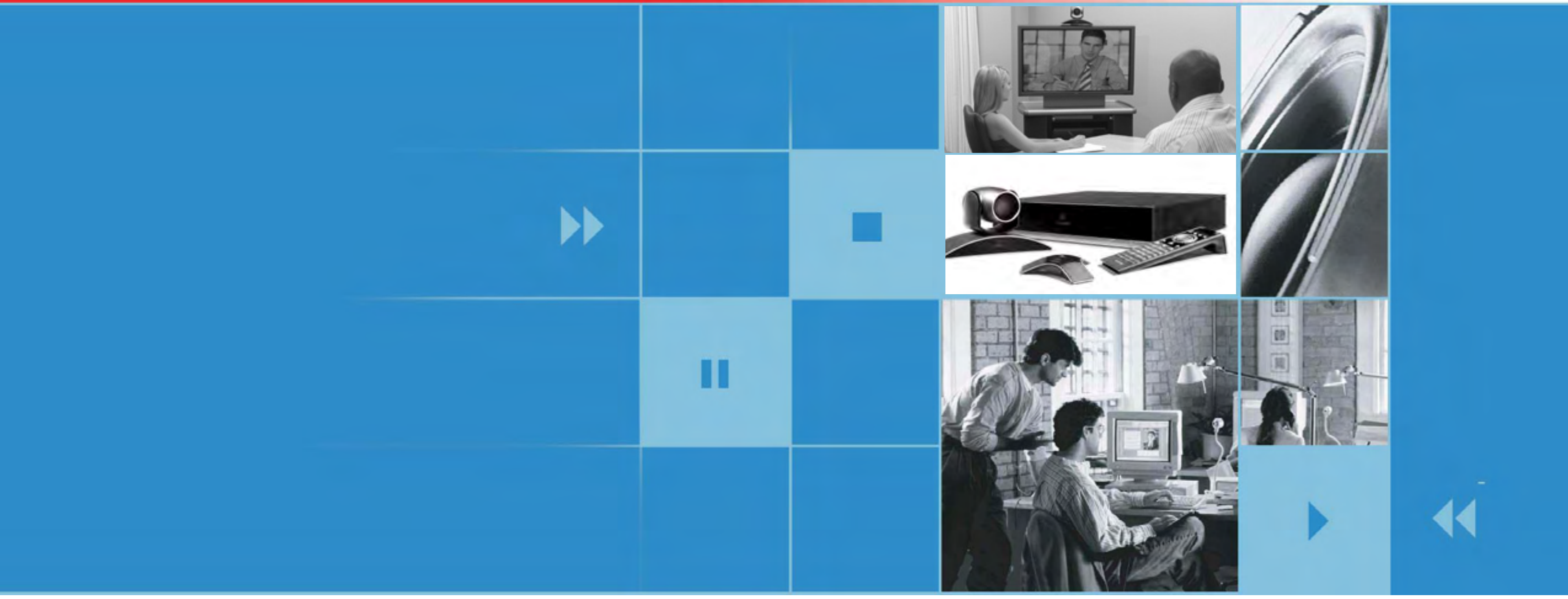

Administrator's Guide for Polycom HDX Systems

Version 2.0

October 2007 Edition
3725-23977-003/A
Version 2.0

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About This Guide

The *Administrator's Guide for Polycom HDX Systems* is for administrators who need to configure, customize, manage, and troubleshoot Polycom® HDX systems. The guide covers the Polycom HDX™ 9000 series, Polycom HDX™ 8000 HD, and Polycom HDX™ 4000 series systems.

Please read the Polycom HDX system documentation before you install or operate the system. The following related documents for Polycom HDX systems are available at www.polycom.com/videodocumentation:

- *Setting Up the System*, which describes how to set up the hardware
- *User's Guide for Polycom HDX Systems*, which describes how to perform video conferencing tasks
- Setup Sheets for your optional hardware
- Release Notes
- *Integrator's Reference Manual for Polycom HDX Systems*, which provides cable information and API command descriptions

For support or service, please contact your Polycom distributor or go to Polycom Support at www.polycom.com/support.

Polycom recommends that you record the serial number and option key of your Polycom HDX system here for future reference. The serial number for the system is printed on the unit.

System Serial Number: ____

Option Key: ____

Contents

1

Introducing the Polycom HDX Systems

Your Polycom HDX video conferencing system is a state-of-the-art visual collaboration tool. With crisp, clean video and crystal-clear sound, Polycom HDX systems provide natural video conferencing interaction through the most advanced video communications technology.

Polycom HDX Systems

For technical specifications and detailed descriptions of features available for Polycom HDX models, please refer to the product literature available at www.polycom.com.

Polycom HDX 9000 Series Systems

The Polycom HDX 9000 series provides integrator-class connectors and supports multiple video and audio sources. These solutions allow integrators to create specialized and unique, real-time video environments for their customers. The Polycom HDX 9000 series includes three models: Polycom HDX 9004, Polycom HDX 9002, and Polycom HDX 9001.

The Polycom HDX 9004 and Polycom HDX 9002 systems can send and receive wide-screen, high-definition (HD) video in point-to-point and multipoint calls. The Polycom HDX 9001 sends and receives up to 480p (NTSC) or 576 (PAL), standard-definition video.

Polycom HDX 8000 HD System

The Polycom HDX 8000 HD system provides high-definition (HD) voice, video, and content for medium to large conference rooms. These systems incorporate leading-edge design with elements of performance, flexibility, and capabilities, making it an optimal solution for meeting spaces in any organization. The Polycom HDX 8000 HD system can send and receive wide-screen, HD video in point-to-point and multipoint calls.

The Polycom HDX 8000 HD systems ship with a Polycom EagleEye HD camera, Polycom HDX microphones, and a Polycom HDX remote control. Bundles including displays and furniture are also available.

Polycom HDX 4000 Series Systems

The Polycom HDX 4000 series provides the ultimate in desktop video conferencing, designed to allow today's professionals to be more productive and effective right from their office. With a 20.1" LCD screen, powerful stereo speakers, and sleek design, these systems are much more than communications devices; they are also fully functional monitors for your PC or MAC. The Polycom HDX 4000 series has two models: the Polycom HDX 4000 system and the Polycom HDX 4000 HD system. The Polycom HDX 4000 HD system is an HD system that sends and receives HD video in point-to-point and multipoint calls. The Polycom HDX 4000 system is an SD system that sends and receives video in 4CIF resolutions. Both models include an HD built-in PTZ camera, four speakers, and dual microphones.

Setting Up Your System Hardware

This manual provides information to supplement the setup sheets provided with your system and its optional components. A printed copy of the system setup sheet is provided with each Polycom HDX system. PDF versions of the system setup sheets are available at www.polycom.com/videodocumentation.

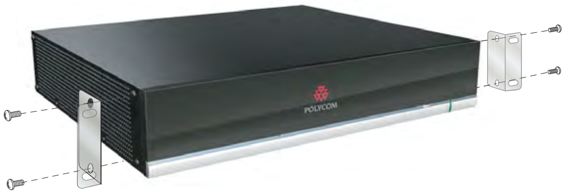
Positioning the System

Positioning the Polycom HDX 9000 Series Systems

Polycom HDX 9000 series systems are designed to be placed on a tabletop or in an equipment rack.

To position the system:

1. Install the mounting brackets on the system if you need to mount it in an equipment rack, or install the self-adhesive feet if you will place the system on a table or shelf.



2. Place the system in the desired location. Position the system so that the camera does not face toward a window or other source of bright light. Leave enough space to connect the cables easily. Place the camera and display together so that people at your site face the camera when they are looking at the display.

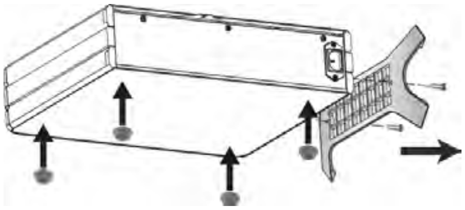
Positioning the Polycom HDX 8000 HD System

Polycom HDX 8000 HD systems can be set up in multiple ways. When used with furniture such as a pedestal or wall mount, the Polycom HDX 8000 HD system fits into a bracket on the back of the display. The Polycom HDX 8000 HD can also be placed in a cart or on a table.

To position the system:

- Position the system so that the camera does not face toward a window or other source of bright light. Leave enough space to connect the cables easily. Place the camera and display together so that people at your site face the camera when they are looking at the display.

If you need to position the system horizontally, remove the stand and install the self-adhesive feet.



Caution. Risk of Electric Shock. To reduce the risk of personal injury or damage to the equipment, do not use screws longer than those supplied (M4x16, 8.00 mm maximum head diameter) to reconnect the stand to the system.

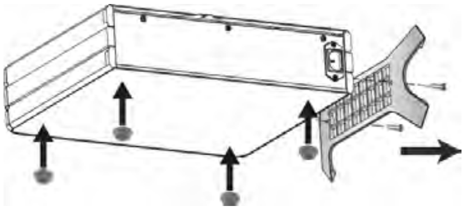
Positioning the Polycom HDX 4000 Series Systems

The Polycom HDX 4000 series systems are personal video conferencing systems for the desktop.

To position the system:

1. Place the Polycom HDX 4000 series monitor on the desktop, leaving enough space to connect the cables easily. Position the system so that the camera does not face toward a window or other source of bright light.
2. Place the Polycom HDX 4000 series system either under the desk, or on the desk next to the display. The cables that connect the display to the system can be hidden in the monitor stand, providing clean cable management.

If you need to position the system horizontally, remove the stand and install the self-adhesive feet.



Caution. Risk of Electric Shock. To reduce the risk of personal injury or damage to the equipment, do not use screws longer than those supplied (M4x16, 8.00 mm maximum head diameter) to reconnect the stand to the system.

Powering On and Off

Connect power and power on the system after you have connected all of the equipment that you will use with it. Make sure that the system is powered off before you connect devices to it.

Powering On the Polycom HDX 9000 Series Systems

To power on the Polycom HDX 9000 series, do one of the following:

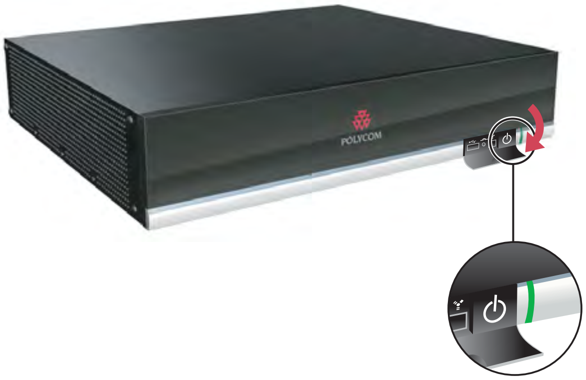
- Press the ⏻ power button on the remote control.
- Press the power switch on the front of the system.

The Polycom splash screen is displayed within about 10 seconds.

To power off the Polycom HDX 9000 series, do one of the following:

- Press and hold the ⏻ power button on the remote control for 2 seconds.
- Press and hold the power switch on the front of the system for 2 seconds.

The following figure shows the location of the power switch and indicator light.



The indicator light on the front of the Polycom HDX 9000 series system provides this information:

Indicator Light	System Status
Off	System is powered off.
Steady green light	System is initializing. System is awake and not in a call.
Blinking green light	System received an IR signal while awake and not in a call.
Blinking green light (on 1 sec, off 2 sec)	System is asleep, not in a call.
Steady amber light	System is in a call.
Blinking amber light	System received an IR signal while in a call.

Powering On the Polycom HDX 8000 HD System

To power on the Polycom HDX 8000 HD system, do one of the following:

- Press the ⏻ power button on the remote control.
- Press the power switch on the front of the system.

The Polycom splash screen is displayed within about 10 seconds.

To power off the Polycom HDX 8000 HD system, do one of the following:

- Press and hold the ⏻ power button on the remote control for 2 seconds.
- Press and hold the power switch on the front of the system for 2 seconds.

The indicator light on the front of the Polycom HDX 8000 series provides this information:

Indicator Light	System Status
Off	System is without power.
Steady blue light	System is initializing. System is awake and not in a call.
Blinking blue light	System received an IR signal while awake.
Blinking blue light (on 1 sec, off 2 sec)	System is asleep, not in a call.
Steady amber light	System is in a call.
Blinking amber light	System received an IR signal while in a call.

Powering On the Polycom HDX 4000 Series Systems

To power on the Polycom HDX 4000 series, do one of the following:

- Press the power button on the front of the system.
- Press the power button on the side of the monitor.

The system powers on and displays near video or your computer desktop within about 60 seconds.

To power off the Polycom HDX 4000 series monitor, do one of the following:

- Press the power button on the side of the monitor.

  The monitor enters standby mode. The system stays powered on.

To power off the Polycom HDX 4000 series, do one of the following:

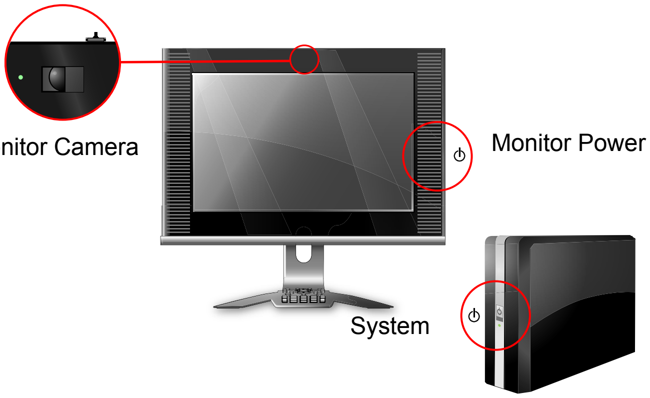
- Press and hold the power button on the side of the monitor.

  The monitor and the system power off.

- Press and hold the power button on the front of the system.

  The monitor and the system power off.

The following figure shows the location of the power switches and indicator lights.



The indicator light on the front of the Polycom HDX 4000 series system provides this information:

Indicator Light (System)	Status
Off	System is without power.
Steady blue light	System is initializing. System is awake and not in a call.
Blinking blue light	System received an IR signal while awake.
Blinking blue light (on 1 sec, off 2 sec)	System is asleep, not in a call.
Steady amber light	System is in a call.
Blinking amber light	System received an IR signal while in a call.

The indicator light on the side of the Polycom HDX 4000 series monitor provides this information:

Indicator Light (Monitor Power)	Status
Off	Monitor is powered off.
Steady blue light	Monitor is powered on.
Steady amber light	Monitor is in standby mode.
Rapidly blinking light	Monitor is not connected correctly to the system. Verify that the monitor is connected correctly according to the setup sheet you received with the system.

The indicator light next to the Polycom HDX 4000 series built-in camera provides this information:

Indicator Light (Monitor Camera)	Status
Off	System is not in a call.
Steady green light	System is in a call.
Blinking green light	System is in a call with the privacy shutter closed.

Configuring with the Setup Wizard

When you power on your system for the first time, the setup wizard detects the system's IP and ISDN connections and leads you through the minimum configuration steps required to place a call.

The setup wizard allows you to set a room password, which allows you to limit access to the Admin Settings. The default room password is the 14-digit system serial number from the System Information screen or the back of the system.

Make sure you can recall the room password if you set one. If you forget the password, you will have to reset the system, delete the system files, and run the setup wizard again in order to access the Admin Settings and reset the password.

If Security Mode is enabled, the room password is required to access the Reset System screen. If you forget the room password while the system is in Security Mode, refer to Using the Restore Button on page 12-21.

You can run the setup wizard or view the configuration screens in either of these two ways.

- **In the room with the system** — Use the remote control to navigate the screens and enter information. You can use the number pad on the remote control to enter text just like you can with a cell phone.
- **From a remote location** — Use a web browser to access the Polycom HDX Web Interface. For more information about using the web interface, refer to Accessing the Polycom HDX Web Interface on page 9-1.

2

Networks

This guide covers network types used worldwide. Please note that not all network types are available in all countries.

Getting the Network Ready

Before you begin configuring the network options, you must make sure your network is ready for video conferencing.

To begin, refer to the *Network Planning Worksheets for Video Conferencing* document, available on the Polycom web site. This document contains information you need to prepare your network, such as worksheets that will help you order ISDN.

Polycom also offers high-definition readiness services. For more information, please contact your Polycom distributor.

Connecting to the LAN

You must connect the system to a LAN to:

- Make H.323 or SIP calls
- Use the Global Directory Server
- Access the web interface
- Use People+Content™ IP

LAN Status Lights

The LAN connector on the Polycom HDX 9000 series has two lights to indicate connection status and traffic:

Indicator Light	Connection Status
Left light off	No 1000Base-T connection.
Left light green	1000Base-T connection. The light goes off each time a frame is transmitted or received.
Right light off	No 10/100Base-T connection.
Right light green	100Base-T connection. The light goes off each time a frame is transmitted or received.
Right light yellow	10Base-T connection. The light goes off each time a frame is transmitted or received.

The LAN connector on the Polycom HDX 8000 HD and Polycom HDX 4000 series systems has two lights to indicate connection status and traffic:

Indicator Light	Connection Status
Left light off	No 100Base-T connection.
Left light green	100Base-T connection. The light goes off each time a frame is transmitted or received.
Right light off	No 10Base-T connection.
Right light green	10Base-T connection. The light goes off each time a frame is transmitted or received.

Configuring LAN Properties

To configure LAN properties:

1. Go to **System > Admin Settings > LAN Properties**.
2. Configure these settings on the LAN Properties screen:

Setting	Description
IP Address (IPv4)	Specifies how the system obtains an IP address. • **Obtain IP address automatically** — Select if the system gets an IP address from the DHCP server on the LAN. • **Enter IP address manually** — Select if the IP address will not be assigned automatically. Changing this setting causes the system to restart.
Your IP Address is **or** **Use the Following IP Address**	If the system obtains its IP address automatically, this area displays the IP address currently assigned to the system. If you selected **Enter IP Address Manually**, enter the IP address here. Changing the IP address causes the system to restart.
Subnet Mask	Displays the subnet mask currently assigned to the system. If the system does not automatically obtain a subnet mask, enter one here. Changing this setting causes the system to restart.
Default Gateway (IPv4)	Displays the gateway currently assigned to the system. If the system does not automatically obtain a gateway IP address, enter one here. Changing this setting causes the system to restart.
Link-Local	Displays the IPv6 address used for local communication within a subnet.
Site-Local	Displays the IPv6 address used for communication within the site or organization.
Global Address	Displays the IPv6 internet address.
Default Gateway (IPv6)	Displays the gateway currently assigned to the system. If the system does not automatically obtain a gateway IP address, enter one here. Changing this setting causes the system to restart.

3. Select ▶ and configure these settings:

Setting	Description
Connect to my LAN	Specifies whether the system is part of the LAN. Changing this setting causes the system to restart.
Host Name	Indicates the system’s DNS name. Changing this setting causes the system to restart.

Setting	Description
Domain Name	Displays the domain name currently assigned to the system. If the system does not automatically obtain a domain name, enter one here.
DNS Servers	Displays the DNS servers currently assigned to the system. If the system does not automatically obtain a DNS server address, enter up to four DNS servers here. Changing this setting causes the system to restart.
LAN Speed	Specify the LAN speed to use. Note that the speed you choose must be supported by the switch. Choose **Auto** to have the network switch negotiate the speed automatically. Choosing **Auto** automatically sets **Duplex Mode** to **Auto**. If you choose **10 Mbps**, **100 Mbps**, or **1000 Mbps** you must set **Duplex Mode** to **Half** or **Full**. **Note**: Polycom does not support **Auto** for the Polycom HDX system only or the switch only; the settings for both must be the same. Changing this setting causes the system to restart.
Duplex Mode	Specify the duplex mode to use. Note that the Duplex mode you choose must be supported by the switch. Choose **Auto** to have the network switch negotiate the Duplex mode automatically. Choosing **Auto** automatically sets **LAN Speed** to **Auto**. **Note**: Polycom does not support **Auto** for the Polycom HDX system only or the switch only; the settings for both must be the same. Changing this setting causes the system to restart.

Configuring IP Settings

Specifying H.323 Settings

If your network uses a gatekeeper, the system can automatically register its H.323 name and extension. This allows others to call the system by entering the H.323 name or extension instead of the IP address.

To specify H.323 settings:

1. Go to **System > Admin Settings > Network > IP > H.323 Settings**.
2. Configure these settings on the H.323 Settings screen:

Setting	Description
Display H.323 Extension	Lets users placing a gateway call enter the H.323 extension separately from the gateway ID. If you do not select this setting, users make gateway calls by entering the call information in this format: gateway ID + ## + extension
H.323 Name	Specifies the name that gatekeepers and gateways use to identify this system. You can make point-to-point calls using H.323 names if both systems are registered to a gatekeeper. The H.323 Name is the same as the System Name, unless you change it. Your organization's dial plan may define the names you can use.
H.323 Extension (E.164)	Lets users place point-to-point calls using the extension if both systems are registered with a gatekeeper, and specifies the extension that gatekeepers and gateways use to identify this system. The default H.323 Extension can be changed. Your organization's dial plan may define the extensions you can use.

Configuring the System to Use a Gatekeeper

A gatekeeper is a "network administrator" that supervises network traffic and manages functions such as bandwidth control and admission control. The gatekeeper also handles address translation, which allows users to make calls using static aliases instead of IP addresses that may change each day.

To configure the system to use a gatekeeper:

1. Go to **System > Admin Settings > Network > IP > H.323 Settings**.
2. Select ▶ and configure these settings on the Gatekeeper screen:

Setting	Description
Use Gatekeeper	Specifies whether to use a gatekeeper. Gateways and gatekeepers are required for calls between IP and ISDN. • **Off** — Calls do not use a gatekeeper. • **Auto** — System attempts to automatically find an available gatekeeper. • **Specify** — Calls use the specified gatekeeper. Enter the gatekeeper's IP address or name (for example, gatekeeper.companyname.usa.com, or 10.11.12.13). • **Specify with PIN** — Calls use the specified E.164 address and require an **Authentication PIN**. This setting is available only when the Avaya® option key is installed.

Setting	Description
H.323 Name	Specifies the name that gatekeepers use to identify this system. You can make point-to-point calls using H.323 names if both systems are registered to a gatekeeper. The H.323 Name is the same as the System Name, unless you change it. Your organization's dial plan may define the names you can use.
H.323 Extension (E.164)	Lets users place point-to-point calls using the extension if both systems are registered with a gatekeeper, and specifies the extension that gatekeepers and gateways use to identify this system. The default H.323 Extension is based on the system serial number, but it can be changed. Your organization's dial plan may define the extensions you can use.
Gatekeeper IP Address	If you chose to use an automatically selected gatekeeper, this area displays the gatekeeper's IP address. If you chose to specify a gatekeeper, enter the IP address.
Authentication PIN	Specifies the password PIN to use for authentication with the Avaya Communication Manager®. This setting is available when **Use Gatekeeper** is set to **Specify with PIN**.
Use PathNavigator for Multipoint Calls	Lets you specify whether multipoint calls use the system's internal multipoint capability or the Polycom PathNavigator™ Conference on Demand feature. This feature is available only if the system is registered with a PathNavigator gatekeeper.

3. If you chose to specify a gatekeeper, select ▶ to view **Alternate Gatekeepers** that the system can use if the primary gatekeeper is not available.

