name for the *.pfx file on your PC and select **Include all certificates in the certification path if possible**.
 - d Enter a password. Be sure to record what it is.
 - e Click **Finished** to download the file to your PC and close the Wizard.
- 3 Create a password file on your PC:
 - a In Notepad or another text editor, create a new file containing only the password for the certificate file.
 - b Save the file as **certPassword.txt**. The name must be exactly as shown, and case matters.

To create a certificate request using OpenSSL

- 1 If you don't already have the OpenSSL toolkit (see www.openssl.org), download and install it (on a Windows PC, install it in c:\openssl\).
- 2 At a command prompt, navigate to c:\openssl\bin and enter a command such as this (all one line):

```
openssl req -new -newkey rsa:1024 -nodes -out csrfilename.csr
-keyout csrkeyname.key -subj
"/C=US/ST=Texas/L=Austin/O=Polycom/OU=Information
Technology/CN=polycomtestrmx.r13.vsg.local2"
```

Replace all the variables (*italics*) with the appropriate values. The parameters for the `-subj` argument (in quotes) are:

C= Country
 ST= State
 L= Location / City
 O= Organization
 OU= Organizational Unit
 CN= RMX Hostname

OpenSSL creates a `*.csr` file that looks something like this:

```
-----BEGIN CERTIFICATE REQUEST-----
MIIByzCCATQCAQAwYoxCzAJBgNVBAYTA1VTMQ4wDAYDVQQIEwVUZXhhczEPMA0G
A1UEBxMGQXVzdG1uMREwDwYDVQQKEwhQb2x5Y29tLjEfmB0GA1UECxMWSW5mb3Jt
YXRpb24gVGVjaG5vbG9neTEuMCQGA1UEAxMdcG9seWVnbXRlc3RybXgucjEzLnZz
Zy5sb2NhbDIwZ8wDQYJKoZIhvcNAQEBBQADgY0AMIGJAoGBAMaUbrHE7a39ZiV6
MiZ5Fp1tIsCpJGRR+rR+Qm/7f6Y7vhpaK3CbXWgm5dRUV/Od+dwzLo02gHGUKXsJ
HC3oeA73NI0cDPqXDc2GpC/e2r6MG9pLAXcYKQgkNuGB/1W5U08miUSJGCOUG0LQ
Y0EF/7VZty+9FaSHmjUJut9BVoujAgMBAAGgADANBgkqhkiG9w0BAQUFAA0BgQDD
6WTgtUGMSCHmqo39eFUhjxhEfnpC9tjc8rU7mTcdWqHvRBS88x28HFHbCvukogPe
cKH0abK+/1Bw6H1keqZxWHE6bk4PH+Le5/Wcnkwj1rTBd+arCu01cM1qrK0AU6EN
2nEZcKBr8IwqZ6PqcOSjFNH7Jw0hrDnvDaszUx32A==
-----END CERTIFICATE REQUEST-----
```

- 3 Follow your organization's process for conveying the `*.csr` file to the CA team or group and getting the certificate back from them (as a single `*.pfx` file or a set of `*.pem` files).

To convert a binary PFX certificate file into PEM files

Note This procedure is not necessary if the RMX 2000 MCU is running v4.1 software. In that case, you can send the `*.pfx` file, along with `certPassword.txt`, to the RMX 2000 system without converting it into `*.pem` files first.

In either case (sending a `*.pfx` file or `*.pem` files), you install the files on the RMX 2000 system during the configuration of its default IP service. Follow the procedure in Appendix I of the *Polycom RMX 2000 Administrator's Guide*. After doing so, you must reboot the bridge.

- 1 If you don't already have the OpenSSL toolkit (see www.openssl.org), download and install it (on a Windows PC, install it in `c:\openssl\`).
- 2 At a command prompt, navigate to `c:\openssl\bin` and run these three commands, entering the `*.pfx` file's password each time you're prompted:

```
openssl pkcs12 -in your_file.pfx -cacerts -nokeys -out rootCA.pem
openssl pkcs12 -in your_file.pfx -clcerts -out cert.pem -nodes
openssl pkcs12 -in your_file.pfx -clcerts -out pkey.pem -nodes
```

- 3 Send the resulting three certificate files (**rootCA.pem**, **cert.pem**, and **pkey.pem**) and the **certPassword.txt** file to the RMX system, as described in Appendix I of the *Polycom RMX 2000 Administrator's Guide*.