Points to note about PathNavigator's Conference on Demand feature:

If your organization uses Polycom's PathNavigator, you can use PathNavigator's Conference on Demand feature to place multipoint calls.

In order to place calls using PathNavigator, you need to:

- Register your Polycom HDX system with PathNavigator.
- Configure your Polycom HDX system to use PathNavigator for multipoint calls (see Configuring the System to Use a Gatekeeper on page 2-5).
- Create a multi-site entry in the directory (recommended).

When using PathNavigator's Conference on Demand:

- Once the call begins, users cannot add another site to the call — even if the site was in the call originally.
- The MGC™ needs to have enough ports available to complete the call. If it does not, the call disconnects.

Configuring Integration with Avaya Networks

Polycom HDX systems with an Avaya option key can use the following features on an Avaya telephony network:

- Call forwarding (all, busy, no answer)—Configured by the Avaya Communication Manager administrator and implemented by the user
- Call coverage—Configured by the Avaya Communication Manager administrator
- Transfer—Implemented via flash hook and dialing digits
- Audio conference—Implemented via flash hook and dialing digits
- Call park
- Answer back
- DTMF tones for Avaya functions

Refer to the Avaya documentation and *User's Guide for Polycom HDX Systems* for information about these features.

To install the Avaya option key:

1. Obtain a license number from Avaya, then enter that number online on the Polycom web site at www.polycom.com/support/video, along with your Polycom HDX system serial number. This returns a key code for the Avaya option.
2. On the Polycom HDX system go to **System > Admin Settings > General Settings > Options** and enter the key code for the Avaya option.

To configure the Polycom HDX system to use Avaya network features:

1. Go to **System > Admin Settings > Network > IP > H.323 Settings > Next**.

   Set **Use Gatekeeper** to **Specify with PIN**.

   Enter the **H.323 Extension (E.164)** provided by the Avaya Communication Manager administrator.

   Enter the Avaya Communication Manager IP address for **Gatekeeper IP Address**.

   Enter the **Authentication PIN** provided by the Avaya Communication Manager administrator.

2. Go to **System > Admin Settings > Network > IP > Call Preference**.

   Set **Enable H.239**.

3. Go to **System > Admin Settings > General Settings > System Settings > Call Settings**.

   Set **Auto Answer Point-to-Point Video** and **Auto Answer Multipoint Video** to **No**.

Configuring the System to Use a Gateway

A gateway performs code and protocol conversion between H.323 (IP), SIP, and H.320 (ISDN), so that users on different networks can call one another. If the system is configured to use a gateway, you must also configure it to use a gatekeeper.

To configure the system to use a gateway:

1. Go to **System > Admin Settings > Network > IP > H.323 Settings.**
2. Select ▶ two or three times and configure these settings on the Gateway screen:

Setting	Description
Country Code	Specifies the country code for the system's location.
Area Code	Specifies the area or city code for the system's location.
Number	Specifies the gateway's number.
H.323 Extension (E.164)	Specifies the extension that identifies this system for incoming gateway calls. The default H.323 Extension can be changed.
Gateway Number Type	Specifies the number type users enter to call this system: • **Direct Inward Dial** — Users enter an internal extension to call this system directly. **Note**: If you choose this setting, you must also register the number with the gatekeeper as an E.164 alias. • **Number + Extension** — Users enter the gateway number and the system's extension to call this system.
Number of Digits in DID Number	Specifies the number of digits in the DID number. The national or regional dialing plan for your location determines the standard number of digits. For instance, the US standard is 7 digits.
Number of Digits in Extension	Specifies the number of digits in the extension used when **Direct Inward Dial** is selected. Your organization's dial plan determines this number.

3. Select ▶ and enter a prefix or suffix for each bandwidth you want to allow for gateway calls.

   Associating prefixes and suffixes with particular bandwidths on your gateway can optimize the use of bandwidth by your organization. Be sure the gateway is configured to use the same prefixes and suffixes you define for the system.

Specifying SIP Settings

If your network supports the Session Initiation Protocol (SIP), you can use SIP to connect IP calls. To use SIP, go to **System > Admin Settings > Network > Call Preference** and enable **SIP**.

To specify SIP Settings:

1. Go to **System > Admin Settings > Network > IP > SIP Settings**.
2. Configure these settings on the SIP Settings screen:

Setting	Description
Transport Protocol	Indicates 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. For example, if your Polycom HDX system is operating in a Microsoft® Live Communication Server (LCS) SIP network, choose **TCP**. If your Polycom HDX system is operating in a Nortel Multimedia Communication Server (MCS) SIP network, choose **UDP**.
User Name	Specifies the system's SIP name. If you leave this field blank, the system's IP address is the SIP user name.
Password	Specifies the password that authenticates the system to the Registrar Server.
Registrar Server	Specifies the DNS name or IP address of the SIP Registrar Server. By default, the SIP signaling is sent to port 5060 on the registrar server. To specify a different port, add it to the address as shown here: 10.11.12.13:5070
Proxy Server	Specifies the DNS name or IP address of the SIP Proxy Server. If you leave this field blank, no proxy server is used. By default, the SIP signaling is sent to port 5060 on the proxy server. To specify a different port, add it to the address as shown here: 10.11.12.13:5070

Points to note about SIP:

The SIP protocol has been widely adapted for voice over IP communications and basic video conferencing; however, many of the advanced video conferencing capabilities are not yet standardized. Many capabilities also depend on the SIP server.

Examples of features that are not supported using SIP are:

- Polycom Video and Audio Error Concealment
- Encryption
- People and Content (H.239 and Polycom People+Content)
- H.263 Pro-Motion™
- For more information about SIP compatibility issues, refer to the *Release Notes for Polycom HDX Systems*.

Integration with Microsoft Live Communications Server (LCS)

Integration with Microsoft LCS allows you to set up a list of LCS 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. For more information about the contact list home screen, refer to Displaying Contacts on the Home Screen on page 7-5.

To configure a Polycom HDX system for use with Microsoft LCS:

1. Contact the LCS administrator to make sure that the Polycom HDX system has a user account on the LCS server. Make a note of the account information.
2. Go to **System** > **Admin Settings** > **Network** > **Call Preference**.
3. Enable **SIP**.
4. Go to **System** > **Admin Settings** > **Network** > **IP** > **SIP Settings.**
5. Configure these settings:

Setting	Description
User Name	Specifies the user name created for your Polycom HDX system with the LCS server.
Password	Specifies the password for this user name.
Registrar Server	Specifies the location (IP or DNS) of the LCS server.
Proxy Server	Specifies the location (IP or DNS) of the LCS server.

To view the status of the current LCS registration, do one of the following:

- Go to **System > Admin Settings > Global Services > Directory Servers > Microsoft**.
- Select the Microsoft LCS server icon at the top of the Directory screen.

Adding and Removing Microsoft LCS Contacts

To add or remove LCS contacts for the Polycom HDX system:

1. Open the Microsoft Office Communicator or Windows® Messenger application on a computer.
2. Log in to the application using the account information from the SIP Settings screen of the Polycom HDX system.
3. Use the application to add or remove contacts for the Polycom HDX system.

To configure display options for contact list information:

1. Go to **System > Admin Settings > Global Services > Directory Servers > Microsoft**. You can also select the Microsoft LCS server icon at the top of the Directory screen.
2. Configure these settings:

Setting	Description
User Name	Specifies the user name created for your Polycom HDX system with the LCS server.
Group Name	Specifies the group name used for global directory entries in the local directory.
Display Contacts	Specifies whether to display your contacts on the contact list home screen and in the directory. For more information, refer to Displaying Contacts on the Home Screen on page 7-5.
Show My Offline Contacts	Specifies whether to include offline contacts on the contact list home screen or in the directory.

Specifying Quality of Service

Set the Quality of Service options for the way your network handles IP packets during video calls.

To specify Quality of Service:

1. Go to **System > Admin Settings > Network > IP > Quality of Service**.
2. Configure these settings on the Quality of Service screen:

Setting	Description
Type of Service	Specifies your service type and lets you choose how to set the priority of IP packets sent to the system for video, audio, and far-end camera control: • **IP Precedence** — Represents the priority of IP packets sent to the system. The value can be between 0 and 5. If this setting is selected, enter the value in the **Type of Service Value** field. • **DiffServ** — Represents a priority level between 0 and 63. If this setting is selected, enter the value in the Type of Service Value field.
Type of Service Value	Specifies the IP Precedence or Diffserv value for Video, Audio, and Far End Camera Control.
Maximum Transmission Unit Size	Specifies the Maximum Transmission Unit (MTU) size used in IP calls. If the video becomes blocky or network errors occur, packets may be too large; decrease the MTU. If the network is burdened with unnecessary overhead, packets may be too small; increase the MTU.
Enable PVEC	Allows the system to use PVEC (Polycom Video Error Concealment) if packet loss occurs.
Enable RSVP	Allows the system to use Resource Reservation Setup Protocol (RSVP) to request that routers reserve bandwidth along an IP connection path. Both the near site and far site must support RSVP in order for reservation requests to be made to routers on the connection path.

3. Select ▶ and configure these settings on the Bandwidth screen:

Setting	Description
Dynamic Bandwidth	Specifies whether to let the system automatically find the optimum line speed for a call.
Maximum Transmit Bandwidth	Specifies the maximum transmit line speed between 64 kbps and 4096 kbps.
Maximum Receive Bandwidth	Specifies the maximum receive line speed between 64 kbps and 4096 kbps. **Note:** The 8 Mbps option is only for multipoint calls. It is not available as a maximum bandwidth.

Configuring the System for Use with a Firewall or NAT

A firewall protects an organization's IP network by controlling data traffic from outside the network. Unless the firewall is designed to work with H.323 video conferencing equipment, you must configure the system and the firewall to allow video conferencing traffic to pass in and out of the network.

Firewall Settings

Network Address Translation (NAT) network environments use private internal IP addresses for devices within the network, while using one external IP address to allow devices on the LAN to communicate with other devices outside the LAN. If your system is connected to a LAN that uses a NAT, you will need to enter the **NAT Public (WAN) Address** so that your system can communicate outside the LAN.

To set up the system to work with a firewall or NAT:

1. Go to **System > Admin Settings > Network > IP > Firewall**.
2. Configure these settings on the Firewall screen:

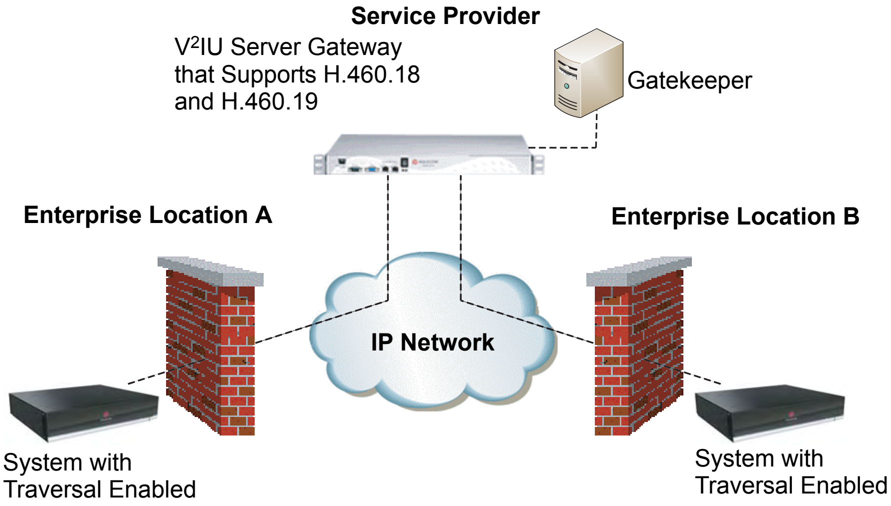
Setting	Description
Fixed Ports	Lets you specify whether to define the TCP and UDP ports. • If the firewall is not H.323 compatible, enable this setting. The Polycom HDX system assigns a range of ports starting with the TCP and UDP ports you specify. The system defaults to a range beginning with port 3230 for both TCP and UDP. **Note**: You must open the corresponding ports in the firewall. You must also open the firewall's TCP port 1720 to allow H.323 traffic. • If the firewall is H.323 compatible or the system is not behind a firewall, disable this setting.
TCP Ports **UDP Ports**	Lets you specify the beginning value for the range of TCP and UDP ports used by the system. The system automatically sets the range of ports based on the beginning value you set. **Note**: You must also open the firewall's TCP port 1720 to allow H.323 traffic.
Enable H.460 Firewall Traversal	Allows the system to use H.460-based firewall traversal. For more information, refer to H.460 NAT Firewall Traversal on page 2-15.
NAT Configuration	Lets you specify whether the system should determine the NAT Public WAN Address automatically. • If the system is behind a NAT that allows HTTP traffic, select **Auto**. • If the system is behind a NAT that does not allow HTTP traffic, select **Manual**. • If the system is not behind a NAT or is connected to the IP network through a Virtual Private Network (VPN), select **Off**.
NAT Public (WAN) Address	Displays the address that callers from outside the LAN use to call your system. If you chose to configure the NAT manually, enter the NAT Public Address here.
NAT is H.323 Compatible	Specifies that the system is behind a NAT that is capable of translating H.323 traffic.
Address Displayed in Global Directory	Lets you choose whether to display this system's public or private address in the global directory.

Visit the Polycom Security section of the Knowledge Base at www.polycom.com for timely security information. Systems deployed outside a firewall are potentially vulnerable to unauthorized access. You can also register to receive periodic email updates and advisories.

H.460 NAT Firewall Traversal

You can configure Polycom HDX systems to use standards-based H.460.18 and H.460.19 firewall traversal, which allows video systems to more easily establish IP connections across firewalls.

The following illustration shows how a service provider might provide H.460 firewall traversal between two enterprise locations. In this example the V²IU™ traversal server gateway is on the edge of the service provider network and facilitates IP calls between Polycom HDX systems behind different firewalls.


Service Provider
V²IU Server Gateway that Supports H.460.18 and H.460.19
Gatekeeper
Enterprise Location A
Enterprise Location B
IP Network
System with Traversal Enabled
System with Traversal Enabled

To use this traversal, Polycom HDX systems and firewalls must be configured as follows:

- Enable firewall traversal on the Polycom HDX system.
- Register the Polycom HDX system to an external V²IU Traversal Server Gateway that supports the H.460.18 and H.460.19 standards.
- Make sure that firewalls being traversed allow Polycom HDX systems behind them to open outbound TCP and UDP connections.
  - Firewalls with a stricter rule set should allow Polycom HDX systems to open at least the following outbound TCP and UDP ports: 1720 (TCP), 14085-15084 (TCP) and 1719(UDP), 16386-25386 (UDP).
  - Firewalls should permit inbound traffic to TCP and UDP ports that have been opened earlier in the outbound direction.
- For best interoperability, make sure that H.323 protocol-aware features are disabled on firewalls being traversed.

To enable firewall traversal on a Polycom HDX system:

1. Go to **System > Admin Settings > Network > IP > Firewall >** ▶.
2. Select **Enable H.460 Firewall Traversal**.

Connecting Polycom HDX Systems to ISDN or Other Networks

The following network interface modules are available:

- **BRI** — Allows you to connect to an ISDN network using up to four BRI lines.
- **PRI** — Allows you to connect to an ISDN network using a PRI line.
- **V.35/RS-449/RS-530** — Allows you to connect to third-party network equipment, including encryption equipment and RS-366 dialers.

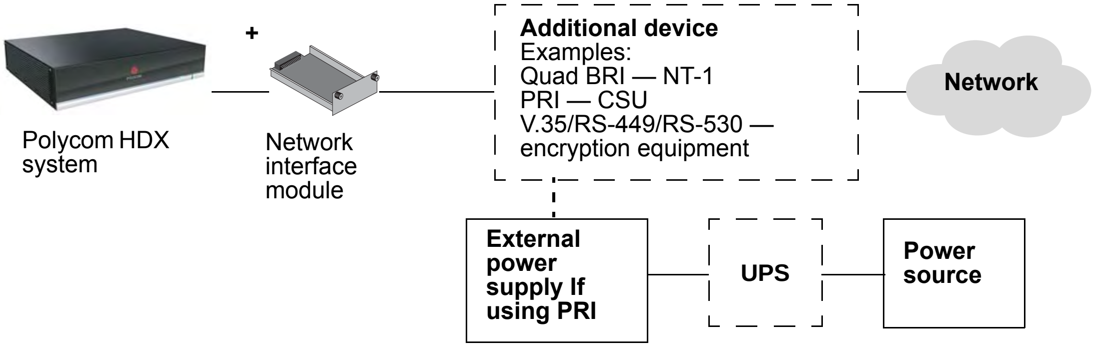
If you received a network interface module with your system, you may find it convenient to install it before positioning the system. Refer to the setup sheet that you received with the network interface module. Make sure that the system is powered off before you connect devices to it.

You will need the following network hardware.

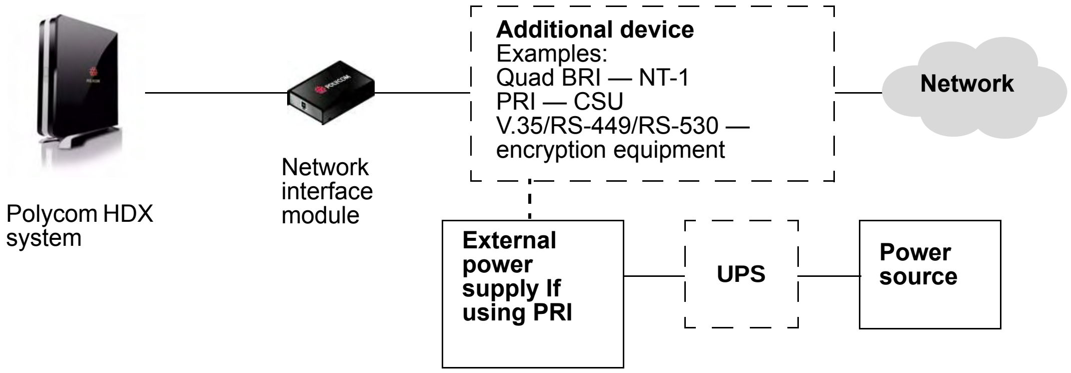
If your network is...	You will need
BRI	• NT-1 device, if the system will be connected to a network that provides a U interface. Do not use an NT-1 device if your PBX network provides an S/T interface. • Up to 4 BRI lines that will not be shared with other equipment. If you connect fewer than four BRI ports on the system’s network interface module, connect them in ascending order, starting with port 1.

If your network is...	You will need
PRI (North America and Japan)	• PBX crossover cable, if required for your PBX. • Channel Service Unit (CSU) — not required if you connect the system to a PBX network. • PRI line.
PRI (outside North America and Japan)	• 75 W coaxial adapter, if the network connection is via a 75 W coaxial cable. • PBX crossover cable, if required for your PBX. • PRI line.
Serial **V.35/RS-449/ RS-530**	• Third-party network equipment and cables. Contact your network equipment vendor to obtain the appropriate cables for the equipment you connect to this interface. If you use only one cable, connect it to port 1 of the network interface module and to the lowest-numbered port of the data communications equipment.

The diagram below shows a general view of how network interface modules are connected in Polycom HDX 9000 series systems.



The diagram below shows a general view of how network interface modules are connected with Polycom HDX 4000 series and Polycom HDX 8000 HD systems.



Quad BRI Network Interface Status Lights

The network interface lights are located on the network interface module.

When the BRI network interface...	It means...
Indicators are off	• No power to the system, or • The system is not connected to the network, or • The system is not receiving a clock signal from the network, or • The system is restarting.
Green indicator is on	The system is receiving a clock signal from the network.
Yellow indicator is on	The system is able to make a call.
Green and yellow indicators are on	• The system is receiving a software update, or • The system is operating normally.

PRI Network Interface Status Lights

The network interface lights are located on the network interface module.

When the PRI network interface...	It means...
Indicators are off	No power to the system.
Red indicator is on or blinking	The system is not connected to the ISDN network, or there is a problem with the ISDN line.
Yellow indicator is on or blinking	There is a problem with the ISDN line.
Green indicator is on	The system is able to make and receive calls.

Serial V.35/RS-449/RS-530 Network Interface Status Lights

The network interface lights are located on the network interface module.

When the serial V.35/RS-449/RS-530 network interface...	It means...
Indicators are off	• No power to the system, or • The system is not communicating with the network, or • The system is restarting.
Yellow indicator is on	The system is receiving a clock signal from the network (able to make a call).
Yellow and green indicators are on	The system is in a call.

Configuring ISDN and Other Network Interface Settings

You can configure a network interface option if the corresponding network interface module is installed. The system automatically detects the type of interface installed and displays only the required configuration screens.

Configuring the BRI Network Interface

To configure the ISDN network interface settings:

1. Go to **System > Admin Settings > Network > ISDN**.
2. Configure these settings:

Setting	Description
Enable ISDN H.320	Allows this system to make H.320 (ISDN) calls.
Number of ISDN Channels to Dial in Parallel	Specifies how many channels to dial at one time. You can specify up to eight channels. If you experience network problems, decrease the number.
Outside Line Dialing Prefix	Specifies the ISDN dialing prefix used to call outside the network.

3. Select ▶ and configure these settings:

Setting	Description
Numbering Plan	Select the appropriate numbering plan for your location, if it differs from the default.
ISDN Voice Algorithm	Specifies which voice algorithm (**aLaw** or **uLaw**) is used for ISDN voice calls. Do not change this setting unless you experience audio issues in all ISDN voice calls.
ISDN Switch Protocol	Specifies the protocol used by your network's switch.
Auto BRI Configuration	Allows the NI-1 switch to automatically configure the directory numbers and SPIDs. This setting is only available if you have selected the NI-1 switch protocol.

4. Select ▶ and configure these settings:

Setting	Description
Country, Country Code	Displays the country selected as the system's location and the country code used for international calls to the system. To specify the system's location, go to **System > Admin Settings > General Settings > Location**. The system automatically supplies the country code when you specify the country.
Area Code	Specifies the area code for this system's location.
Directory Numbers	Specifies the numbers assigned to the B1 and B2 channels for each BRI line. The two numbers for a line may be the same or different, depending on the switch protocol in use.

Setting	Description
Enable	Specifies whether to enable the associated ISDN line. If you selected Standard ETSI Euro-ISDN protocol, you must enable all BRI lines that you expect to be active, and you must not enable lines that will not be connected. You may want to disable a particular line if there are problems with the line that generate continuing error messages.

5. If you have configured the ISDN switch protocol to be AT&T 5ESS Multipoint, NI-1, or Nortel DMS-100, select ▶ and enter the ISDN BRI SPIDs provided by your service provider.

   After you enter the SPIDs, the system verifies them. If the system is unable to verify the SPIDs, make sure the system is connected and that the ISDN numbers you entered are correct.

   If you do not have the SPIDs from your service provider, you can click **Start** to Auto Detect SPIDs.

Configuring the PRI Network Interface

Points to note about fractional PRI:

- Assigned channels must begin with channel 1, and the channel numbers must be consecutive.
- A D channel must be provided.
- Outbound call bandwidth must not exceed the available bandwidth.

To configure the ISDN network interface settings:

1. Go to **System > Admin Settings > Network > ISDN**.
2. Configure these settings:

Setting	Description
Enable ISDN H.320	Allows this system to make H.320 (ISDN) calls.
Area Code	Specifies the area code for this system’s location.

Setting	Description
PRI Video Number	Specifies the ISDN number assigned to this system.
Outside Line Dialing Prefix	Specifies the ISDN dialing prefix used to call outside the network.
BONDING: **Calling Endpoint Uses the Original ISDN Number**	Specifies the use of a bonding standard. Incoming bonded calls will use the original number received to connect all remaining lines required for the call.

3. Select ▶ and configure these settings:

Setting	Description
Line Signaling	Specifies the framing format in use. This setting is configurable for PRI E1, read-only for PRI T1.
External CSU North America only	Specifies whether this system uses an external or internal Channel Service Unit (CSU).
Line Build Out PRI T1 only	For systems using an internal CSU, indicates the output attenuation in dB. Your service provider can provide you with these values. For systems using an external CSU, indicates the length (in feet) of the RJ-45 cable that connects the PRI network interface module to the CSU.
Switch Protocol	Specifies the Network switch protocol. The available choices are determined by the system's country settings. This setting is read-only for PRI E1, configurable for PRI T1. Your ISDN service provider can tell you which protocol your network uses. If you later change the **Country** setting, the PRI switch protocols available may also change, and you may be prompted to configure a different PRI switch protocol.
ISDN Voice Algorithm	Specifies which voice algorithm (**aLaw** or **uLaw**) is used for ISDN voice calls. Do not change this setting unless you experience audio issues in all ISDN voice calls.

4. Select ▶ and configure these settings:

Setting	Description
Numbering Plan	Select the appropriate numbering plan for your location, if it differs from the default.
International Dialing Prefix	Specify the dialing prefix needed for international calls.
Call-by-Call	Specifies a code that the system sends to the telephone company switch to request a special service, if such a code is required. Consult your telephone service provider to determine the proper call-by-call value.
Number of ISDN Channels to Dial in Parallel	Specifies how many channels to dial at one time. You can specify up to eight channels. If you experience network problems, decrease the number. Set this value to 1 for serial dialing. Serial dialing is not recommended unless you have trouble connecting calls using parallel dialing.
Restore Defaults	Resets all values on this screen. This does not affect other PRI settings.

5. Select ▶ and configure these settings:

Setting	Description
PRI Line Type	Displays read-only information about the system and its configuration.
Number of Active Channels	
D Channel Location	
Network Mode	
Clock Source	
Terminal Endpoint ID TEI	
Line Termination PRI E1 only	

6. Select ▶ and select a channel to activate or deactivate it. Active channels are represented by a green icon, and inactive channels are represented by a gray icon.

Make sure that channels are activated and deactivated only by a knowledgeable network professional so that the system operates properly and can dial at the desired rates.

Configuring the Serial V.35/RS-449/RS-530 Network Interface

To configure the V.35/RS-449/RS-530 network interface settings:

1. Go to **System > Admin Settings > Network > V.35/RS-449/RS-530**.
2. Configure these settings:

Setting	Description
Enable V.35/RS-449/RS-530	Allows the system to connect to a terminal adapter using a V.35, RS-449, or RS-530 connection.
V.35 Ports Used	Specifies whether one or two lines are connected.
RS-366 Dialing	Allows users to dial calls from this system. Clear this setting if this is a dedicated connection or if another device is used for dialing calls.
Area Code **Port 1** **Port 2**	Specifies the area code and number(s) that other sites dial to reach this system. If this is a dedicated connection, leave these fields blank.

3. Select ▶ and configure these settings:

Setting	Description
Prefix	Lets you specify the dialing prefix required to reach an outside line.
Calling Profile	Lets you specify what data communications equipment is connected to the network interface. The system automatically displays the default prefixes, suffixes, and calling speeds required by that device. If your device is not listed, select **Custom**.
Speed	Lets you define the prefixes or suffixes to use for each speed used in a Custom Calling Profile. For information about required prefixes and suffixes, see the documentation that came with the device. If you choose a predefined Calling Profile, this information is supplied for you.

4. Select ▶ and configure these settings:

Setting	Description
ST	Lets you specify the signaling required by the external device connected to the system. Specify normal or inverted, as appropriate. In most cases, normal signaling is appropriate. If your system is connected to Ascend equipment, you may need to set CTS to **Ignore**.
RT	
RTS	
CTS	
DSR	
DCD	
DTR	
Answer on DSR	Specifies that the system should begin the call when it detects a DSR signal.
Delayed DCD Hangup	Specifies how long the system waits to end the call after a DCD signal is lost (for example, during a call via satellite).
DTR Pulse Duration (secs)	Specifies how long the DTR signal goes low after the far site hangs up. When the pulse is too short, the call may not clear. If your system is connected to ADTRAN equipment, you may need to adjust DTR pulse duration.
Trigger Call on H.320 Data	Specifies whether the call starts when H.320 data is detected at the V.35 interface while set for direct connect.

5. Select ▶ and configure these settings:

Setting	Description
Crypto Resync	Allows a Polycom HDX system connected to cryptographic equipment to signal when it loses video synchronization during a call. The cryptographic equipment can then resynchronize with the far site.
Use RTS Signal for Resync Pulse	Allows the system to send the resynchronization pulse on the RTS signal. Select this setting if your data communications equipment uses the V.35 or RS-449 capability of the serial V.35/RS-449/RS-530 network interface. **Note**: When you select this setting, the RTS no longer functions as the Request To Send signal.
Time Between Pulses (sec)	Specifies whether the system should set the time between resync pulses automatically or use the number of seconds you enter.

Setting	Description
Pulse Width (millisec)	Specifies whether the system should set the pulse duration automatically or use the number of milliseconds you enter.

6. Select ▶ and configure these settings:

Setting	Description
Enable Broadcast Mode	Enables support for H.331 broadcast transmissions from the Polycom HDX system. Broadcast mode enables the system to send video and audio to many other systems, such as large satellite networks.
Enable People+Content	Enables People+Content for broadcast mode. **Note:** Polycom HDX 8000 HD and Polycom HDX 4000 series systems must have the People+Content option installed to enable this setting.
Video Format	Specifies the resolution at which video is transmitted.
Video Protocol	Specifies the protocol used to transmit video. Choose the lowest protocol supported by all systems in the conference.
Audio Protocol	Specifies the protocol used to transmit audio.
Frame Rate	Specifies the frame rate to use.

Connecting to an Analog Phone Line

You can connect an analog phone line to the Polycom HDX system to make regular telephone calls with the system or to add audio-only participants to video calls.

> The country setting must be configured correctly on the Polycom HDX system to ensure proper operation of the phone line and to comply with local telephony regulations.

Configuring Telephony

To configure telephony options:

1. Go to **System > Admin Settings > Network > Telephony**.
2. Configure these settings on the Telephony screen:

Setting	Description
Room Telephone Number	Enter the telephone number of the room where the system is located.
System Telephone Number	Specifies the analog phone number of the system, including country and area codes for the system's location.
Outside Line Dialing Prefix	Specifies the dialing prefix used to call outside the network.

To configure the analog phone line (POTS line):

1. Go to **System > Admin Settings > Network > Telephony**.

   Enter the **System Telephone Number** for the analog phone line.
2. Go to **System > Admin Settings > Network > Call Preference**.

   Enable **Analog Phone**.
3. Go to **System > Admin Settings > Network > Call Preference >** ▶.

   Add **Analog Phone** to the Phone Dialing Order on the Network Dialing screen.

Configuring Call Preferences

Call preferences help you manage the network bandwidth used for calls. You can specify the default and optional call settings for outgoing calls. You can also limit the call speeds of incoming calls.

To choose call preferences:

1. Go to **System > Admin Settings > Network > Call Preference**.
2. Configure these settings on the Call Preference screen:

Setting	Description
Basic Mode	Enables a limited operating mode that uses H.261 for video and G.711 for audio. This mode provides administrators with a workaround for interoperability issues that cannot be solved using other methods. The Basic Mode setting stays in effect until you change it.
H.239	Specifies standards-based People+Content data collaboration. Select this option if you know that H.239 is supported by the far sites you will call. If callers experience issues when sharing content with other Polycom systems, disable this setting.
IP H.323	Allows the system to make IP calls.
SIP	Allows the system to use SIP when connecting IP calls.
Analog Phone	Allows the system to make voice-only calls to any phone using an analog phone line.
Transcoding Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD Polycom HDX 4000 HD	Specifies whether the system allows each far-site system to connect at the best possible call rate and audio/video algorithm. If transcoding is disabled, the Polycom HDX system down-speeds all connections to the same call rate.
ISDN Gateway	Allows users to place IP-to-ISDN calls through a gateway.
IP Gateway	Allows users to place ISDN-to-IP or IP-to-IP calls through a gateway.
V.35/RS-449/ RS-530	Allows the system to make calls through your third-party network equipment. This selection is only available when the system has a V.35/RS-449/RS-530 network module installed.
ISDN H.320	Allows the system to make ISDN calls. This selection is only available when the system has ISDN networking capability.

Setting	Description
Voice Over ISDN	Allows the system to make voice-only calls to phones connected to an ISDN network, such as an organization's PBX.

To make the enabled call types available on the Place a Call screen, you must enable the **Call Quality** setting described on page 7-4.

3. Select ▶ and configure these settings on the Network Dialing screen:

Setting	Description
Preferred Dialing Method	Specifies the preferred method for dialing various call types. If set to **Auto**, calls use the configured Dialing Order. If set to **Manual**, the system prompts the user to select the call type from a list when placing a call.
Call Preference	Specifies whether the Polycom HDX system uses the Video Dialing Order or the Phone Dialing Order first when placing calls.
Video Dialing Order	Specifies how the system places video calls to directory entries that have more than one type of number. It also specifies how the system places video calls from the Place a Call screen when the call type selection is either unavailable or set to **Auto**. If a call attempt does not connect, the system tries to place the call using the next call type in the list. This setting is available only when **Preferred Dialing Method** is set to **Auto**. For more information, refer to Configuring Dialing Order Settings on page 2-31.
Phone Dialing Order	Specifies how the system places audio calls to directory entries that have more than one type of number. It also specifies how the system places audio calls from the Place a Call screen when the call type selection is either unavailable or set to **Auto**. If a call attempt does not connect, the system tries to place the call using the next call type in the list. This setting is available only when **Preferred Dialing Method** is set to **Auto**. For more information, refer to Configuring Dialing Order Settings on page 2-31.

4. Select ▶ and configure these settings:

Setting	Description
ISDN Video Calls (H.320)	Determines the speeds that will be used for ISDN video calls from this system when: • The Call Quality selection is either unavailable or set to **Auto** on the Place a Call screen • The call is placed from the directory If the far-site system does not support the selected speed, the system automatically negotiates a lower speed.
International ISDN Calls	Determines the speeds that will be used for International ISDN video calls from this system when: • The Call Quality selection is either unavailable or set to **Auto** on the Place a Call screen • The call is placed from the directory If the far-site system does not support the selected speed, the system automatically negotiates a lower speed.

5. Select ▶ to go to the Preferred Speeds screens and configure these settings:

Setting	Description
Preferred Speed for Placing Calls	Determines the speeds that will be used for calls from this system when: • The Call Quality selection is either unavailable or set to **Auto** on the Place a Call screen • The call is placed from the directory If the far-site system does not support the selected speed, the system automatically negotiates a lower speed.
Maximum Speed for Receiving Calls	Allows you to restrict the bandwidth used when receiving calls. If the far site attempts to call the system at a higher speed than selected here, the call is re-negotiated at the speed specified in this field.

6. Select ▶ to go to the Call Speeds screen and specify the call speeds to make available to users, if you are allowing them to choose speeds on a call-by-call basis.

Configuring Dialing Order Settings

If the call type on the home screen is set to a specific call type, the system does not attempt to place the call using a different call type, even if other types are listed in Video Dialing Order or Phone Dialing Order.

You can configure the Polycom HDX system so that users can choose to place IP-to-ISDN or ISDN-to-IP calls through a gateway.

To allow users to place an IP-to-ISDN call through a gateway:

1. Make sure the system is registered with a gatekeeper.
2. Go to **System > Admin Settings > Network > Call Preference** and enable **ISDN Gateway**.
3. If you want to allow users to place IP-to-ISDN calls through a gateway when calling from the directory, do one of the following:
   - On the Network Dialing screen, set **Preferred Dialing Method** to **Auto** and select **ISDN Gateway** as the first choice under **Video Dialing Order**. With this configuration, ISDN-to-IP calls placed from the directory will be placed through a gateway if an ISDN number and IP extension exist. IP-to-IP calls placed from the directory will be placed through a gateway if an IP address and IP extension exist.
   - On the Network Dialing screen, set **Preferred Dialing Method** to **Manual**. With this configuration, users can select **ISDN Gateway** from the list of call types that appears when placing a call from the directory.

To allow users to place an ISDN-to-IP call through a gateway:

1. Go to **System > Admin Settings > Network > Call Preference** and enable **IP Gateway**.
2. If you want to allow users to place ISDN-to-IP or IP-to-IP calls through a gateway when calling from the directory, do one of the following:
   - On the Network Dialing screen, set **Preferred Dialing Method** to **Auto** and select **IP Gateway** as the first choice under **Video Dialing Order**. With this configuration, calls placed from the directory will be placed through a gateway first if an IP number exists.
   - On the Network Dialing screen, set **Preferred Dialing Method** to **Manual**. With this configuration, users can select **IP Gateway** from the list of call types that appears when placing a call from the directory.

3

Monitors and Cameras

Connecting Monitors

Make sure that the system is powered off before you connect devices.

Connecting Monitors to Polycom HDX 9000 Series Systems

The following table shows how you can connect monitors to a Polycom HDX 9000 series system.

Video Output Number	Connector	Output Formats
1	BNC (two)	S-Video, Composite
	DVI-I	VGA, DVI*, Component
2	BNC (two)	S-Video, Composite
	DVI-I	VGA, DVI*, Component
3 (VCR/DVD Player)	BNC (two)	S-Video, Composite
4 (Content), Polycom HDX 9004	DVI-I	VGA, DVI*, Component
* Select DVI if the monitor is connected using HDMI.		

For Monitor 1 and Monitor 2, the system provides both dual BNC connectors and a DVI-I connector. Only one at a time is active. If both outputs are connected to monitors, only the DVI-I connector is active.

The Polycom HDX system user interface is displayed on Monitor 1.

Connecting Monitors to Polycom HDX 8000 HD Systems

The following table shows how you can connect monitors to a Polycom HDX 8000 HD system.

Video Output Number	Connector	Output Formats
1	DVI-I	VGA, DVI, Component
2 (Requires the Additional Video I/O option)	DVI-I	VGA, DVI, Component
3 (VCR/DVD Player)	S-Video	S-Video, Composite

The Polycom HDX system user interface is displayed on Monitor 1.

Using a Polycom HDX 4000 Series Monitor with a Computer

You can use the Polycom HDX 4000 series monitor as a high-resolution display for your computer, as shown on the quick start guide.

To use the Polycom HDX 4000 series monitor as the monitor for a computer:

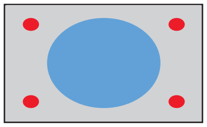
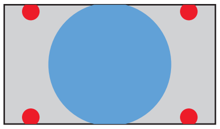
1. Connect a cable from the DVI connector on the back of the Polycom HDX 4000 series system to the DVI or VGA connector on your computer.
2. To use the system's built-in speakers for your computer's audio, connect the 3.5mm audio cable from your computer to the audio input connector on the Polycom HDX 4000 series system.

Configuring Monitor Settings

To configure monitors:

1. Go to **System > Admin Settings > Monitors > Monitors**.
2. Configure these settings on the Monitors screen:

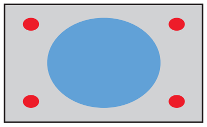
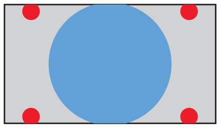
Setting	Description
Monitor 1	Specifies the monitor's aspect ratio: • **4:3** — Select if you are using a regular TV monitor. • **16:9** — Select if you are using a wide-screen monitor.

Setting	Description
Video Format	Specifies the monitor’s format: - **DVI** — Select if the monitor is connected to the DVI connector using a DVI cable. DVI resolutions can be 1024 x 768 or 1280 x 720. - **VGA** — Select if the monitor is connected to the DVI connector using a VGA cable. VGA resolutions can be 1024 x 768 or 1280 x 720. - **Component YPbPr** — Select if the monitor is connected to the DVI connector using component cables. - **S-Video** (Polycom HDX 9000 series only**)** — Select if the monitor is connected to the BNC connectors using an S-Video cable. - **Composite** (Polycom HDX 9000 series only) — Select if the monitor is connected to the BNC connectors using a composite video cable. **Note**: If you select **16:9**, you will also need to set up the monitor for full-screen display. In the monitor’s setup menu, choose the setting that stretches the picture uniformly without clipping the edges, which is usually called Full, Wide screen, or 16x9. Use this setting:  Not this setting: 
Resolution	Specifies the resolution for the monitor.
Output Upon Screen Saver Activation	Specifies the screen saver output for Monitor 1: Specifies whether black video or no signal is sent to the monitor when the system goes to sleep and the screen saver activates. Select **Black** if you want to display screen saver text. This is the recommended setting to prevent burn-in for TV monitors. Select **No Signal** if you want the display to react as if it is not connected when the system goes to sleep. This is the recommended setting for VGA monitors and projectors.

Setting	Description
PIP Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD	Specifies PIP (Picture-in-Picture) behavior: • **Camera** — The PIP window is displayed when the call is first connected and when a user moves the camera, uses presets, or switches to a different camera source. • **On** — The PIP window stays on for the duration of the call. • **Off** — The PIP window is not displayed during the call. **Note:** PIP settings are also available in the User Settings screen. Users can turn the PIP on or off and change its location on the screen using **Display** on the remote control.
Display Near Video	Specify whether to display near video on this monitor.
Display Far Video	Specify whether to display far video on this monitor.
Display Content	Specify whether to display content on this monitor.
Dual Monitor Emulation Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD	Specifies whether the system can show multiple views on a single display. If content is being viewed, different views can be displayed by pressing **Display** on the remote control. For more information, refer to Using Dual Monitor Emulation on page 3-9.

3. Select ▶ and configure these settings for a Polycom HDX 9000 series or Polycom HDX 8000 HD system:

Setting	Description
Monitor 2	Specifies the second monitor's aspect ratio: • **Off** — Select if you do not have a second monitor. • **4:3** — Select if you are using a regular TV monitor as the second monitor. • **16:9**—Select if you are using a wide-screen monitor as the second monitor. On the monitor, select the display mode that uniformly stretches the video from side to side, which is usually called Full, Wide screen, or 16x9.

Setting	Description
Video Format	Specifies the monitor's format: • **DVI** — Select if the monitor is connected to the DVI connector using a DVI cable. DVI resolutions can be 1024 x 768 or 1280 x 720. • **VGA** — Select if the monitor is connected to the DVI connector using a VGA cable. VGA resolutions can be 1024 x 768 or 1280 x 720. • **Component YPbPr** — Select if the monitor is connected to the DVI connector using component cables. • **S-Video** (Polycom HDX 9000 series only) — Select if the monitor is connected to the BNC connectors using an S-Video cable. • **Composite** (Polycom HDX 9000 series only) — Select if the monitor is connected to the BNC connectors using a composite video cable. **Note**: If you select **16:9**, you will also need to set up the monitor for full-screen display. In the monitor's setup menu, choose the setting that stretches the picture uniformly without clipping the edges, which is usually called Full, Wide screen, or 16x9. Use this setting:  Not this setting: 
Resolution	Specifies the resolution for the monitor.
Output Upon Screen Saver Activation	Specifies the screen saver output for Monitor 2: Specifies whether black video or no signal is sent to the monitor when the system goes to sleep and the screen saver activates. Select **Black** if you want to display black video. This is the recommended setting to prevent burn-in for TV monitors. Select **No Signal** if you want the display to react as if it is not connected when the system goes to sleep. This is the recommended setting for VGA monitors and projectors.
Display Near Video	Specify whether to display near video on this monitor.
Display Far Video	Specify whether to display far video on this monitor.
Display Content	Specify whether to display content on this monitor.

4. Select ▶ and configure these settings for a Polycom HDX 9000 series or Polycom HDX 8000 HD system:

Setting	Description
Monitor 3 (VCR/DVD)	Specifies the aspect ratio for recording. • **Off** — Select if you do not have a VCR or DVD player connected to record video conferences. • **4:3** — Select to record for playback on a standard monitor. • **16:9**—Select to record for playback on a wide-screen monitor, if your recording device has this capability. **Note:** (Polycom HDX 8000 HD systems) When Monitor 1 and Monitor 2 are both on and set to **VGA** or **DVI**, Monitor 3 (VCR/DVD) is disabled.
Video Format	Specifies the VCR or DVD player’s format: • **S-Video** — Select if the VCR or DVD player is connected to a Polycom HDX system using an S-Video cable. • **Composite** — Select if the VCR or DVD player is connected to a Polycom HDX system using a composite video cable and S-Video to RCA adapter.
VCR/DVD Record Source	Specifies the video source to be recorded to videotape or DVD. If **Far** is enabled, the recorded video will switch to the current far site speaker. If both **Near** and **Far** are enabled, the recorded video will switch between near and far sites depending on the current speaker. If **Content** is enabled, any content sent during the call is recorded. **Note:** (Polycom HDX 8000 HD systems) When Monitor 1 and Monitor 2 are both on and set to Component, the VCR/DVD Record Source can be set to **Monitor 1 Image** or **Monitor 2 Image**. When Monitor 1 and Monitor 2 are both on and only one monitor is set to Component, the VCR/DVD record source is the image from the Component monitor.
Output Upon Screen Saver Activation	Specifies the screen saver output for a VCR or DVD player: Specifies whether black video or no signal is sent to the VCR or DVD player when the system goes to sleep and the screen saver activates. Select **Black** if you want to send black video. Select **No Signal** if you want the VCR or DVD player to react as if it is not connected when the system goes to sleep. **Note:** (Polycom HDX 8000 HD systems) When VCR/DVD Record Source is set to **Monitor 1 Image** or **Monitor 2 Image**, the screen saver setting for Monitor 3 is the same as that other monitor.

5. Select ▶ and configure these settings for a Polycom HDX 9004:

Setting	Description
Monitor 4	Specifies the fourth monitor's aspect ratio: • **Off** — Select if you do not have a fourth monitor. • **4:3** — Select if you are using a regular TV monitor as the fourth monitor. • **16:9**—Select if you are using a wide-screen monitor as the fourth monitor. On the monitor, select the display mode that uniformly stretches the video from side to side, which is usually called Full, Wide screen, or 16x9.
Video Format	Specifies the monitor's format: • **DVI** — Select if the monitor is connected to the DVI connector using a DVI cable. DVI resolutions can be 1024 x 768, 1280 x 720, or 1280 x 1024. • **VGA** — Select if the monitor is connected to the DVI connector using a VGA cable. VGA resolutions can be 1024 x 768, 1280 x 720, or 1280 x 1024. • **Component YPbPr** — Select if the monitor is connected to the DVI connector using component cables. **Note**: If you select **16:9**, you will also need to set up the monitor for full-screen display. In the monitor's setup menu, choose the setting that stretches the picture uniformly without clipping the edges, which is usually called Full, Wide screen, or 16x9.
Resolution	Specifies the resolution for the monitor.
Output Upon Screen Saver Activation	Specifies the screen saver output for Monitor 4: Specifies whether black video or no signal is sent to the monitor when the system goes to sleep and the screen saver activates. Select **Black** if you want to display black video. This is the recommended setting to prevent burn-in for TV monitors. Select **No Signal** if you want the display to react as if it is not connected when the system goes to sleep. This is the recommended setting for VGA monitors and projectors.
Display Content	Specifies that content is displayed on this monitor.