Change Communicator 2007 R2 Server Encryption Settings

Configure the Communicator 2007 R2 Server Support Encryption Setting

The Communicator 2007 R2 default setting is to enforce encryption, but because this solution does not support Secure Real-time Transport Protocol (SRTP), this will result in a failure.

To change the Pool Properties Support encryption setting

- 1 Go to **Administrative Tools > Office Communicator 2007 R2** in the OCS 2007 user interface.
- 2 Expand the **Standard Edition Servers** tree view.
- 3 Right-click the OCS server name and select **Properties > Pool Properties**.
- 4 Change the **media encryption level** to **Support encryption**.
- 5 Click **OK** to save your changes.

(Optional) Configure the Communicator 2007 Call Encryption Registry Key

In a Microsoft Office Communications Server 2007 R2 environment with or without a load balancer, calls from a Polycom HDX system to a Microsoft Office Communicator R2 client may fail with an “incompatible security setting” error. This problem can be resolved with a registry change on the client PC.

Perform the following procedure on each Office Communicator client PC.

Note

You may wish to enforce this setting with a group policy editor. If this flag is enforced at the domain level the change made here will not take effect.

To add a registry key making Communicator 2007 call encryption optional

- 1 Go to **Start > Run** and type: `regedit`
The Registry Editor opens.
- 2 Navigate to **HKEY_LOCAL_MACHINE -> SOFTWARE -> Policies -> Microsoft -> Communicator**.

- 3** In the Communicator folder, right click and select **New > DWORD (32-Bit) Value**.
- 4** For **Name**, type: PC2PCAVEncryption
- 5** Leave **Data** set to: 0x00000000 (0)
- 6** Close the Registry Editor and restart Microsoft Office Communicator.

Polycom Systems Configuration

This chapter describes how to configure the Polycom HDX and Polycom RMX systems as required for this solution.

Polycom HDX System Configuration

Your Polycom HDX system should be installed according to standard installation procedures. See *Setting Up the System* for your model of Polycom HDX system, which describes how to set up the hardware. Then perform the following tasks:

- [Register Polycom HDX Systems with the Office Communications Server](#)
- [Configure the Global Directory](#)
- [Configure Display Options for Contact List](#)

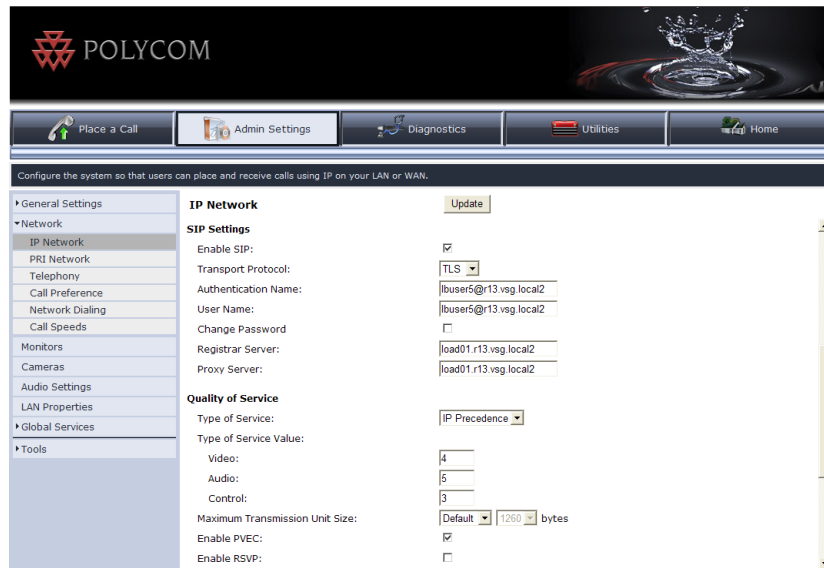
Register Polycom HDX Systems with the Office Communications Server

Integration with Microsoft Office Communications Server 2007 allows the Polycom HDX system user to see a list of Office Communications Server 2007 contacts, see if the contacts are online, and call them without knowing or remembering their addresses. Contacts appear in the directory and can also be displayed on the home screen.