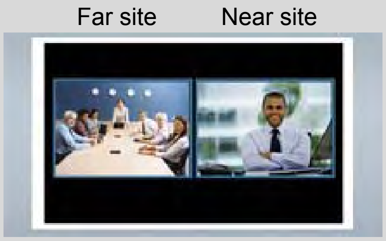
6. Select ▶ and configure these settings:

Setting	Description
People Video Adjustment, Content Video Adjustment	Specifies the adjustment made to people video and content video images. • **None**—Preserves the aspect ratio of the source video. The image is scaled (if necessary) to the largest supported resolution that fits on the display without cropping. Extra areas on the display are filled with black borders. • **Stretch**—Does not preserve aspect ratio. The image is scaled horizontally and vertically to exactly match the resolution of the display. • **Zoom**—Preserves the aspect ratio of the source video. The image is scaled to exactly match one of the display dimensions while matching or exceeding the other display dimension. The image is centered and cropped.
Display Icons in a Call	Specifies whether to display all on-screen graphics, including icons and help text, during calls.
Screen Saver Wait Time	Specifies how long the system remains awake during periods of inactivity. The default is 3 minutes. Setting this option to **Off** prevents the system from going to sleep.

Using Dual Monitor Emulation

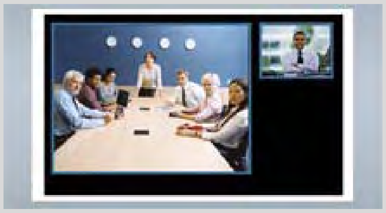
Dual Monitor Emulation is available on Polycom HDX 9000 series and Polycom HDX 8000 HD systems. Dual Monitor Emulation is designed for rooms or offices with one monitor only. Users see both near and far sites on one monitor in two different windows. During presentations, users see content *and* the near and far sites. What you see during a call can depend on factors such as the Polycom HDX system monitor configuration, the number of sites in the call, and whether content is being shared.

Examples of Dual Monitor Emulation



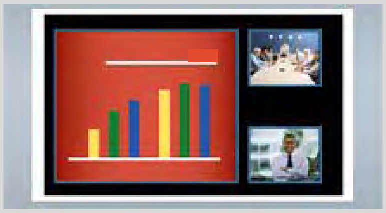
Call connects

Near and far site are the same size and appear side by side.



Near site presses Display

Size of far site window increases.



Near site presents to far site

Content, near site, and far site are displayed in dual monitor emulation mode.

Using Dual Monitor Emulation in a Call

During calls using Dual Monitor Emulation, users can press the **Display** button on the remote control to scroll through the following screen layouts:

1. Near and far sites, same size, side by side
2. Far site big, near site small
3. Near site big, far site small
4. Near site, full screen
5. Far site, full screen

The last layout viewed is used for the next call.

Configuring Multipoint Viewing Modes

To configure multipoint viewing modes:

1. Go to **System > Admin Settings > Monitors > Multipoint Setup**.
2. Configure this setting:

Setting	Description
Multipoint Mode	 **Auto** — The view switches between Presentation mode and Discussion mode, depending on the interaction between the sites. If multiple sites are talking at the same time, Discussion mode is used. If one site is talking uninterrupted for at least 15 seconds, the speaker appears full screen. **Discussion** — Multiple sites are displayed at the same time in separate windows on the display. The current speaker's video is highlighted. This mode is also called continuous presence. **Presentation** — The speaker sees multiple sites in discussion mode while the other sites see the speaker in full screen mode. **Full Screen** — The site that is speaking is shown in full screen to all other sites. This mode is also called voice-activated switching. The current speaker sees the previous speaker.

What you see during a multipoint call can depend on factors such as the Polycom HDX system monitor configuration, the number of sites in the call, the speed of the call, whether content is shared, and whether dual monitor emulation is used. The multipoint viewing mode on the host system is the mode used in the call.

- During multipoint calls that include more than four sites with Discussion or Presentation mode selected, the Polycom HDX system displays the site that is hosting the conference along with the last three sites where people spoke. The Polycom HDX 9004 can display up to eight sites at one time in an HD multipoint call. For more information about HD multipoint, refer to Experiencing High-Definition Video Conferencing on page 3-24.
- If Polycom StereoSurround™ is enabled, multipoint calls in Discussion mode provide a stereo effect. This stereo effect matches a far site's audio to its location on the display.

Points to note about Discussion mode:

- To correctly display Discussion mode, you must select both **Near** and **Far** video sources for Monitor 1.
- To correctly display Discussion mode for multipoint calls with three sites shown on two monitors, you must select both **Near** and **Far** video sources for Monitor 1, and clear **Far** for Monitor 2.
- You cannot display Discussion mode on Monitor 2.
- For multipoint calls using MGC, set **People Video Adjustment** and **Content Video Adjustment** to **None** in order to properly display Discussion mode on a 16x9 monitor.

To select video sources, use the **Display Near Video**, **Display Far Video**, and **Display Content** settings on the Monitors screens.

For more information about multipoint calls, refer to Experiencing High-Definition Video Conferencing on page 3-24 and Configuring Multipoint Calling on page 6-3.

Adjusting the Monitor's Color Balance, Sharpness, and Brightness

In most cases, the monitor you connect to your Polycom HDX 9000 series or Polycom HDX 8000 HD system may be set to a configuration that is appropriate for video conferencing applications. Depending on your environment and model of monitor, however, the video may exhibit one of these problems:

- Picture is too dark or too bright
- Colors appear faded
- Picture has too much of one color — for example, the picture may appear greenish
- Picture has blocky or softened edge detail

If you notice any of these problems, adjust the monitor until the display seems acceptable. Use the video diagnostics test as described in the following steps, or purchase a calibration program DVD tool to help you fine-tune the display settings.

To adjust the monitor for natural color:

1. Go to **System > Diagnostics > Video**.
2. Select the color bars icon to display the color bar test screen.
3. Adjust the color using the monitor's controls for color, contrast, and brightness. Your monitor may also have controls for tint and temperature.

   The colors from left to right should be white, yellow, cyan, green, magenta, red, and blue. Make sure that the white is not tinted red, green, or blue, and that the red is not tinted pink or orange.

> Polycom HDX 4000 series displays are calibrated at the factory and do not require color adjustment.

4. When the colors look right on the test screen, press **Near** until you see video of the room.
5. If the color appears natural, you do not need to make further adjustments.

   If the color still needs adjustment, use the monitor's controls to make small adjustments until the picture appears natural.

Preventing Monitor Burn-In

Monitors and Polycom HDX systems provide display settings to help prevent image burn-in. Plasma televisions can be particularly vulnerable to this problem. Refer to your monitor's documentation or manufacturer for specific recommendations and instructions. The following guidelines help prevent image burn-in:

- For monitors that support low-power mode when no signal is present on the monitor input, set **Output upon Screen Saver Activation** to **No Signal**. Otherwise, set **Output upon Screen Saver Activation** to **Black**.
- Use the monitor's burn-in prevention features, if available.
- Ensure that static images are not displayed for long periods.
- Set the **Screen Saver Wait Time** to 3 minutes or less.
- To keep the screen clear of static images during a call, disable the following settings:
  - **Display Icons in a Call** described on page 3-8
  - **Display Time in Call** described on page 6-1
  - **Far Site Name Display** described on page 6-2

- Be aware that meetings that last more than an hour without much movement can have the same effect as a static image.
- Consider decreasing the monitor’s sharpness, brightness, and contrast settings if they are set to their maximum values.

Connecting Cameras

Polycom HDX 9000 series and Polycom HDX 8000 HD systems provide inputs for multiple PTZ cameras. You can use the RS-232 serial port on the system to control non-Polycom cameras or cameras not connected to input 1 or 2.

Points to note about camera connections:

- When connecting a Polycom EagleEye HD camera to video input 2, use only the approved power supply from Polycom (part number 1465-52621-036). Do not exceed 12 Volts at 3 Amps.
- To use a Polycom EagleEye HD in DVI mode, use the HDCI digital camera cable, part number 2457-23181-003. To use a Polycom EagleEye HD in Component mode, use the HDCI analog camera cable, part number 2457-23180-0xx.

Refer to your system’s setup sheet for connection details. Refer to the release notes for a list of supported PTZ cameras. If you connect a supported PTZ camera, the system detects the camera type and sets the appropriate configuration. Make sure that the system is powered off before you connect devices to it.

Connecting Cameras to Polycom HDX 9000 Series Systems

The following table shows how you can connect video sources to a Polycom HDX 9000 series system.

Video Input Number	Connector	Acceptable Input	Audio Association	Power	Control
1	HDCI	Composite, S-Video, Component, DVI	None	Provided	Camera PTZ, IR Input
2	HDCI	Composite, S-Video, Component	None	None	Camera PTZ

Video Input Number	Connector	Acceptable Input	Audio Association	Power	Control
3 (VCR/DVD Player)	BNC	Composite, S-Video, Component (Component is Polycom HDX 9004 only)	Audio Input 3	None	None
4	DVI-I	VGA, DVI	Audio Input 4 (Polycom HDX 9004)	None	None
5 Polycom HDX 9004	DVI-I	VGA, DVI	None	None	None

Connecting Cameras to Polycom HDX 8000 HD Systems

The following table shows how you can connect video sources to a Polycom HDX 8000 HD system.

Video Input Number	Connector	Acceptable Input	Audio Association	Power	Control
1	HDCI	Composite, S-Video, Component	None	Provided	Camera PTZ, IR Input
2 (Requires the Additional Video I/O option)	HDCI	Composite, S-Video, Component	None	None	Camera PTZ
3 (VCR/DVD Player)	S-Video	Composite, S-Video	Audio Input 3	None	None
4 (Content)	DVI-I	VGA	Audio Input 4	None	None

Connecting Cameras to Polycom HDX 4000 Series Systems

The following table shows how you can connect video sources to a Polycom HDX 4000 series system.

Video Input	Connector	Acceptable Input	Audio Association
Built-In Camera	HDCI	Component (Polycom HDX 4000 series built-in camera)	None
Content	DVI	VGA	3.5mm Input

Configuring Camera Settings and Video Quality Options

To configure camera and video settings:

1. Go to **System > Admin Settings > Cameras > Camera Settings**.
2. Configure these settings on the Cameras screen:

Setting	Description
Camera 1	Specifies the camera's aspect ratio: • **4:3** — Select if you are using a camera in standard mode. • **16:9** — Select if you are using a camera in wide-screen mode. This setting also configures the following cameras to produce the corresponding video format: • Polycom PowerCam™ Plus • Polycom PowerCam • Polycom EagleEye HD • Sony EVI-D100 • Sony BRC-300 Specifies the camera's format: • **Component YPbPr** — Select if the camera is connected to the Polycom HDX system using a component cable. • **S-Video** — Select if the camera is connected to the Polycom HDX system using an S-Video cable. • **Composite** — Select if the camera is connected to the Polycom HDX system using a composite video cable.
Name	Specifies a name and icon for the camera.
Video Quality	Specifies **Motion** or **Sharpness** for the video input. • **Motion** — This setting is for showing people or other video with motion. • **Sharpness** — The picture will be sharp and clear, but moderate to heavy motion at low call rates can cause some frames to be dropped. Sharpness is available in point-to-point H.263 and H.264 calls only.

3. Select ▶ and configure these settings for Polycom HDX 9000 series and Polycom HDX 8000 HD systems:

Setting	Description
Camera 2	Specifies the camera's aspect ratio: • **4:3** — Select if you are using a regular camera. • **16:9** — Select if you are using a wide-screen camera. This setting also configures the following cameras to produce the corresponding video format: • Polycom PowerCam Plus • Polycom PowerCam • Polycom EagleEye HD • Sony EVI-D100 • Sony BRC-300 Specifies the camera's format: • **Component YPbPr** — Select if the camera is connected to the Polycom HDX system using a component cable. • **S-Video** — Select if the camera is connected to the Polycom HDX system using an S-Video cable. • **Composite** — Select if the camera is connected to the Polycom HDX system using a composite video cable.
Name	Specifies a name and icon for the camera.
Source	Specifies whether the camera source is **People** or **Content**. Video sources specified as **Content** are sent at a higher resolution and lower frame rate.
Video Quality	Specifies **Motion** or **Sharpness** for the video input. • **Motion** — This setting is for showing people or other video with motion. • **Sharpness** — The picture will be sharp and clear, but moderate to heavy motion at low call rates can cause some frames to be dropped. Sharpness is available in point-to-point H.263 and H.264 calls only.
Detect Camera Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD	Detects any supported PTZ camera connected to Polycom HDX system video input 2 and configures the camera settings accordingly.

4. Select ▶ and configure these settings for Polycom HDX 9000 series and Polycom HDX 8000 HD systems:

Setting	Description
Camera 3	Specifies the VCR or DVD player’s aspect ratio: • **4:3** — Select if you are using a VCR or DVD player in standard mode. • **16:9** — Select if you are using a VCR or DVD player in wide-screen mode. Specifies the VCR or DVD player’s format: • **Component YPbPr** — (Polycom HDX 9004) Select if the VCR or DVD player is connected to the Polycom HDX system using a component cable. • **S-Video** — Select if the VCR or DVD player is connected to the Polycom HDX system using an S-Video cable. • **Composite** — Select if the camera is connected to the Polycom HDX system using a composite video cable.
Name	Specifies a name and icon for the VCR or DVD player.
Source	Specifies whether the video source is **People** or **Content**. Video sources specified as **Content** are sent at a higher resolution and lower frame rate.
Video Quality	Specifies **Motion** or **Sharpness** for the video input. • **Motion** — This setting is for showing people or other video with motion. • **Sharpness** — The picture will be sharp and clear, but moderate to heavy motion at low call rates can cause some frames to be dropped. Sharpness is available in point-to-point H.263 and H.264 calls only.
Detect Camera	Detects any supported PTZ camera connected to Polycom HDX system video input 3, and configures the camera settings accordingly. This button appears only when **RS-232 Mode** is set to **Camera PTZ** and **Camera Control** is set to **Camera 3** for one of the serial ports.

5. Select ▶ and configure these settings for Polycom HDX 9000 series and Polycom HDX 8000 HD systems:

Setting	Description
Camera 4	Specifies the computer or other video source's aspect ratio: • **4:3** — Select if you are using a computer with a standard display. • **16:9** — Select if you are using a computer with a wide-screen display. Specifies the content format: • **VGA** — Select if the computer or video source is connected to the Polycom HDX system using a VGA cable. • **DVI** — (Polycom HDX 9000 series) Select if the computer or video source is connected to the Polycom HDX system using a DVI cable.
Name	Specifies a name and icon for the computer or video source.
Source	Specifies whether the video source is **People** or **Content**. Video sources specified as **Content** are sent at a higher resolution and lower frame rate.
Video Quality	Specifies **Motion** or **Sharpness** for the video input. • **Motion** — This setting is for showing people or other video with motion. • **Sharpness** — The picture will be sharp and clear, but moderate to heavy motion at low call rates can cause some frames to be dropped. Sharpness is available in point-to-point H.263 and H.264 calls only.
Detect Camera	Detects any supported PTZ camera connected to Polycom HDX system video input 4, and configures the camera settings accordingly. This button appears only when **RS-232 Mode** is set to **Camera PTZ** and **Camera Control** is set to **Camera 4** for one of the serial ports.
Horizontal Position, Phase, Vertical Position Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001	Adjusts the VGA Input settings. 1. Select **Horizontal Position**, **Phase**, or **Vertical Position**. 2. Press the navigation buttons on the remote control to adjust the setting. 3. Press ← **Back** on the remote control to accept the setting.

6. Select ▶ and configure these settings for a Polycom HDX 9004:

Setting	Description
Camera 5	Specifies the computer or other video source's aspect ratio: • **4:3** — Select if you are using a computer with a standard display. • **16:9** — Select if you are using a computer with a wide-screen display. Specifies the content format: • **VGA** — Select if the computer or video source is connected to the Polycom HDX system using a VGA cable. • **DVI** — Select if the computer or video source is connected to the Polycom HDX system using a DVI cable.
Name	Specifies a name and icon for the computer or video source.
Source	Specifies whether the video source is **People** or **Content**. Video sources specified as **Content** are sent at a higher resolution and lower frame rate.
Video Quality	Specifies **Motion** or **Sharpness** for the video input. • **Motion** — This setting is for showing people or other video with motion. • **Sharpness** — The picture will be sharp and clear, but motion will not be smooth. Choose this setting for document cameras. Sharpness is available in point-to-point H.263 calls only.
Detect Camera	Detects any supported PTZ camera connected to Polycom HDX system video input 5, and configures the camera settings accordingly. This button appears only when **RS-232 Mode** is set to **Camera PTZ** and **Camera Control** is set to **Camera 5** for one of the serial ports.
Horizontal Position, Phase, Vertical Position	Adjusts the VGA Input settings. **1.** Select **Horizontal Position**, **Phase**, or **Vertical Position**. **2.** Press the navigation buttons on the remote control to adjust the setting. **3.** Press ← **Back** on the remote control to accept the setting.

7. Select ▶ and configure these settings:

Setting	Description
Far Control of Near Camera	Specifies whether the far site can pan, tilt, or zoom the near-site camera. When this option is selected, a user at the far site can control the framing and angle of the camera for the best view of the near site.
Backlight Compensation	Specifies whether to have the camera automatically adjust for a bright background. Backlight compensation is best used in situations where the subject appears darker than the background.
Primary Camera	Specifies which camera is the main camera. The primary camera is active when the Polycom HDX system powers up. Its source is automatically set to People.
Camera Pan Direction	Specifies the direction the camera moves when using the arrow buttons on the remote control.
Quality Preference	Specifies the bandwidth split for People and Content video. • **Both** — 50% Content, 50% People • **Content** — 90% Content, 10% People • **People** — 10% Content, 90% People **Notes:** In a multipoint call, the MCU setting determines the People and Content video rates, not the system sending the content. This setting does not apply if **Dynamic People/Content Bandwidth** is enabled or automatic bandwidth adjustment is enabled using the API. This setting applies only to calls of 128 kbps of higher. In SIP calls, content is sent as People video.
Dynamic People/Content Bandwidth	Specifies whether the system automatically adjusts the bandwidth allocation for people and content in point-to-point H.323 calls. This setting maintains equal image quality for People and Content in the call.
Power Frequency	Specifies the power line frequency for your system. In most cases, the system defaults to the correct power line frequency, based on the video standard used in the country where the system is located. This setting allows you to adapt the system in areas where the power line frequency does not match the video standard used. You may need to change this setting to avoid flicker from the fluorescent lights in your conference room. Changing this setting causes the system to restart. After the system restarts, you might need to select **Detect Camera**.

Setting	Description
Send Content When PC Connects Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD	Specifies whether to send content automatically when a computer is connected to the Camera 4 or Camera 5 input.
Detect Cameras Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD	Detects any supported PTZ cameras connected to Polycom HDX system video inputs.

Configuring Advanced Polycom EagleEye HD Camera Settings

You can use the system's web interface to configure or restore the following Polycom EagleEye HD camera settings:

- Brightness
- Black Level
- Color Saturation
- White Balance

To adjust Polycom EagleEye HD camera's brightness, black level, or color saturation:

1. Make sure that the system and camera are powered on and awake.
2. On a computer, open a web browser.
3. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
4. Go to **Admin Settings > Cameras**.
5. If Model is not set to Polycom EagleEye HD for the appropriate camera(s), click the **Detect Camera** button.
6. Click **Advanced**.
7. Select values for brightness, black level, and color saturation.
8. Click **Update**.

To restore the Polycom EagleEye HD camera’s default settings:

1. Make sure that the system and camera are powered on and awake.
2. On a computer, open a web browser.
3. In the browser address line, enter the system’s IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
4. Go to **Admin Settings > Cameras**.
5. Click **Restore**. White Balance, Brightness, Black Level, and Color Saturation are returned to their default values.

To set the Polycom EagleEye HD white balance:

You can set the white balance to one of several fixed values, or you can set it manually.

> White balance settings require particular camera and system firmware versions. Contact your Polycom distributor for more information.

1. Make sure that the system and camera are powered on and awake.
2. On a computer, open a web browser.
3. In the browser address line, enter the system’s IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
4. Go to **Admin Settings > Cameras**.
5. If Model is not set to Polycom EagleEye HD for the appropriate camera(s), click the **Detect Camera** button.
6. Select a value for White Balance.
    - **Auto**: Polycom recommends this setting for most situations. It calculates the best white balance setting based on lighting conditions in the room.
    - **Pre-defined values**: Use one of the pre-defined color temperature settings to provide acceptable color reproduction.
    - **Manual**: Use the Manual setting for rooms where the Auto and fixed settings do not provide acceptable color reproduction. Set the White Balance to **Manual**. Then fill the camera view with a flat white surface and click **Calibrate**.
7. Click **Update**.

Configuring Camera Presets

Camera presets are stored camera positions that you can create ahead of time or during a call.

Presets allow users to:

- Automatically point a camera at pre-defined locations in a room.
- Select a video source such as a VCR or DVD player, a document camera, or an auxiliary camera for a Polycom HDX 9000 series or Polycom HDX 8000 HD system.

If your system's main camera supports electronic pan, tilt, and zoom movement, you can create up to 100 preset camera positions for the near site. Each preset stores the camera number, its zoom level, and the direction it points (if appropriate). They remain in effect until you delete or change them.

To store a preset:

1. If you are in a call, press **Near** or **Far** then choose a near-site or far-site camera or other video source.
2. If you selected a camera that supports electronic pan, tilt, and zoom, you can adjust the camera's position:
    – Press **Zoom** to zoom the camera out or in.
    – Press the arrow buttons on the remote control to move the camera up, down, left, or right.
3. Press and hold a number to store the preset position.

    To store a double-digit preset (10-99), hold the second number down.

    Any existing preset stored at the number you enter is replaced.

To delete all presets on a Polycom HDX 9000 series or Polycom HDX 8000 HD system:

1. If a call is connected, press **Near** to choose a near-site video source.
2. Press **Preset** on the remote control.
3. Press and hold ⇤ **Delete** to delete all presets.

To delete all presets on a Polycom HDX 4000 series:

1. Press **Near** on the keypad.
2. Press and hold ⇤ **Delete** to delete all presets.

Experiencing High-Definition Video Conferencing

Polycom HDX 9002, Polycom HDX 9004, Polycom HDX 8000 HD, and Polycom HDX 4000 HD systems offer the following high-definition (HD) capabilities:

- Send people or content video to the far site in HD
- Receive and display video from the far site in HD
- Display near-site video in HD

Polycom HDX 4000 systems display near-site video in HD when not in a call.

With the MPplus 4 Port option and the 4 Mbps Line Rate option, Polycom HDX 9002 and Polycom HDX 9004 systems can host HD multipoint calls that include up to four sites. With the 8 Mbps Line Rate option and the MPplus 8 Port option, Polycom HDX 9004 systems can host HD multipoint calls that include up to eight sites.

Points to note about SD and HD multipoint:

- SD/HD multipoint calls are not supported when transcoding is enabled.
- SD/HD multipoint is not supported in cascaded calls.
- All sites in the call must support HD (720p at 30 fps) and H.264 for HD multipoint. All sites in the call must support SD (30 fps) and H.264 for SD multipoint.
- For HD multipoint, the call must be placed at 1024 kbps or higher if the camera is set to Sharpness, or 2 Mbps or higher if the camera is set to Motion.
- When AES Encryption is enabled, HD multipoint calls can only include up to six sites. When AES Encryption is enabled in calls with seven or eight sites, SIF/CIF video is sent.

For more information about multipoint calls, refer to Configuring Multipoint Viewing Modes on page 3-10 and Configuring Multipoint Calling on page 6-3.

Sending Video in High Definition

Polycom HDX systems with HD capability can send video in wide-screen, HD format. The HD format supported is 1280 x 720, progressive scan format (720p). HD video configured as People is sent at 30 frames per second when the call rate is 1 Mbps to 4 Mbps. The frame rate varies for video configured as Content, but it can reach a maximum of 7.5 fps at high call rates.

To send video in HD format:

1. Connect an HD camera or HD video source.
2. Go to **System > Admin Settings > Cameras > Camera Settings**. Configure these settings for the HD camera or video source:
   - Set the aspect ratio to **16:9**.
   - Set the video format to **Component YPbPr**, **DVI**, or **VGA**. The supported resolution for DVI and VGA is 1280 x 720.
   - Choose a setting for Video Quality. When **Video Quality** is set to **Sharpness**, the system sends HD video at 1 Mbps or higher. When **Video Quality** is set to **Motion**, the system sends HD video at 2 Mbps or higher.

Receiving and Displaying Video in High Definition

When the far site sends HD video, Polycom HDX systems with HD capability can display the video in wide-screen, HD format. The HD format supported is 1280 x 720, progressive scan format (720p). Near-site video is displayed in HD format when you use an HD video source and an HD monitor. However, near-site video is displayed in SD if the system is in an SD call.

To receive and display video in HD format:

1. Connect an HD monitor.
2. Go to **System > Admin Settings > Monitors > Monitors**. Configure these settings for the HD monitor.
   - Set the aspect ratio to **16:9**.
   - Set **Video Format** to **Component YPbPr**, **DVI**, or **VGA**.
   - Set **Resolution** to 1280 x 720 if **Video Format** is set to DVI or VGA.

4

Microphones and Speakers

Connecting Audio Input

Make sure that the system is powered off before you connect devices to it.

Connecting Audio Input to Polycom HDX 9000 Series Systems

The following table shows the acceptable input levels and video associations for the audio inputs on a Polycom HDX 9000 series system.

Audio Input Number	Connector	Acceptable Input Source Levels	Video Association
1 (Main Audio)	Phoenix	Mono/Stereo Microphone or Line Level (phantom power is available when set to **Microphone**)	None. Intended as microphone input; not included in audio mix of output 1.
3 (VCR/DVD Player)	Phoenix	Mono/Stereo Line Level	Video Input 3 (Audio is disabled until camera 3 is selected).
4 (Content) Polycom HDX 9004 only	Phoenix	Mono/Stereo Line Level	Video Input 4 (Audio is disabled until camera 4 is selected).

Connecting Audio Input to Polycom HDX 8000 HD Systems

The following table shows the acceptable input levels and video associations for the audio inputs on a Polycom HDX 8000 HD system.

Audio Input Number	Connector	Acceptable Input Source Levels	Video Association
1 (Main Audio)	RCA	Line Level	None. Intended as microphone input; not included in audio mix of output 1.
3 (VCR/DVD Player)	RCA	Mono/Stereo Line Level	Video Input 3 (Audio is disabled until camera 3 is selected).
4 (Content)	3.5mm	Mono/Stereo Line Level	Video Input 4 (Audio is disabled until camera 4 is selected).

Connecting Polycom Microphones

To pick up audio from your site, you must connect a microphone to the Polycom HDX 9000 series and Polycom HDX 8000 HD systems. Refer to your system's setup sheet for connection details. The Polycom HDX 4000 series provides built-in microphones.

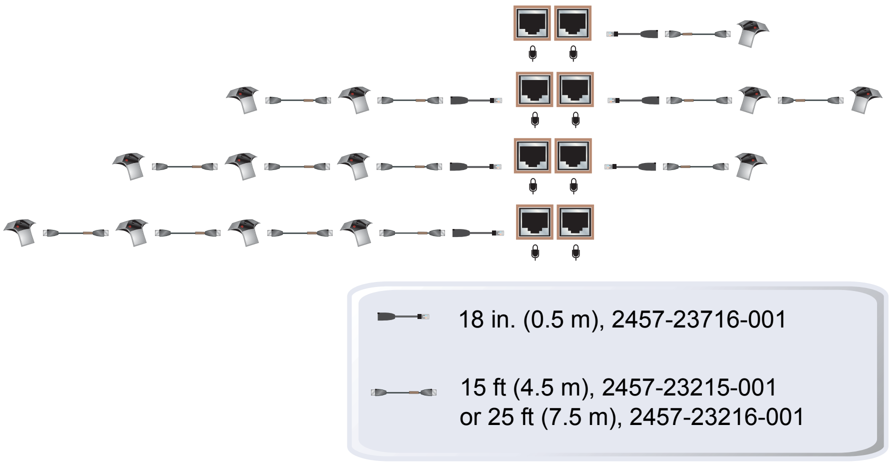
Polycom microphones each contain three microphone elements for 360° coverage. The microphone picks up sound from the sides. You can connect multiple Polycom microphones to a Polycom HDX system.

For best audio:

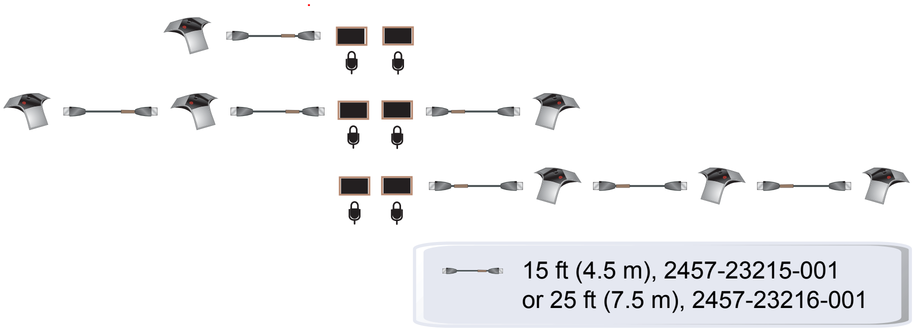
- Place the microphone on a hard, flat surface (table, wall, or ceiling) away from obstructions, so the sound will be directed into the microphone elements properly.
- Place the microphone near the people closest to the monitor.
- In large conference rooms, you may need more than one microphone. Each Polycom microphone covers a 3-6 foot radius, depending on the noise level and acoustics in the room.

You can connect up to three Polycom HDX digital microphones or ceiling microphones to a Polycom HDX 4000 series or Polycom HDX 8000 HD system. You can connect up to four Polycom HDX digital microphones or ceiling microphones to a Polycom HDX 9000 series system. The Polycom HDX 4000 series system also provides a headset microphone input on the side panel of the monitor. The built-in microphones are disabled when a headset is connected.

The following diagram shows several microphone connection options for the Polycom HDX 9000 series.

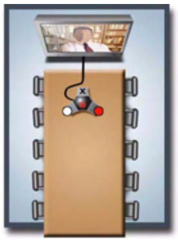
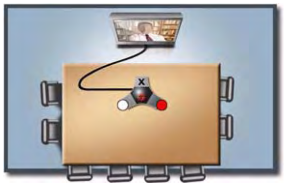
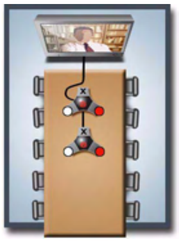
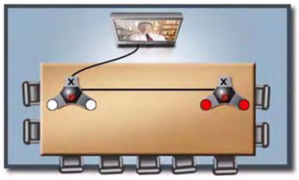
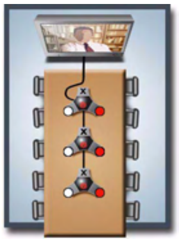
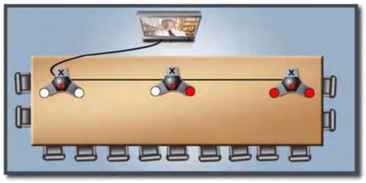

18 in. (0.5 m), 2457-23716-001
15 ft (4.5 m), 2457-23215-001
or 25 ft (7.5 m), 2457-23216-001

The following diagram shows several microphone connection options for the Polycom HDX 8000 HD system.


15 ft (4.5 m), 2457-23215-001
or 25 ft (7.5 m), 2457-23216-001

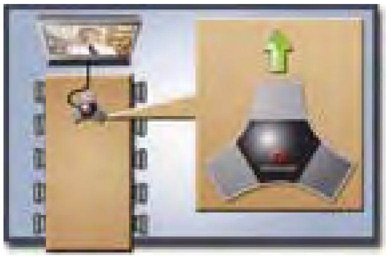
Placing Polycom Microphones to Send Stereo from Your Site

The following illustrations show microphone placement examples for different room layouts.

Number of Microphones with Stereo Enabled	Long Table		Wide Table	
One	Mic 1 set to **Left+Right**		Mic 1 set to **Left+Right**	
Two	Mic 1 set to **Left+Right** Mic 2 set to **Left+Right**		Mic 1 set to **Left** Mic 2 set to **Right**	
Three	Mic 1 set to **Left+Right** Mic 2 set to **Left+Right** Mic 3 set to **Left+Right**		Mic 1 set to **Left** Mic 2 set to **Left+Right** Mic 3 set to **Right**	

✕ – Not Used
○ – Left Channel
● – Right Channel

Left and right channel assignments depend on the settings that you select on the Stereo Settings screen. If Autorotation is enabled for a microphone, the system automatically assigns active channels for the microphone. Make sure that microphones with Autorotation disabled are oriented as shown in the following illustration.



After you place the microphones, you will need to configure the system to send stereo as described in StereoSurround Settings on page 4-12.

Polycom Microphone Lights

The following table describes the behavior of the microphone lights.

Microphone Light	Status
Off	Not in a call
Green	In a call, mute off
Red	Mute on
Amber	Firmware upload

Connecting Non-Polycom Microphones or a Mixer to a Polycom HDX System

You can connect up to three or four microphones directly to the Polycom HDX system, or you can connect several microphones to a Polycom HDX 9000 series or Polycom HDX 8000 HD system through a Polycom Vortex® or Polycom SoundStructure™ C-Series digital mixer.

For more information about connecting non-Polycom microphones, refer to Settings for Non-Polycom Microphones on page 4-15.

Connecting a Polycom audio mixer to Polycom HDX systems provides flexibility in audio setup. For example, it allows you to provide a microphone for each call participant in a boardroom. Refer to the *Integrator's Reference Manual for Polycom HDX Systems* for connection details.

Points to note about the SoundStructure digital mixer:

- Connect a SoundStructure digital mixer using the digital microphone input on the Polycom HDX system.
- Adjusting the volume on a Polycom HDX system changes the volume of the SoundStructure digital mixer that is connected.
- The Polycom HDX system Audio input 1 (Line In) is unavailable when a SoundStructure digital mixer is connected.
- The Polycom HDX system Line Output is muted when a SoundStructure digital mixer is connected.
- All echo cancellation is performed by the SoundStructure digital mixer.

Connecting Audio Output

You must connect at least one speaker to Polycom HDX 9000 series and Polycom HDX 8000 HD systems in order to hear audio. You can use the speakers built into the main monitor, or you can connect an external speaker system such as the Polycom StereoSurround kit to provide more volume and richer sound in large rooms. Refer to your system's setup sheet for connection details. Make sure that the system is powered off before you connect devices to it.

Connecting Speakers to Polycom HDX 9000 Series Systems

The following table describes the audio outputs of the Polycom HDX 9000 series system.

Audio Output Number	Connector	Output Type	Audio Mix Routed to the Output
1 (Main Audio)	Phoenix	Mono/Stereo	System tones and sound effects + Audio from the far site + Content audio connected to audio input 3 (or 4 for Polycom HDX 9004)
3 (VCR/DVD Player)	Phoenix	Mono/Stereo	Near-site talkers + Audio from the far site + Content audio connected to audio input 3 (or 4 for Polycom HDX 9004)

Connecting Speakers to Polycom HDX 8000 HD Systems

The following table describes the audio outputs of the Polycom HDX 8000 HD system.

Audio Output Number	Connector	Output Type	Audio Mix Routed to the Output
1 (Main Audio)	RCA	Mono/Stereo	System tones and sound effects + Audio from the far site + Content audio connected to audio input 3
3 (VCR/DVD Player)	RCA	Mono/Stereo	Near-site talkers + Audio from the far site + Content audio connected to audio input 3

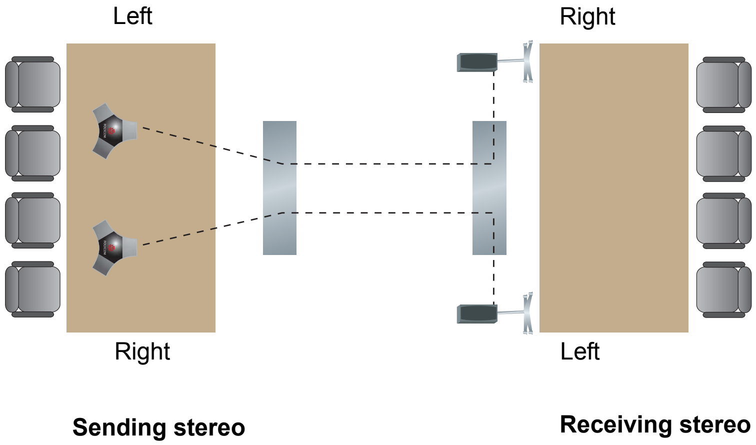
Connecting Speakers or Headphones to Polycom HDX 4000 Series Systems

You can connect desktop speakers to provide better audio for the Polycom HDX 4000 series if you place it in a large room, or you can connect headphones to listen to calls privately. The Polycom HDX 4000 series connector for desktop speakers or headphones is on the side panel of the monitor. The built-in speakers are disabled when desktop speakers or headphones are connected.

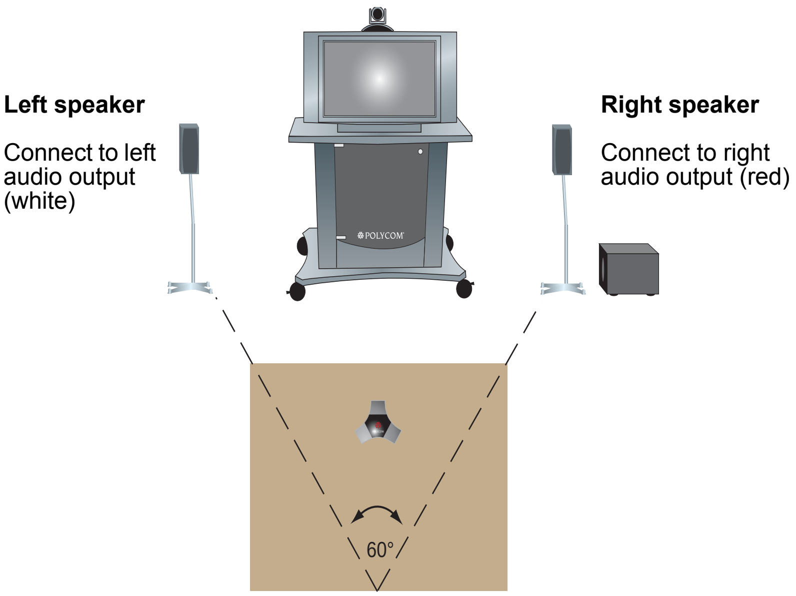
Placing Speakers to Play Stereo from Far Sites

The Polycom StereoSurround kit is designed for use with Polycom HDX 9000 series and Polycom HDX 8000 HD systems. It includes two speakers and a subwoofer.

When you set up the system for StereoSurround, the left microphone and speaker should be on the left from the local room perspective. Place the speaker connected to the audio system’s right channel on the right side of the system, and the other speaker on the left side. The system reverses the left and right channels for the far site, as shown in the following illustration. This ensures that the sound comes from the appropriate side of the room.



For best results, place the speakers about 60° apart as seen from the center of the conference table.


Left speaker
Connect to left audio output (white)
Right speaker
Connect to right audio output (red)
POLYCOM
60°

If you are using a subwoofer, place it beside a wall or in a corner near the speakers.

Setting the Speaker Volume

To set the volume of an external speaker system:

1. Go to **System > Diagnostics >Audio > Speaker Test.**
2. Start the speaker test.
3. Adjust the volume of the speaker system. From the center of the room the test tone should be as loud as a person speaking loudly, about 80-90 dBA on a sound pressure level meter.

Configuring Audio Settings

General Audio Settings

Some audio settings are unavailable when a SoundStructure digital mixer is connected to the Polycom HDX system.

To configure general audio settings:

1. Go to **System > Admin Settings >Audio > Audio Settings.**
2. Configure these settings on the Audio Settings screen:

Setting	Description
Sound Effects Volume	Sets the volume level of the ring tone and user alert tones.
Incoming Video Call	Specifies the ring tone used for incoming calls.
User Alert Tones	Specifies the tone used for user alerts.
Mute Auto Answer Calls	Specifies whether to mute incoming calls. Incoming calls are muted by default until you press the mute on the microphone or on the remote control.
Enable Built-In Microphones Polycom HDX 4000 HD Polycom HDX 4000	Specifies whether the built-in microphones of the Polycom HDX 4000 series display are enabled.
Enable Polycom Microphones	Specifies whether microphones attached to the system's microphone input are enabled.

Setting	Description
Enable Live Music Mode	Specifies whether the system transmits audio using a configuration that best reproduces live music picked up by microphones. **Note**: Noise suppression, automatic gain control, and keyboard noise reduction are disabled when this setting is enabled. Live Music Mode is used only in calls at 384 kbps and higher.
Enable Keyboard Noise Reduction	Specifies whether the system mutes audio sent to the far site when keyboard tapping sounds are detected at the near site. **Note**: Live Music Mode is disabled when this setting is enabled. Keyboard Noise Reduction is not available if an audio mixer is used. Keyboard Noise Reduction works only when no one at the near site is talking.

To configure audio input/output settings:

1. Go to **System > Admin Settings >Audio > Inputs/Outputs.**
2. Configure these settings on the Audio Input screen:

Setting	Description
Input Type Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD	Specifies the type of equipment that is connected to audio input 1. (Polycom HDX 9000 series) Choose **Line Input** unless you have connected microphones that do not have an external preamplifier. Choose **Microphone** for most wired microphones.
Input Type Level Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD	Sets the volume level for audio input 1.
Echo Canceller Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD	Lets you specify whether to use the system's built-in echo canceller with audio input 1. Do not enable this option if you have connected a Polycom Vortex mixer. **Note:** This setting only affects audio input 1. Typically, you should enable this setting only if a microphone is connected to audio input 1. Microphones connected to the Polycom microphone input are automatically echo cancelled.

Setting	Description
Content Input Level Polycom HDX 9004 Polycom HDX 8000 HD Polycom HDX 4000 HD Polycom HDX 4000	Specifies the volume level for audio input 4 of a Polycom HDX 9000 series or Polycom HDX 8000 HD system. Specifies the volume level for the PC audio input of a Polycom HDX 4000 series.
Enable Phantom Power Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001	Allows the system to supply power to microphones connected directly to the audio input. **Note**: This selection is only available when you set **Input Type** to **Microphone**.
Input Type (dB meter)	Lets you see the peak input signal level present at audio input 1.
Built-In Microphones (dB meter) Polycom HDX 4000 HD Polycom HDX 4000	Lets you see the peak input signal level present at the built-in microphones.
Content Input (dB meter) Polycom HDX 9004 Polycom HDX 8000 HD Polycom HDX 4000 HD Polycom HDX 4000	Lets you see the peak input signal level present at audio input 4.

3. Select ▶ and enter these settings on the Audio Output screen:

Setting	Description
Line Output Mode	Specifies whether volume for a device connected to the audio line out connectors is variable or fixed. • **Variable**—Allows users to set the volume with the remote control. • **Fixed**—Sets the volume to the Audio Level specified in the system interface. **Note:** When this setting is set to **Fixed**, the remote control's volume adjustment does not affect the output level of audio output 1.
Level Polycom HDX 9004 Polycom HDX 9002 Polycom HDX 9001 Polycom HDX 8000 HD	Sets the volume level for audio output 1 when **Line Output Mode** is set to **Fixed**.
Line Out (dB meter)	Lets you see the peak output signal level present at audio output 1.

4. Select ▶ and enter these settings on the VCR/DVD screen for a Polycom HDX 9000 series or Polycom HDX 8000 HD system:

Setting	Description
Line In Level	Sets the volume level for audio input 3. The default setting of **Auto** configures the system for automatic gain control.
Line Out Level	Sets the volume level for audio output 3.
VCR/DVD Audio Out Always On	Allows you to record a call using one VCR or DVD, while playing content into the call from a second VCR or DVD. Do not select this setting if you have only one VCR or DVD player connected. If this setting is disabled, the VCR audio output is disabled when VCR is the selected camera source.
Line In Level (dB meter)	Lets you see the peak input signal level present at audio input 3.
Line Out Level (dB meter)	Lets you see the peak output signal level present at audio output 3.

5. Select ▶ and enter these settings on the Audio Levels screen:

Setting	Description
Master Audio Volume	Sets the volume level for audio from the far site.
Bass	Sets the volume level for the low frequencies without changing the master audio volume.
Treble	Sets the volume level for the high frequencies without changing the master audio volume.

StereoSurround Settings

To send or receive stereo audio, make sure your Polycom HDX system equipment is set up as described in Connecting Polycom Microphones on page 4-2 and Connecting Audio Output on page 4-6. Then configure the system to use Polycom StereoSurround, test the system configuration, and place a test call.

If you are in a call with a far site that is sending audio in stereo mode, you can receive in stereo. In multipoint calls where some sites can send and receive stereo and some sites cannot, any site that is set up to send or receive stereo will be able to do so.

Some audio settings are unavailable when a SoundStructure digital mixer is connected to the Polycom HDX system.

To configure stereo settings:

1. Go to **System > Admin Settings >Audio > Stereo Settings.**
2. Configure these settings on the Stereo Settings screen:

Setting	Description
Enable Polycom StereoSurround	Specifies that Polycom StereoSurround is used for all calls. To send or receive stereo audio, make sure your Polycom HDX system is set up as described in Connecting Polycom Microphones on page 4-2 and Connecting Audio Output on page 4-6.
Stereo	Positions the audio input within the left and right channels. **Left** sends all of the audio to the left channel. **Right** sends all of the audio to the right channel. For Polycom HDX digital microphones and ceiling microphones, **Left+Right** sends audio from one microphone element to the left channel and audio from a second element to the right channel.
Autorotation	Specifies whether autorotation is used for Polycom HDX microphones. If this feature is enabled, the system automatically assigns left and right channels for the microphone based on sound it senses from the left and right speakers. **Note:** This feature does not work when headphones are used.
Polycom Microphone (dB meter)	Lets you see the peak input signal level for Polycom microphones.