To configure a Polycom HDX system to register with the Office Communications Server

- 1 Open a browser window and in the **Address** field enter the Polycom HDX system IP address or host name.
- 2 Go to **Admin Settings > Network > Call Preference**, select **Enable SIP**, and click **Update**.

3 Go to **Admin Settings > Network > IP Network** and select **Enable SIP**.



4 Configure these settings in the **SIP Settings** section of the **IP Network** screen.

Settings	Description
Transport Protocol	<p>The protocol the system uses for SIP signaling. The SIP network infrastructure in which your Polycom HDX system is operating determines which protocol is required, so set it to the transport protocol specified for the Microsoft Office Communications Server 2007—either TLS or TCP.</p> <ul style="list-style-type: none"> TCP provides reliable transport via TCP for SIP signaling. TLS provides secure communication of the SIP signaling. TLS is available only when the system is registered with a SIP server that supports TLS. When you choose this setting, the system ignores TCP/UDP port 5060.
Authentication Name	<p>Specify the name to use for authentication when registering with a SIP Registrar Server.</p> <p>This is the Microsoft Windows domain username and does not require the domain (@host) designation. If you leave this field blank, the User Name is used for authentication.</p>

Settings	Description
User Name	<p>Specify the system's SIP name. This is the SIP URI. If you leave this field blank, the system's IP address is the SIP user name along with the domain (@host) designation.</p> <p>In a Microsoft Office Communications Server 2007 environment, specify users' name for the conference room created for the Polycom HDX system in "Enable Conference Rooms in Office Communications Server" on page 11.</p>
Change Password	<p>When enabled, allows you to specify and confirm a new password that authenticates the system to the Registrar Server.</p>
Registrar Server	<p>Specify the IP address or DNS name of the SIP Registrar Server.</p> <p>In a Microsoft Office Communications Server 2007 environment, specify the IP address or DNS name of the Office Communications Server 2007 server.</p> <p>By default for TCP, the SIP signaling is sent to port 5060 on the registrar server. By default for TLS, the SIP signaling is sent to port 5061 on the registrar server.</p> <p>To specify a different port, add it to the address as shown here: 10.11.12.13:5070</p> <p>If you leave this field blank, the Proxy Server is used.</p>
Proxy Server	<p>Specify the DNS name or IP address of the SIP Proxy Server. If you leave this field blank, the Registrar Server is used. If you leave both fields blank, no Proxy Server is used.</p> <p>By default for TCP, the SIP signaling is sent to port 5060 on the proxy server. By default for TLS, the SIP signaling is sent to port 5061 on the proxy server.</p> <p>To specify a different port, add it to the address as shown here: 10.11.12.13:5070</p>

5 Click **Update**.

Once the Polycom HDX system registers with the Microsoft Office Communications Server 2007, you can continue on to ["Configure the Global Directory"](#) on page 24.

Configure the Polycom HDX System LAN Properties

To register with the Microsoft Office Communications Server 2007, the Polycom HDX system must be accessible via a DNS server for the Microsoft® Office Communications Server and must have a valid domain name setting.

To configure the Polycom HDX system LAN properties

- 1 Go to **System > Admin Settings > LAN Properties**.
- 2 If needed, enter the **Domain Name** for the domain to which the Polycom HDX system belongs.
- 3 If needed, in the **DNS Servers** field enter the IP address for a DNS that the Polycom HDX system and Microsoft Office Communications Server 2007 have in common.
- 4 Click **Update**.