Audio Meters

The audio meters in the user interface allow you to identify left and right channels. The meters also indicate peak signal levels. Set signal levels so that you see peaks between +3 dB and +7 dB with normal speech and program material. Occasional peaks of +12 dB to +16 dB with loud transient noises are acceptable. If you see +20 on the audio meter, the audio signal is 0 dBFS and the audio might be distorted.

Testing StereoSurround

After you configure the system to use Polycom StereoSurround, test the system configuration and place a test call.

To test your stereo configuration:

1. Go to **System > Admin Settings > Audio > Stereo Settings.**

   Make sure the microphones are positioned correctly.

   Refer to Placing Polycom Microphones to Send Stereo from Your Site on page 4-4.

2. Go to **System > Admin Settings > Audio > Stereo Settings**.

   Gently blow on the left leg and right leg of each Polycom microphone while watching the Left and Right meters to identify the left and right inputs. Select **Swap** if necessary.

3. Go to **System > Admin Settings > Audio > Stereo Settings >** ▶.

   Test the speakers to check volume and verify that audio cables are connected. If the system is in a call, the far site hears the tone.

   Exchange the right and left speakers if they are reversed.

   Adjust the volume control on your external audio amplifier so that the test tone sounds as loud as a person speaking in the room. If you are using a Sound Pressure Level (SPL) meter, it should measure about 80-90 dBA in the middle of the room.

To make a test call in stereo:

- Select **Polycom Austin Stereo** from the directory, or enter `stereo.polycom.com` in the dialing field and press ☎ **Call** on the remote control or keypad.

  The Polycom Austin Stereo site demonstrates the stereo feature with an entertaining and informative presentation.

Polycom HDX System Settings for a Polycom Vortex Mixer

To configure a Polycom HDX 9000 series or Polycom HDX 8000 HD system to use a Polycom Vortex mixer:

1. Go to **System > Admin Settings > Audio > Inputs/Outputs**.
   - Set **Input type** to **Line Input**.
   - Disable **Echo Canceller**.
2. Go to **System > Admin Settings > General Settings > Serial Ports**.
   - Set **RS-232 Mode** to **Vortex Mixer** for the appropriate port.

Refer to the Polycom Vortex documentation for details on configuring the mixer.

Settings for Non-Polycom Microphones

To configure a Polycom HDX 9000 series system to use microphones connected directly to audio input 1:

➢ Go to **System > Admin Settings > Audio > Inputs/Outputs**.

Set **Input Type** to **Microphone**.

Enable **Echo Canceller**.

Adjust the audio **Input Type Level** if necessary.

Speak into the microphones that are connected to the audio line inputs. The audio meter should peak at about 5 dB for normal speech.

5

Content and Closed Captions

You can present content during calls when you use:

- A VCR or DVD player connected directly to a Polycom HDX 9000 series or Polycom HDX 8000 HD system
- People+Content IP installed on a computer, with any Polycom HDX system that has the People+Content IP option installed
- A computer connected directly to a Polycom HDX system

For more information about sharing content during a call, refer to the *User's Guide for Polycom HDX Systems*.

Connecting VCR/DVDs

You can connect a VCR or DVD player to a Polycom HDX 9000 series or Polycom HDX 8000 HD system to play videotapes or DVDs into calls. Or you can connect a VCR or DVD player to record your video conference. You can also connect two VCRs or DVD players, to play material and record the call at the same time.

Configuring VCR/DVD Player Settings

You can connect a VCR or DVD player to Polycom HDX 9000 series and Polycom HDX 8000 HD systems.

Playing a Videotape or DVD

The VCR/DVD inputs are active when you select the camera source configured as VCR. The microphone inputs remain active while the VCR or DVD player is playing. Call participants may wish to mute the microphones while playing videotapes or DVDs.

To configure VCR/DVD audio settings for playing a videotape or DVD:

- Go to **System > Admin Settings > Audio > Inputs/Outputs >** ▶ **>** ▶.

  Set **Line In Level** for playback volume of the VCR/DVD player relative to other audio from the system.

  Enable **VCR/DVD Audio Out Always On** unless you have the VCR/DVD inputs and outputs both connected to the same device to play and record.

Recording a Call to Videotape or DVD

All audio from the near site and far site is recorded, along with the VCR/DVD Record Source video as configured on the Monitors screens. VCR and DVD video output is standard-definition format. Polycom HDX systems scale other formats to standard definition.

To configure VCR/DVD video settings for recording a call:

- Go to **System > Admin Settings > Monitors > Monitors >** ▶ **>** ▶.

  Set the aspect ratio and video format for recording.

  Select one or more sources for the **VCR/DVD Record Source**.

  If you select both near and far, the Polycom HDX system automatically switches recording to the site that is talking. If you select content as a record source, it is recorded (when available) regardless of who is talking. For more information about configuring VCR/DVD settings for recording a call, refer to the Monitor 3 settings described on page 3-6.

Polycom HDX systems record video in standard definition (SD) format only.

To configure VCR/DVD audio settings for recording a call:

1. Go to **System > Admin Settings > Audio > Stereo Settings**.

   Clear **Enable Polycom StereoSurround**.

2. Go to **System > Admin Settings > Audio > Inputs/Outputs >** ▶ **>** ▶.

   Adjust the **Line Out Level** for playback volume, if necessary.

   Enable **VCR/DVD Audio Out Always On** unless you have the VCR/DVD inputs and outputs both connected to the same device to play and record.

Connecting Computers to Polycom HDX Systems

You can connect a computer directly to a Polycom HDX system. When you do this, other call participants can see everything that you see on your computer.

When you connect to video and audio from your computer, the audio is muted unless the computer is selected as a video source.

For more information about connecting computers as content video sources for Polycom HDX systems, refer to Connecting Cameras on page 3-13. Refer to your system’s setup sheet for connection details.

> Polycom HDX 8000 HD and Polycom HDX 4000 series systems must have the People+Content option installed to send content from a computer.

Configuring Content Sharing

To configure the content display:

1. Go to **System > Admin Settings > Monitors > Monitors**.
2. Select **Display Content** for the monitor that will display content.
3. Go to **System > Admin Settings > Network > Call Preference**.
4. Enable **H.239**.
5. For a Polycom HDX 9004, go to **System > Admin Settings > Audio > Audio Settings** > ▶. Set the **Content Input Level**.

Configuring Content Display with People+Content IP

People+Content IP enables a presenter to show content from a computer to other sites in a video conference using only an IP network connection.The presenter can show PowerPoint® slides, video clips, spreadsheets, or any other type of content from a computer. People+Content IP supports any computer desktop resolution with color set to 16-bit or higher.

Before a presenter can use a computer to show content with People+Content IP, you need to:

- Download the People+Content IP software application from the Polycom web site to the computer(s) that the presenter will use to show content.

  You don't need to change the computer resolutions and you don't need special cables or hardware, but the computer(s) must meet these requirements:

  - Operating System: Windows 2000, Windows XP Home, or Windows XP Professional
  - Minimum computer: 500 MHz Pentium® III (or equivalent); 256 MB memory
    Recommended computer: 1 GHz Pentium III (or equivalent); 512 MB memory

- Connect the computer(s) to the IP network.

To install People+Content IP on a computer:

1. On a computer with Windows XP or Windows 2000, open a web browser and go to the Polycom web site at www.polycom.com/support.
2. Navigate to your product page.
3. Download and install the People+Content IP software.

Polycom HDX 8000 HD and Polycom HDX 4000 series systems must have the People+Content option installed to use People+Content IP.

Configuring People on Content

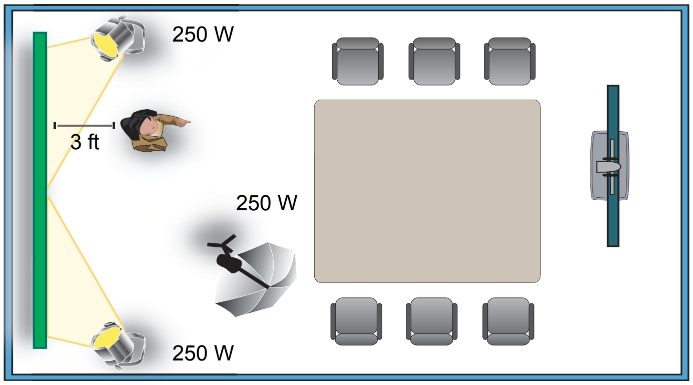
The People on Content™ option allows you to show yourself on top of content that you are sharing. The effect is similar to a weather report on television.

For more information about using this feature, refer to the *User's Guide for Polycom HDX Systems*.

Setting Up the Room for People on Content

For the best results, follow these guidelines for People on Content:

- Use the Polycom EagleEye HD camera with Polycom HDX 9000 series and Polycom HDX 8000 HD systems.
- Create a flat, consistent background color using a screen or matte-finish paint in green or blue. Make sure that the background does not have shadows or glare.
- Make sure that the background and the presenter are well lit. For example, use a minimum of two 250 W halogen lights on the background and one on the presenter.
- Experiment with different room arrangements, lighting, and backgrounds.



Enabling and Calibrating People on Content on the System

Before using People on Content, you need to enter a People on Content option key. Then configure and calibrate the system so that presenters can use People on Content during calls.

For information about purchasing the People on Content option, please contact your Polycom distributor.

To enable the People on Content option key:

1. Go to **System > Admin Settings > General Settings > Options**.
2. Enter the People on Content option key.

To configure and calibrate the system for People on Content:

1. Go to **System > Admin Settings > Cameras > People on Content**.
2. Configure these settings on the People on Content screen:

Setting	Description
Foreground Source	Specifies Camera 1 as the video source to display on top of the background content.
Background Content Source	Specifies the content video source to use for the background image when using People on Content. Only cameras configured as **Content** are available as a Background Content Source. People+Content IP cannot be used as a background content source.

3. Select ▶ **Next** to go to the People on Content calibration screen. Follow the instructions on the screen to calibrate the camera for People on Content. Calibration does the following:
   - A camera preset is created for the green screen area.
   - The camera calibrates to the background color.

Configuring Closed Captioning

You can provide real-time text transcriptions or language translations of the video conference by displaying closed captions on your system. When you provide captions for a conference, the captioner may be present, or may use a telephone or web browser to listen to the conference audio. When the captioner sends a unit of text, all sites see it on the main monitor for 15 seconds. The text then disappears automatically.

Closed captions are supported between Polycom HDX systems with software version 1.0 or later and Polycom VSX™ systems with software version 7.0 or later.

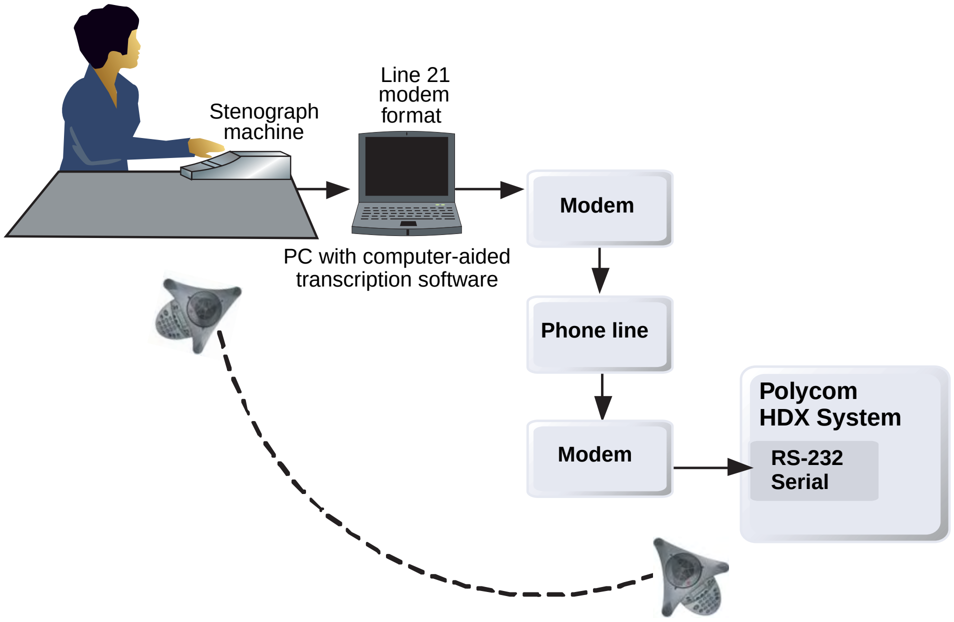
Captions may be provided in any language that uses the Latin alphabet.

The captioner may enter caption text using one of the following methods:

- Remotely, via a dial-up connection to the system's serial RS-232 port
- In the room using equipment connected directly to the serial port
- In the room or remotely, using the Polycom HDX web interface

Via a Dial-Up Connection to the Systems' RS-232 Serial Port

Closed captioners can provide captions from inside the conference room, or from a remote location, via a dial-up connection to the serial port of the Polycom HDX 9000 series or Polycom HDX 8000 HD system, as shown in the following diagram.



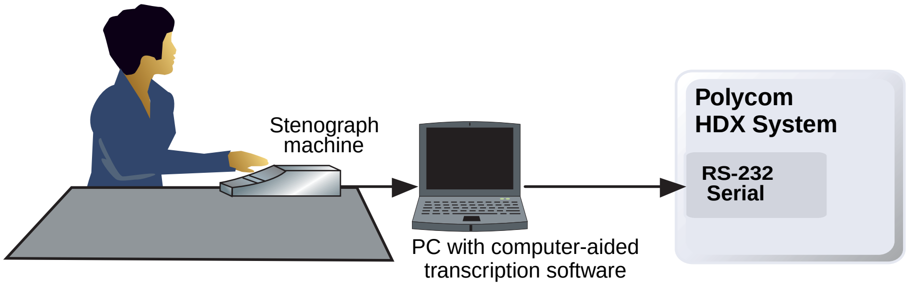
To supply closed captions via a dial-up connection:

1. Ensure that the computer and the Polycom HDX system are configured to use the same baud rate and parity settings.
2. Go to **System > Admin Settings > General Settings > Serial Ports** and set the RS-232 Mode to **Closed Caption**.
3. Establish a dial-up connection between the computer and the Polycom HDX system.
    a. Connect a null modem adapter to the RS-232 serial port.
    b. Connect an RS-232 cable to the modem and to the null modem adapter.
    c. Connect the modem to a phone line.
    d. Configure the modem for 8 bits, no parity.

    You may need to configure the modem to answer automatically. You may also need to configure it to ignore DTR signals.
4. On the computer, start the transcription application.
5. Enter text using the stenographic machine connected to the computer.
6. To stop sending closed captions, close the transcription application.

Via the System's Serial RS-232 Port

Closed captioners can provide captions from inside the conference room, using equipment connected directly to the serial port of the Polycom HDX 9000 series or Polycom HDX 8000 HD system, as shown in the following diagram.



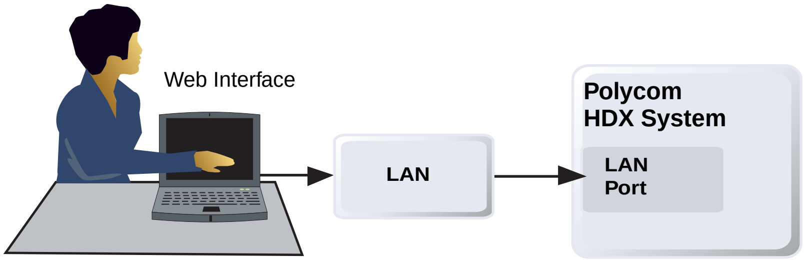
To supply closed captions using equipment connected directly to the serial port:

1. Ensure that the computer and the Polycom HDX system are configured to use the same baud rate and parity settings.
2. Go to **System > Admin Settings > General Settings > Serial Ports** and set the RS-232 mode to **Closed Caption**.
3. On the computer, start the transcription application.

4. Enter text using the stenographic machine connected to the computer.
5. To stop sending closed captions, close the transcription application.

Via the Polycom HDX Web Interface

Closed captioners can provide captions from inside the conference room, or from a remote location, by entering the captions directly into the Polycom HDX web interface, as shown in the following diagram.



To supply closed captions for a conference using the Polycom HDX web interface:

1. On a computer, open a web browser.
2. In the browser address line, enter the IP address of the system, for example, `http://10.11.12.13`, to go to the system's web interface.
3. Go to **Utilities > Closed Caption**.
4. Log in using this information:

   User Name: Your name.

   Password: Meeting password defined for your video conferencing system.
5. In the Closed Caption screen, type the caption text into the text field. Text wraps to the next line after 59 characters.
6. Press **Enter** to send the text to the sites in the conference.

6

Calling and Answering

Configuring Call Settings

The Call Settings screens provide access to high-level options for the entire system. For convenience, some of the User Settings options are repeated on these screens.

To configure call settings:

1. Go to **System > Admin Settings > General Settings > System Settings > Call Settings**.
2. Configure these settings on the Call Settings screen:

Setting	Description
Maximum Time in Call	Enter the maximum number of minutes allowed for call length. When that time has expired, you see a message asking you if you want to hang up or stay in the call. If you do not answer within one minute, the call automatically disconnects. If you choose to stay in the call at this time, you will not be prompted again. Choosing 0 removes any limit.
Display Time in Call	Specifies whether to display the elapsed time or the local time during a call. You can also choose not to display the time.
Call Detail Report	Specifies whether to collect call data for the Call Detail Report and Recent Calls list. When selected, information about calls can be viewed through the Polycom HDX web interface and downloaded as a .csv file. **Note:** If this setting is disabled, applications such as the Polycom Global Management System™ will not be able to retrieve Call Detail Report (CDR) records.

Setting	Description
Recent Calls	Specifies whether to display the **Recent Calls** button on the home screen. The Recent Calls screen lists the site number or name, the date and time, and whether the call was incoming or outgoing. **Note:** If the Call Detail Report option is not selected, the Recent Calls option is not available.
Allow Mixed IP and ISDN Calls	Specifies whether users can make multipoint calls that include both IP and H.320 sites. Clearing this option provides extra security for systems requiring LAN connectivity while placing encrypted calls over ISDN lines. If you clear this selection, IP endpoints cannot join ISDN calls.
Far Site Name Display Time	Turns the far site name display on or off, or specifies the time period the far site name appears on screen when calls first connect.
Auto Answer Point-to-Point Video	Specifies whether to answer incoming point-to-point calls automatically.
Auto Answer Multipoint Video	Specifies whether to answer incoming multipoint calls automatically.

Setting the Call Answering Mode

To set the call answering mode:

1. Go to **System > Admin Settings > General Settings > System Settings > Call Settings**.
2. Select **Auto Answer Point-to-Point Video** to set the answer mode for calls with one site, or select **Auto Answer Multipoint Video** to set the mode for calls with two or more other sites.
3. Select one of the following:
   - **Yes** – Answers calls automatically.
   - **No** – Enables you to answer calls manually.
   - **Do Not Disturb** – Refuses incoming calls automatically. The caller receives a message that the site is unavailable.

Configuring Multipoint Calling

You can use your Polycom HDX system to participate in multipoint conferences. Multipoint conferences include multiple video sites and can also include voice-only sites. During a multipoint call, a multipoint conferencing unit (MCU) enables the video to switch to the various sites so that you can see and hear the other conference participants.

The Polycom HDX systems can host multipoint calls. These systems can also use the Conference on Demand feature of Polycom's PathNavigator for multipoint calling.

Depending on your Polycom HDX system model, you may need to enter a multipoint option key to enable multipoint calling.

For more information about multipoint calls, refer to Configuring Multipoint Viewing Modes on page 3-10 and Experiencing High-Definition Video Conferencing on page 3-24.

Entering a Multipoint Option Key

Before placing multipoint calls, you may need to enter a multipoint option key. A five-minute multipoint trial is available. You can also enter a 8 Mbps Line Rate option key to enable Polycom HDX 9004 systems to use up to 7 Mbps in combined call rates for multipoint IP calls.

For information about purchasing a multipoint call option, please contact your Polycom distributor.

To enter the multipoint option key:

1. Go to **System > Admin Settings > General Settings > Options**.
2. Enter the multipoint (MP) option key.

To enable or disable multipoint trial mode:

1. Go to **System > Admin Settings > General Settings > Options**.
2. Select **Enable Multipoint Trial** to allow five-minute multipoint calling without the multipoint option key.

Configuring with PathNavigator's Conference on Demand Feature

If your organization uses Polycom's PathNavigator, you can use PathNavigator's Conference on Demand feature to place multipoint calls with up to 10 sites, including the site that places the call.

In order to place calls using PathNavigator, you need to:

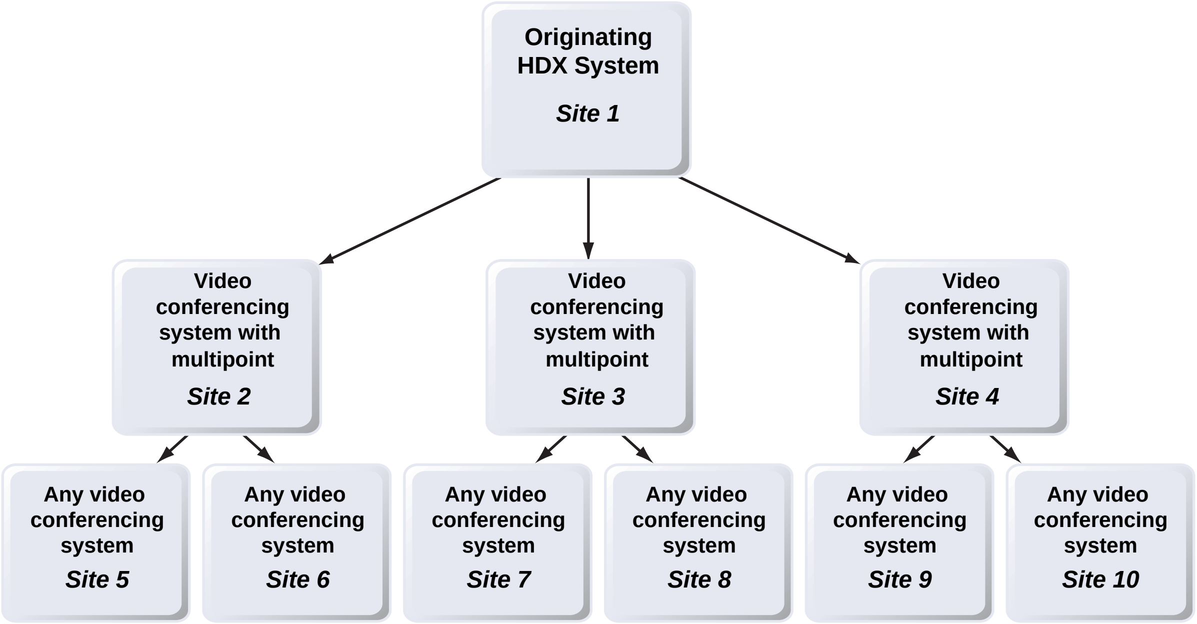
- Register your Polycom HDX system with PathNavigator
- Configure your Polycom HDX system to use PathNavigator for multipoint calls (see Configuring the System to Use a Gatekeeper on page 2-5)
- Create a multi-site entry in the directory that can be used to place the multipoint call

Points to note about PathNavigator's Conference on Demand:

- Once the call begins, users cannot add another site to the call, even if the site was in the call originally and is attempting to rejoin. Because of this, you cannot place cascaded multipoint calls through PathNavigator.
- The MGC needs to have enough ports available to complete the call. The system displays a message if the MGC does not have enough ports (resources) available to connect all the sites.

Including Multiple Sites in a Cascaded Call

You can include multiple sites in a cascaded call if the sites you call have internal multipoint capability. The following diagram shows how to do this.


Originating HDX System
Site 1
Video conferencing system with multipoint
Site 2
Video conferencing system with multipoint
Site 3
Video conferencing system with multipoint
Site 4
Any video conferencing system
Site 5
Any video conferencing system
Site 6
Any video conferencing system
Site 7
Any video conferencing system
Site 8
Any video conferencing system
Site 9
Any video conferencing system
Site 10

To place a cascaded call:

1. Create and call a multiple-site entry from the directory, or place calls one at a time to several other sites.
2. Ask each far site to call additional sites. Along with these additional sites, each far site in the original multipoint call can add one audio-only connection.

Points to note about cascaded calls:

- You cannot place cascaded multipoint calls through PathNavigator.
- Polycom StereoSurround, AES encryption, continuous presence, chair control, People+Content, and H.239 are not supported in cascaded calls.
- H.264 is only supported when all of the multipoint-capable systems are Polycom HDX systems and each Polycom HDX system calls no more than three other systems.

Configuring Directory Settings

To configure system settings:

1. Go to **System > Admin Settings > General Settings > System Settings > Directory**.
2. Configure these settings on the Directory screen:

Setting	Description
System Name	Enter or change the system name in this field. This name appears on the screen for the far site when you are making calls.
Localized System Name	Displays the localized system name, if you have entered one. You can enter a **Localized System Name** for Simplified Chinese on this screen using the Chinese Virtual Keyboard. You must use the Polycom HDX web interface to enter localized system names for other languages. The localized system name is sent to the far site and displayed as the caller ID by Polycom HDX systems running version 1.0 or later or VSX systems running version 8.0 or later, when the user interface is set to that language. However, the English/Pinyin name is the name used by the Global Directory Server and the gatekeeper, and it is also the name that shows up in the Recent Calls list.
Allow Directory Changes	Specifies whether users can save changes they make to the directory.

Setting	Description
Confirm Directory Deletions	Specifies whether users are prompted to confirm deletions of directory entries.
Confirm Directory Additions Upon Call Disconnect	Specifies whether users are prompted to confirm new directory entries when saving the information for the last site called.
Preview Directory Entry Information	Specifies whether to display a preview of each entry on the Directory screen.

Creating a Localized System Name with the Polycom HDX Web Interface

Localized system names are sent to the far site and displayed as the caller ID by Polycom HDX systems running version 1.0 or later or VSX systems running version 8.0 or later. When you enter a localized system name, it is also entered in English/Pinyin. The English/Pinyin name is the name used by the Global Directory Server, the gatekeeper, and other systems that do not support this feature, and it is also the name that shows up in the Recent Calls list.

To create a localized system name using the Polycom HDX web interface:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Go to **Admin Settings > General Settings > System Settings**.
4. Enter the localized system name in the appropriate language field.

Managing Directories with the Polycom HDX Web Interface

The Polycom HDX Web Interface import/export directory feature allows you to maintain consistency of Polycom HDX system directories in your organization efficiently. It is particularly useful for administrators managing multiple systems that call the same locations. You can:

- Transfer existing directory entries between Polycom HDX systems
- Develop directory entries on one system, save them to your computer, and then distribute them to other systems
- Create localized directory entries

Only local directories can be downloaded. The directory file is in .csv format.

To download a Polycom HDX system directory to your computer:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Go to **Utilities > Import/Export Directory**.
4. Click **HDX —> PC** to download the .csv file from the Polycom HDX system.
5. Save the file to a location on your computer.

To upload Polycom HDX system directory entries:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Go to **Utilities > Import/Export Directory**.
4. Click **PC —> HDX**.
5. Click **Browse** and browse to the location of the .csv file on your computer.
6. Click **Export Directory** to upload the .csv file to the Polycom HDX system.

To create a localized directory entry using the Polycom HDX web interface:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Go to **Place a Call > Directory**.

Edit an entry to enter a localized directory entry name in the **Localized Name** field, and specify the language for the localized directory entry.

Configuring the Global Directory

The global directory provides a list of other systems that are registered with the Global Directory Server and available for calls. The other systems appear in the directory, allowing users to place calls to other users by selecting their names.

To configure the Directory Server settings:

1. Go to **System > Admin Settings > Global Services > Directory Servers**.
2. Configure these settings on the Global Directory Servers screen:

Setting	Description
Global Directory (GDS)	Specifies the IP address or DNS address of the Global Directory Server. You can enter up to five addresses.
Password	Lets you enter the global directory password, if there is one.
Register	Registers this system with the Global Directory Server.
Display Global Addresses	Displays other registered systems in the global directory.
Display Name in Global Directory	Specifies whether to display the system's name in the global directories of other registered systems.
Save Global Directory to System	Copies the global directory to this local system. When this setting is disabled, the system can display no more than 1,000 global directory entries. When this setting is enabled, the system can display up to 4,000 global directory entries.
Group Name	Specifies the group name used for global directory entries in the local directory. In the directory, entries from Global Directory Servers are listed in the **Polycom GDS** group.

7

System Location, Appearance, and Tones

Setting Date, Time, and Location

You can update the system with regional settings, including the location-specific language and calling parameters.

To set the date, time, and location:

1. Go to **System** > **Admin Settings** > **General Settings** > **Location**.
2. Configure these settings on the Location screen:

Setting	Description
Country	Specifies the country where the system is located. Changing the country automatically adjusts the country code associated with your system.
Language	Sets the language for the user interface.
International Dialing Prefix	Specifies the international code required for placing ISDN calls from the system location to another country.
Country Code	Specifies the country code for the system location.
Area Code	Specifies the area code to use for analog phone calls.
Always Dial Area Code	Specifies if an area code is required to place ISDN calls in the specified country.
Dial 1+ for all USA Calls	Specifies that calls to systems in the United States must include a “1” before the area code. **Note:** Even if you have this setting enabled, you may need to dial 1 and the area code when calling long distance over ISDN within your same area code.

3. Select ▶ and configure these settings on the Time Zone screen:

Setting	Description
Auto Adjust for Daylight Saving Time	Specifies the daylight savings time setting. When you enable this setting, the system clock automatically changes for daylight saving time.
Time Zone	Specifies the time difference between GMT (Greenwich Mean Time) and your location.
Time Server	Specifies connection to a time server for automatic system time settings. The date and time must be manually reset every time a Polycom HDX 8000 HD or Polycom HDX 4000 series system restarts, in the following cases: • **Time Server** is set to **Off** • **Time Server** is set to **Manual** or **Auto**, but the system cannot connect to a time server successfully.
Time Server Address	Specifies the address of the time server to use when **Time Server** is set to **Manual**.

4. Select ▶ and configure these settings on the Date and Time screen:

Setting	Description
Date Format and Time Format	Specifies your format preference for the date and time display and lets you enter your local date and time.
Display Time in Call	Specifies the time display in a call: • **Elapsed Time** – Displays the amount of time in the call. • **Local Time** – Displays the local time on the screen during a call. • **Off** – Time is not displayed.

Customizing the Home Screen

Customize the system functionality according to your users' needs, skill levels, and environments.

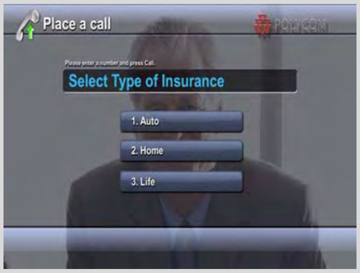
Infrequent Users (Kiosk Mode)

Provide a simple workspace so no training is needed:

- Let users make calls to pre-defined numbers with one button click
- Include instructions on screen

Include a short list of specific items for users to select

Use the marquee to add instructions


Please enter a number and press Call.

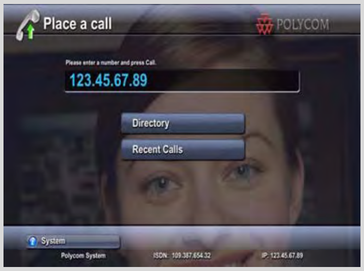
Select Type of Insurance

New Users

Provide more options but keep it simple:

- Dialing entry field
- Directory numbers
- Recent Calls

Add features for users as needed


Please enter a number and press Call.

123.45.67.89

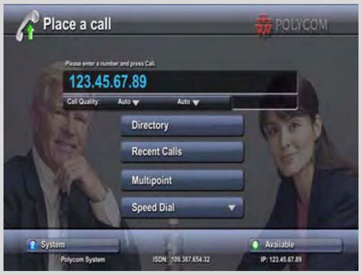
Polycom System ISDN: 109.387.654.32 IP: 123.45.67.89

Advanced Users

Provide additional options for advanced video conferencing users:

- Call Quality (bandwidth and call type)
- Multipoint dialing
- User Settings, Diagnostics, and System Information
- Speed Dial list of frequently called sites
- Alerts

Add more features as users gain experience


Please enter a number and press Call.

123.45.67.89

Call Quality: Auto Auto

Polycom System ISDN: 109.387.654.32 IP: 123.45.67.89

To design the home screen:

1. Go to **System > Admin Settings > General Settings > Home Screen Settings**.
2. Configure these settings on the Home Screen Settings screen:

Setting	Description
Dialing Display	Specifies which dialing option to display: • **Dialing entry field** — Allows users to enter numbers manually. • **Display marquee** — Displays text in the dialing entry field. Can be used to display user instructions. Users cannot enter numbers manually when this option is selected. • **None** — Removes the dialing entry field from the screen.
Enter Marquee Text	Specifies the text to display when the Dialing Display is set to Display marquee.
Contact List	Specifies whether to display the contact list home screen.
Call Quality	Allows users to select the bandwidth for calls, as well as the call type, from the Place a Call screen. For information about enabling call types, refer to Configuring Call Preferences on page 2-28.
H.323 Extension (E.164)	Allows users to enter extensions on the home screen.
Directory	Allows users to access the directory.
System	Allows users to access the System screen, which includes User Settings, Diagnostics, and System Information. If you remove the **System** button, you can still access the System screen by navigating to the home screen, pressing ⓘ on the remote, and selecting **System**.
Multipoint	Allows users to access the multipoint dialing screen via a **Multipoint** button on the home screen.

3. Select ▶ and configure these settings:

Setting	Description
System Name	Specifies whether to display the name of the system on the home screen above the PIP window.
IP or ISDN Information	Specifies whether to display the system's IP address, ISDN number, or both on the home screen.
Local Date and Time	Specifies whether to display the local date and time on the home screen.

Setting	Description
Do Not Disturb Icon	Allows users to set the system to automatically accept or ignore incoming calls using the **Do Not Disturb** button on the home screen.
Call Detail Report	Specifies whether to generate a report of all calls made with the system. When selected, all calls can be viewed through the Polycom HDX web interface and downloaded as a .csv file. **Note:** If this setting is disabled, applications such as the Polycom Global Management System will not be able to retrieve Call Detail Report (CDR) records.
Recent Calls	Specifies whether to display the **Recent Calls** button on the home screen. The Recent Calls screen lists the site number or name, the date and time, and whether the call was incoming or outgoing. **Note:** If the Call Detail Report option is not selected, the Recent Calls option is not available.

4. Select ▶ and configure these settings:

Setting	Description
Sites	Allows users to access any pre-defined sites from a My Contacts/Speed Dial list on the home screen.
Last Number Dialed	Specifies whether to display the last number dialed or clear the dialing field on the home screen.

Displaying Contacts on the Home Screen

Sites configured for speed dial are displayed on the home screen. You can also display them, along with any Microsoft LCS contacts, on the contact list home screen.

For more information about Microsoft LCS contacts, refer to Integration with Microsoft Live Communications Server (LCS) on page 2-10.

To configure speed dial sites:

1. Make sure that the site information is entered in the directory.
2. Go to **System > Admin Settings > General Settings > Home Screen Settings**.
3. Select ▶ two times and enable **Sites**.
4. Select ▶ to access the Sites screen.

5. Select **Add** and choose the sites to add from the directory.
6. Select either **Speed Dial** or **Contacts** as the name you want to appear on the button.

To display the contact list home screen:

1. Go to **System > Admin Settings > General Settings > Home Screen Settings**.
2. Select **Contact List**.

Adding Marquee Text

You can create marquee text to display in the dialing entry field on the home screen. You can create context-specific instructions for your users or, if the home screen has Site buttons, the marquee text can provide information that helps users choose which site to call.

To enter marquee text in the Polycom HDX system interface:

1. Go to **System > Admin Settings > General Settings > Home Screen Settings**.
2. In **Dialing Display**, select **Display marquee** and enter the text.

You can also add marquee text through the Polycom HDX web interface. For some languages such as Russian, Korean, Japanese, Simplified Chinese, and Traditional Chinese, you must use the Polycom HDX web interface to add marquee text.

To enter marquee text using the Polycom HDX web interface:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Enter the user name and administrator's password, if a password has been established.
4. Click **Admin Settings > General Settings > Home Screen Settings** and enter.
   - **Dialing Display**— Set to Display marquee.
   - **Enter Marquee Text** — Type the text to display on the home screen.
5. Click **Update**.

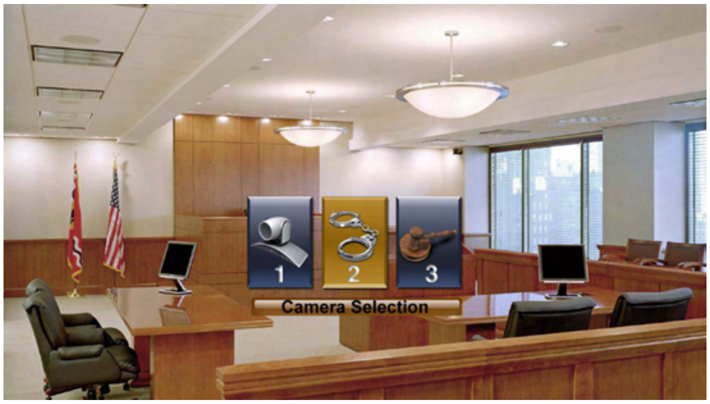
Setting Ring Tones and Alert Tones

To set ring tones and alert tones:

1. Go to **System > Admin Settings > Audio > Audio Settings**.
2. Select a tone, as desired.

Customizing Camera Names and Icons

Customizing the way cameras appear on screen helps users select the correct camera input during a call. You can enter camera names and assign icons. You can choose camera icons from categories including Corporate, Education, Justice, Manufacturing, and Medical.



To customize camera names and icons:

1. Go to **System > Admin Settings > Cameras**.
2. For each camera or video source, enter a name and choose an icon.

Screen Savers

Adding Screen Saver Text

You can customize the Polycom HDX system to display text when the system is in sleep mode. For instance, you can display on-screen instructions to assist users with what steps they should take next.

Output upon Screen Saver Activation on the Monitors screen must be set to **Black** if you want to display screen saver text.

To enter screen saver text:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Enter the user name and administrator's password, if a password has been established.
4. Click **Utilities > Screen Saver** and enter:
   - **Screen Saver Text** — Appears as scrolling text when the system is in sleep mode. You can use this scrolling text to provide instructions or next steps for users of the system.
   - **Logo Screen Text** — Appears underneath the logo before the system goes into sleep mode.
5. Click **Update**.

Adding a Screen Saver Logo

You can customize the Polycom HDX system to display your own logo instead of the Polycom logo.

To upload a screen saver logo:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, http://10.11.12.13, to go to the Polycom HDX web interface.
3. Enter the user name and administrator's password, if a password has been established.
4. Click **Utilities > Screen Saver**, click **Next**, and follow the onscreen instructions for uploading a logo file.

Changing the Screen Saver Wait Time

To change the screen saver wait time:

1. Go to **System > Admin Settings > Monitors > Monitors >** ▶ **>** ▶ **>** ▶ **>** ▶.
2. Configure the Screen Saver Wait Time to specify how long the system remains awake during periods of inactivity. The default is 3 minutes. Setting this option to **Off** prevents the system from going to sleep.

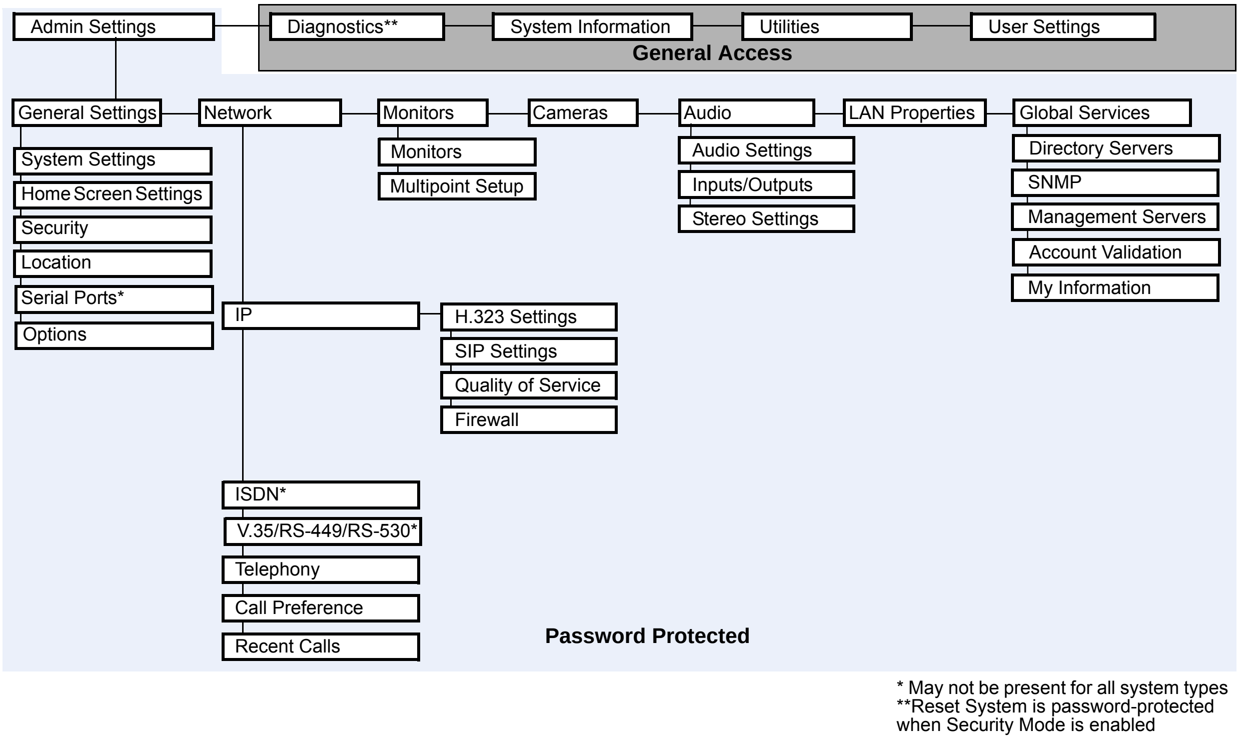
To prevent image burn-in, set the **Screen Saver Wait Time** to 3 minutes or less.

8

Security

Screens that Require the Room Password for Access

The following illustration shows which screens require the room password.



Configuring Security Options

To set passwords and security options:

1. Go to **System** > **Admin Settings** > **General Settings** > **Security**.
2. Configure these settings on the Security screen:

Setting	Description
Security Mode	Specifies whether the system uses Security Mode, which prevents unsecured access to the system. Every time you enable Security Mode, you must configure a new password for the system.
Use Room Password for Remote Access	Specifies whether the room password and remote access password are the same.
Room Password	Enter or change the room password. When the room password is set, you must enter it to configure the system Admin Settings using the remote control. The room password must not contain spaces.
Meeting Password	Specifies the password users must supply to join multipoint calls on this system if the call uses the internal multipoint option, rather than a bridge. This field can also be used to store a password required by another system that this system calls. If a password is stored in this field, you do not need to enter it at the time of the call; the Polycom HDX system supplies it to the system that requires it. The meeting password must not contain spaces.
Remote Access Password	Enter or change the remote access password. When the remote access password is set, you must enter it to upgrade the software or manage the system from a computer. The remote access password must not contain spaces.

3. Select ▶ and configure these settings:

Setting	Description
Enable Remote Access	Specifies whether to allow remote access to the system by: • Web • Telnet • SNMP You may select any of these, or any combination of them. **Note:** The system restarts if you change the remote access settings. This setting does not deactivate the associated port, only the application. Use **Web Access Port** to disable the port.
AES Encryption	Specifies whether to encrypt calls with other sites that support AES encryption. If the far site does not have AES encryption enabled, the call connects without encryption.
Allow Access to User Settings	Specifies whether the User Settings screen is accessible to users via the System screen. Select this option if you want to allow users to change limited environmental settings.
Allow Video Display on Web	Specifies whether to allow viewing of the room where the system is located, or video of calls in which the system participates, using the Polycom HDX web interface. **Note:** This feature activates both near site and far site video displays in Web Director.
Web Access Port (http)	Specifies the port to use when accessing the system using the Polycom HDX web interface. If you change this from the default (port 80), specify a port number of 1025 or higher, and make sure the port is not already in use. You will need to include the port number with the IP address when you use the Polycom HDX web interface to access the system. This makes unauthorized access more difficult. **Note:** The system restarts if you change the web access port.

Setting the Room and Remote Access Passwords

You can set the room password to restrict who can configure system Admin Settings using the remote control. You can set the remote access password to restrict who can upgrade the Polycom HDX system software or perform other remote management from a computer.

To set or change the room password:

1. Go to **System** > **Admin Settings** > **General Settings** > **Security.**
2. Enter or change the password.

The default room password is the 14-digit system serial number.

To set or change the remote access password:

1. Go to **System** > **Admin Settings** > **General Settings** > **Security.**
2. Clear the **Use Room Password for Remote Access** setting if it is selected. By default, the remote access password is the same as the room password.
3. Enter a **Remote Access** password.

To access Admin Settings using the Polycom HDX web interface when a remote access password is set, enter "admin" for the user name.

To use the same password for both local and remote access:

1. Go to **System** > **Admin Settings** > **General Settings** > **Security**.
2. Select **Use Room Password for Remote Access**.

To reset a forgotten password:

1. Get the system's serial number from the system or from the System Information screen.
2. Go to **System** >**Diagnostics** > **Reset System.**

If Security Mode is enabled, the room password is required to access the Reset System screen. If you forget the room password while the system is in Security Mode, refer to Using the Restore Button on page 12-21.

3. Enter the system's serial number and select **Delete System Settings.**
4. Select **Reset System.**

After the system resets, it leads you through the setup wizard. You can enter a new password when you set up the system.

Managing User Access to Settings and Features

You can manage user access to settings and features by using passwords and by configuring the system to show only those options you want your users to see.

To maintain this security level:	You can allow users to:
High (Kiosk mode)	Call only the numbers you specify on the home screen. See Customizing the Home Screen on page 7-3.
Medium	Place calls using the restrictions you specify for length of call, type of call, and use of the directory.
Low	Configure user settings.
Very low	Configure all system settings.

You can allow users to change common user preferences by providing access to the User Settings screen.