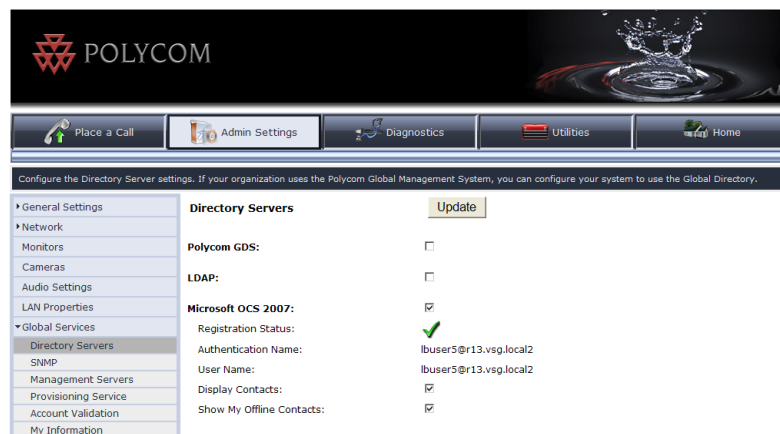
Configure the Global Directory

Once you've enabled SIP, specified the Microsoft Office Communications Server as your SIP Registrar Server, you must configure the Microsoft Office Communications Server as your Global Directory Server.

To choose a directory server

- 1 Go to **System > Admin Settings > Global Services > Directory Servers**.
- 2 Enable the **Microsoft OCS 2007** option.

A green check mark in the **Registration Status** field indicates the Polycom HDX system is registered with the Office Communicator Server.



- 3 Click **Update**.

Configure Display Options for Contact List

To configure the display options for contact list information

- 1 Go to **Admin Settings > Global Services > Directory Servers**.
- 2 In the **Microsoft OCS 2007** section of the **Directory Servers** page, configure these settings:

Setting	Description
Display Contacts	Specifies whether to display your contacts on the contact list home screen and in the directory.
Show My Offline Contacts	Specifies whether to include offline contacts on the contact list home screen or in the directory.

- 3 Click **Update**.

Disable AES Encryption

AES encryption is a standard feature on all Polycom HDX systems. When it is enabled, the system automatically encrypts the media stream of calls to other systems that have AES encryption enabled. For Polycom HDX systems in this solution, set AES encryption to OFF.

To disable AES encryption

- Go to **System > Admin Settings > General Settings > Security > Security Settings** and clear AES Encryption.

Polycom RMX 2000 System Configuration

For information on integrating the Polycom RMX 2000 with Microsoft Office Communications Server 2007, see Appendix I of the *Polycom RMX 2000 Administrator's Guide*.

API Commands

ocsdirectory

This is the API command the Polycom HDX system uses to enable HDX to retrieve and display the Microsoft Office Communications Server contact list and to disable the other global directory services.

Syntax

ocsdirectory <get|yes|no>

Parameter	Description
get	Returns the current setting.
yes	Enables the Microsoft Office Communications Server 2007 directory server.
no	Disables the Microsoft Office Communications Server 2007 directory server. This is the default setting.

Feedback Examples

- 1 ocsdirectory get
returns
ocsdirectory yes
- 2 ocsdirectory no
returns
ocsdirectory no

Comments

The Polycom system must be registered with the Microsoft Office Communications Server 2007 directory server to enable the Microsoft Office Communications Server 2007 directory service.

Each Polycom system supports a single global directory server at any given time. Therefore, enabling the Microsoft Office Communications Server 2007 directory server automatically disables any other global directory server, such as the Polycom GDS or LDAP directory server, that is enabled.

If more than one global directory is defined on a system, the following rules apply when you upgrade the system software:

- If the Microsoft Office Communications Server 2007 directory server and another directory server are defined on the system, the Microsoft Office Communications Server 2007 directory server becomes the default directory server after upgrading the system software.
- If the Polycom GDS directory server and another directory server (not the Microsoft Office Communications Server 2007 directory server) are defined on the system, the Polycom GDS directory server becomes the default directory server after upgrading the system software.