To allow users to customize the workspace:

1. Go to **System > Admin Settings > General Settings > Security >** ▶.
2. Select the **Allow Access to User Settings** option to make the **User Settings** button available to users on the System screen.

User Settings contains the following options, which are also available to administrators on the Admin Settings screens:

- Backlight Compensation
- Far Control of Near Camera
- Meeting Password
- Auto Answer Point-to-Point or Multipoint Video
- Mute Auto-Answer Calls
- PIP
- Keypad Audio Confirmation
- Far Site Name Display Time
- Dual Monitor Emulation
- Allow Video Display on Web

Configuring Security Mode

You can configure Polycom HDX systems to use Security Mode, which provides secure access to the system. Security Mode utilizes TLS, HTTPS, AES, digital signatures, and other security protocols, algorithms, and mechanisms to put the system into a secure mode. These protocols encrypt management communication over IP, preventing access by unauthorized users.

Every time you enable Security Mode, you must configure a new password for the system. The password cannot be blank and it cannot be the default value (serial number).

Security Mode requires secure access and a password for Web access.

To configure the system to use Security Mode:

1. Go to **System > Admin Settings > General Settings > Security**.
2. Enable **Security Mode**.

When you change this setting, the Polycom HDX system restarts. Every time a Polycom HDX system is powered on or restarts in Security Mode, it verifies that the system software is authentic Polycom software.

Points to note about Security Mode:

- SNMP access is not available in Security Mode.
- Global Management System and Readi*Manager*® SE200 are not compatible with Polycom HDX systems in Security Mode.
- If Security Mode is enabled, you must enter the room password to reset the system (**System > Diagnostics > Reset System**).
- If Security Mode is enabled, the room password is required to access the Reset System screen. If you forget the room password while the system is in Security Mode, refer to Using the Restore Button on page 12-21.

To access a Polycom HDX system in Security Mode using the Polycom HDX web interface:

1. Enter the IP address of the system using secure HTTPS access, for example, `https://10.11.12.13`.
2. Click **Yes** in the security dialogs that appear. This access uses port 443.
3. To access Admin Settings using the Polycom HDX web interface when a remote access password is set, enter “admin” for the user name.

Enabling AES Encryption

AES encryption is a standard feature on all Polycom HDX systems. When it is enabled, the system automatically encrypts calls to other systems that have AES encryption enabled.

To enable AES encryption:

➢ Go to **System > Admin Settings > General Settings > Security >** ▶ and select **AES Encryption**.

9

Managing the System Remotely

You can configure, manage, and monitor the system from a computer using the system's web interface. You can also use the Polycom Global Management System, SNMP, or the API commands.

- The Polycom HDX Web Interface requires only a web browser.
- Polycom Global Management System requires the Global Management System application to be installed on your network.
- SNMP requires network management software on your network management station.
- For more information about the API commands, refer to the *Integrator's Reference Manual for Polycom HDX Systems*.

Using the Polycom HDX Web Interface

You can use the Polycom HDX web interface to perform most of the calling and configuration tasks you can perform on the local system.

Accessing the Polycom HDX Web Interface

To configure your browser to use the Polycom HDX web interface:

1. Be sure that you use Microsoft Internet Explorer 6.0 or later as your web browser and that you have Java 1.2 or later installed.
2. Configure the browser to allow cookies.

To access the system using the Polycom HDX web interface:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's host name or IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.

   If Security Mode is enabled on the system, you must use secure HTTPS access, for example, `https://10.11.12.13`. Click **Yes** in the security dialog boxes that appear.
3. If prompted, enter `admin` as the user name, and enter the remote access password.

Monitoring a Room or Call with the Polycom HDX Web Interface

The monitoring feature within the Polycom HDX web interface allows administrators of Polycom HDX systems to view a call or the room where the system is installed. For security reasons, this feature can only be enabled on the local system by an administrator.

To enable room and call monitoring:

1. Go to **System > Admin Settings > General Settings > Security**.
2. Select ▶ and enable **Allow Video Display on Web** to allow the room or call to be viewed remotely.

To view a room or call:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Go to **Utilities > Web Director**.
4. Perform any of the following tasks:
   - Place or end a call
   - View near and far sites
   - Change camera sources
   - Adjust camera position
   - Zoom cameras
   - Adjust system volume settings
   - Mute and unmute the microphones

You can view near and far sites without opening Web Director by selecting **Tools > Remote Monitoring**.

Managing System Profiles with the Polycom HDX Web Interface

Administrators managing systems that support multiple applications can change system settings quickly and easily using profiles. You can store a Polycom HDX system profile on a computer as a .csv file using the Polycom HDX web interface. There is no limit to the number of profiles you can save.

The following settings are included in a profile:

- Home screen settings
- User access levels
- Icon selections
- Option keys
- System behaviors

Passwords are not included when you store a profile.

Polycom recommends using profiles only as a way to back up system settings. Attempting to edit a stored profile or upload it to more than one system on the network can result in instability or unexpected problems.

To store a profile:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Go to **Utilities > Profile Center**.
4. Click **HDX —> PC** to download the .csv file from the Polycom HDX system.
5. Save the file to a location on your computer.

To upload a profile:

1. Reset the Polycom HDX system to restore default settings.
2. On a computer, open a web browser.
3. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
4. Go to **Utilities > Profile Center**.
5. Click **Browse** and browse to the location of the .csv file on your computer.
6. Click **PC —> HDX** to upload the .csv file to your system.

Sending a Message

If you are experiencing difficulties with connectivity or audio, you may want to send a message to the system that you are managing.

Only the near site can see the message; it is not broadcast to all the sites in the call.

To send a message via the Polycom HDX web interface:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. If prompted, enter `admin` as the user name, and enter the admin password.
4. Go to **Diagnostics > Send a Message**.
5. In the Send a Message page, enter a message (up to 100 characters in length), then click **Send Message**.

   The message is displayed for 15 seconds on the screen of the system that you are managing.

Configuring Global Services

If your organization uses the Polycom Global Management System, you can configure, manage, and monitor the Polycom HDX system using the Global Management System server. Global Management System is a web-based client/server software tool that allows administrators to manage a network of video conferencing systems.

Viewing the Management Servers List

On networks managed by the Global Management System, several Global Servers may be configured to manage this system remotely. The system also has a primary Global Management System server that performs account validation. You can view information about these servers, but this information can only be changed by the Global Management System Administrator.

To view the management servers list:

➢ Go to **System > Admin Settings > Global Services > Management Servers.**

Requiring an Account Number for Calls

If your system is set up for use with the Global Management System, the system can prompt the user to enter an account number before placing a call. The account number is added to the Global Management System's Call Detail Record (CDR) and the system's local CDR file (localcdr.csv), and this information can be used for call tracking and billing purposes.

If you do not configure the system to validate account numbers, calls are completed and the entered account number is recorded on the CDR. If you configure the system to validate account numbers, calls are completed only when placed using a valid account number. Account numbers are set up in Global Management System by the Global Management System administrator.

For more information about account validation, please contact your Global Management System administrator.

To require an account number for calls:

1. Go to **System > Admin Settings > Global Services > Account Validation**.
2. Specify whether to require an account number for placing calls and whether that number should be validated by the Global Management System server.

Adding Information for the Global Management System Administrator

If your system is managed by Global Management System, you can configure the Polycom HDX system so that users can request help from the Global Management System administrator.

To configure Global Management contact information:

1. Go to **System > Admin Settings > Global Services > My Information**.
2. Enter the contact information for the Global Management System administrator for technical support.

The following section illustrates the interaction between Global Management System and the system you are configuring.

Requesting Technical Support from the Global Management System Administrator

If you need to contact the Global Management System administrator, press ⓘ on the remote control or keypad from the home screen, select **Support** and enter a phone number where the administrator can call you back. Then press ⊙. The administrator receives an alert to call you at the number you specified.

Setting Up SNMP

The Polycom HDX system sends SNMP (Simple Network Management Protocol) reports to indicate conditions, including the following:

- All alert conditions found on the Polycom HDX system alert page
- Details of jitter, latency, and packet loss
- Low battery power is detected in the remote control
- A system powers on
- Administrator logon is successful or unsuccessful
- A call fails for a reason other than a busy line
- A user requests help
- A telephone or video call connects or disconnects

Polycom HDX systems are compatible with SNMP versions 1 and 2c.

Downloading MIBs

In order to allow your SNMP management console application to resolve SNMP traps and display human readable text descriptions for those traps, you need to install Polycom MIBs (Management Information Base) on the computer you intend to use as your network management station. The MIBs are available for download from the Polycom HDX web interface.

To download the Polycom MIBs:

1. On a computer, open a web browser.
2. In the browser address line, enter the IP address of the system, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Go to **Admin Settings > Global Services > SNMP**.
4. Click **Download MIB** and follow the onscreen instructions.

Configuring for SNMP Management

To configure the Polycom HDX system for SNMP Management:

1. Access the SNMP configuration screen either in the Polycom HDX web interface or on the Polycom HDX system. In the Polycom HDX web interface go to **Admin Settings > Global Services > SNMP**. On the Polycom HDX system go to **System > Admin Settings > Global Services > SNMP**.
2. Configure these settings on the SNMP screen:

Setting	Description
Enable SNMP	Allows administrators to manage the system remotely using SNMP.
Trap Version	Specifies the trap protocol that the system uses. • **v2c**—System uses the v2c trap. • **v1**—System uses the v1 trap.
Read-Only Community	Specifies the SNMP management community in which you want to enable this system. The default community is **public**. **Note:** Polycom does not support SNMP write operations for configuration and provisioning; the read-only community string is used for both read operations and outgoing SNMP traps.
Contact Name	Specifies the name of the person responsible for remote management of this system.
Location Name	Specifies the location of the system.
System Description	Specifies the type of video conferencing device.
Console IP Address	Specifies the IP address of the computer you intend to use as your network management station and to which SNMP traps will be sent.

Keeping your Software Current

If you have Internet access and a software key, you can update the Polycom HDX system software. If you do not have Internet access, your reseller can supply you with the Polycom HDX system software update on CD-ROM.

Refer to the *Release Notes for Polycom HDX Systems* for information about the latest software version. Refer to *Upgrading Polycom Video Software* for detailed information about obtaining software key codes and using the Software Update.

To download the software package:

1. On a computer, open Internet Explorer version 6.0 or later.
2. Go to www.polycom.com/support.
3. Navigate to your product software.
4. Download the appropriate software package.
5. Use the web-based Software Update or the USB port on the system to update the Polycom HDX system software.

> Do not power off the system during the software upgrade process. If the upgrade is interrupted, the system may become unusable.

To update system software using the Polycom HDX Web Interface:

1. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.

   If Security Mode is enabled on the system, you must use secure HTTPS access, for example, `https://10.11.12.13`. Click **Yes** in the security dialog boxes that appear.
2. If prompted, enter `admin` as the user name, and enter the remote access password.
3. Go to **Admin Settings > General Settings > Software Update**, and follow the instructions on the screen.

To update system software using the USB port on a Polycom HDX system:

After version 2.0 or higher is installed on a Polycom HDX system, you can install software using the USB port on the system.

1. Save a single software package (`.pup`) file and single key code (`.txt`) file to the root of a USB storage device.
2. Insert the USB storage device into the USB port on the system.

   A prompt appears for installing the software found on the USB device.
3. Follow the instructions on the screen.

   If you choose to cancel the installation, you can install the software at a later time by pressing ☰ **Option** on the remote control or keypad and selecting **Software Update**.

> If you follow the procedure to restore the system to factory defaults while a USB storage device is connected, the system restores from the USB device instead of the system's factory partition.

10

Control Devices

Configuring Remote Control Behavior

You can customize the behavior of the remote control to support the users' environment.

To configure remote control behavior:

1. Go to **System > Admin Settings > General Settings > System Settings > Remote Control**.
2. Configure these settings on the Remote Control screen:

Setting	Description
Keypad Audio Confirmation	Specifies whether to play a voice confirmation of numbers selected with the remote control or keypad.
Remote Control Keypad	Specifies whether pressing number buttons on the remote control or keypad moves the camera to presets or generates touch tones (DTMF tones). If this is set to **Presets**, users can generate DTMF tones by pressing # while on a video screen.
Use Non-Polycom Remote	Configures the system to accept input from a programmable, non-Polycom remote control. In most cases the Polycom remote works as designed, even when this feature is enabled. However, try disabling this feature if you experience difficulty with the Polycom remote. For more information about Polycom HDX system IR codes, refer to the *Integrator's Reference Manual for Polycom HDX Systems*.
Channel ID	Specifies the IR identification channel to which the Polycom HDX system responds. Set the Channel ID to the same channel as the remote control. The default setting is 3. If the remote control is set to channel 3, it can control a Polycom HDX system set to any Channel ID. For more information about changing this setting, refer to Configuring the Remote Control Channel ID.

Configuring the Remote Control Channel ID

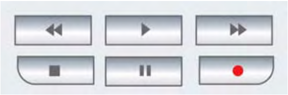
You can configure the Channel ID so that the remote control affects only one Polycom HDX system, even if there are other systems in the same room.

> If the remote control is set to channel 3, it can control a Polycom HDX system set to any Channel ID.

To configure the channel ID for a Polycom HDX system and remote control:

1. Go to **Admin Settings** > **General Settings** > **System Settings** > **Remote Control**.
2. Set the **Channel ID**.
3. While blocking the IR signal on the remote control, press and hold the ☰ **Option** button for 5 seconds.
4. Press ▼ once to **Set ID**.
5. Press the right arrow to change the setting.
6. Press ▲ or ▼ to select the channel ID that you configured on the system.
7. Press ▶ to select the new setting.

Configuring the Remote to Control a Recording Device



You can program the Polycom HDX system remote control to control a specific recording or playback device such as a VCR or DVD player.

For a list of codes, refer to Appendix D, *Codes for Remote Control Recording Device Buttons*.

To program the remote to control a recording device:

1. Press and hold the ☰ **Option** button for 5 seconds.
2. Press the right arrow to select **Set Code**.
3. Enter the four-digit code for your recording device.
4. Press ▶ to select the new setting.

Connecting Control and Accessibility Equipment

The Polycom HDX 9004 provides two serial ports. The Polycom HDX 9002, Polycom HDX 9001, and Polycom HDX 8000 HD systems provide one serial port. You can use the RS-232 serial ports to:

- Connect a modem and use a closed captioning service
- Pass data from a device connected to your system to a device connected to the far site system
- Control the system through a touch-panel using the API
- Provide control signals for an additional camera
- Provide control signals for a Polycom Vortex mixer

> You will need to configure the RS-232 equipment according to the manufacturer's instructions, and you will need to configure the RS-232 serial port on the system exactly the same way.

Make sure that the system is powered off before you connect devices to it.

Connecting Touch-Panel Controls

You can connect an AMX or Crestron control panel to the system's RS-232 serial port as part of a custom room installation. You will need to program the control panel. Refer to the *Integrator's Reference Manual for Polycom HDX Systems* for information about the API commands.

Connecting IR Sensors to Polycom HDX Systems

The Polycom HDX system provides a connector for an external IR sensor. Refer to your system's setup sheet for connection details.

The Polycom HDX system is compatible with the following IR sensors:

- Xantech® 480-00
- Xantech 490-90
- Xantech 780-80
- Xantech 780-90

Configuring RS-232 Serial Port Settings

1. Go to **System > Admin Settings > General Settings > Serial Port**s.
2. Configure these settings for a Polycom HDX 9000 series or Polycom HDX 8000 HD system:

Setting	Description
RS-232 Mode	Specifies the mode used for the serial port. Available settings depend on the Polycom HDX system model. • **Control**—Receives control signals from a touch-panel control. Allows any device connected to the RS-232 port to control the system using API commands. • **Camera PTZ**—Provides control signals to a PTZ camera. • **Closed Caption**—Receives closed captions from a captioning service using a modem, or directly from a captioner's computer via Telnet. • **Vortex Mixer**—Provides control signals to a Polycom Vortex mixer. • **Pass Thru**—Passes data to an RS-232 device connected to the serial port of the far-site system. • **Polycom Annotation**—Provides control signals to the Polycom Instructor™ *RP*. • **Interactive Touch Board**—Provides control signals to a Polycom SMART board device.
Baud Rate, Parity, Data Bits, Stop Bits	Set these to the same values that they are set to on the serial device.
RS-232 Flow Control	When a Vortex is connected to an RS-232 connector on the Polycom HDX system, set both to **Hardware**. This is selectable when **RS-232 Mode** is set to **Vortex Mixer** or **Pass Thru**.
Camera Control	Specifies which camera to control when **RS-232 Mode** is set to **Camera PTZ**.
Detect Camera	Detects the camera specified for **Camera Control**.

3. For a Polycom HDX 9004, select ▶ and configure the settings for port 2.

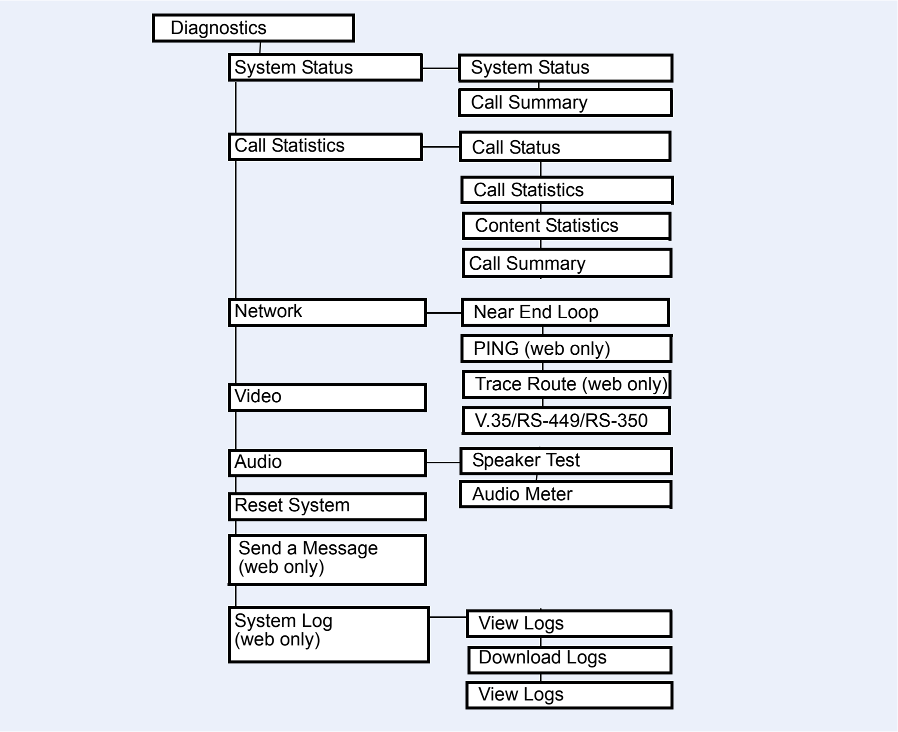
11

Statistics and Diagnostics

The Polycom HDX system provides various screens that allow you to review information about calls made by the system and to review network usage and performance.

Diagnostic Screens

The following Diagnostics screens are available on the system and in the Polycom HDX web interface.



To access the Diagnostics screens on the system:

- Go to **System > Diagnostics.**

To access the Diagnostics screens from the Polycom HDX web interface:

1. On a computer, open a web browser.
2. In the browser address line, enter the system’s IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. If prompted, enter `admin` as the user name, and enter the admin password.
4. Click **Diagnostics** from any page in the Polycom HDX web interface.

System Status

Diagnostic Screen	Description
System Status	Displays system status information, including auto-answer point to point, remote control battery, time server, Global Directory, IP network, gatekeeper, and ISDN lines. For an explanation of any of the status items, select the item and press ⓘ on the remote. When there is a change in system status or a potential problem, you see an alert at the bottom of the Place a Call screen.

Call Statistics

Diagnostic Screen	Description
Call Status (system only)	Displays call type, data speed, and number dialed for the current call. You can highlight the spheres on this screen to see the number dialed, the relevant status code, and details of any errors. In ISDN calls, this screen also displays connection status for each channel. In calls placed through a V.35/RS-449/RS-530 network interface, this screen displays the states of these signals: • DTR • RTS • CTS • DSR • DCD • RI Bright indicators show high signals; dim indicators show low signals.

Diagnostic Screen	Description
Call Statistics	Displays information about the call in progress. In multipoint calls, the Call Statistics screens show most of this information for all systems in the call. View Call Statistics during a call by pressing ⓘ **Info** on the remote. Call Statistics (1) • Call speed (transmit and receive) • Video protocol, annexes, and format in use (transmit and receive). The video protocol is shown in green if the system is currently using error concealment. • Audio protocol in use (transmit and receive) • Number of packets lost and percentage packet loss (transmit and receive) in IP calls • Encryption type, key exchange algorithm type, and key exchange check code (if the encryption option is enabled and the call is encrypted) • Far site details and call type Call Statistics (2) • Audio and video data rates specified (transmit and receive) • Video data rate and frame rate in use (transmit and receive) • Video packet loss and jitter in IP calls • Audio packet loss and jitter in IP calls • Far site details and call type Content Statistics The Content Statistics screen shows statistics for content shared during a call.
Call Summary (system only)	Displays calling information, such as: • Duration of the last call • Total number of calls placed and received • Number, total time, and percentage of IP calls • Number, total time, and percentage of ISDN calls

Network

Diagnostic Screen	Description
Near End Loop	Tests the internal audio encoders and decoders, the external microphones and speakers, the internal video encoders and decoders, and the external cameras and monitors. Monitor 1 displays the video and plays the audio that would be sent to the far site in a call. This test is not available when you are in a call.
PING (web only)	Tests whether the system can establish contact with a far-site IP address that you specify. PING returns abbreviated Internet Control Message Protocol results. It returns H.323 information only if the far site is configured for H.323. It returns SIP information only if the far site is configured for SIP. If the test is successful, the Polycom HDX system displays a message indicating that the IP address under test is available.
Trace Route (web only)	Tests the routing path between the local system and the IP address entered. If the test is successful, the Polycom HDX system lists the hops between the system and the IP address you entered.
V.35/RS-449/RS-530 Serial Status screen (system only)	Displays the states of these signals: • DTR • RTS • CTS • DSR • DCD • RI Bright indicators show high signals; dim indicators show low signals.

Video

Diagnostic Screen	Description
Video Diagnostics	Tests the color settings of your monitor for optimum picture quality. If the color bars generated during the test are not clear, or the colors do not look correct, the monitor needs to be adjusted.

Audio

Diagnostic Screen	Description
Speaker Test	Tests the audio cable connections. A 473 Hz audio tone indicates that the local audio connections are correct. If you run the test from the system during a call, the far site will also hear the tone. If you run the test from the Polycom HDX web interface during a call, the people at the site you are testing will hear the tone, but you will not.
Audio Meter	Measures the strength of audio signals from microphone(s), far-site audio, VCR audio, and any device connected to the audio line in. • To check the microphone(s), speak into the microphone. • To check far-site audio, ask a participant at the far site to speak or call a phone in the far-site room to hear it ring. • To check a VCR or DVD, connect it to the VCR inputs and play the VCR or DVD to test the audio. The Audio Meters indicate peak signal levels. Set signal levels so that you see peaks between +3dB and +7dB with normal speech and program material. Occasional peaks of +12dB to +16dB with loud transient noises are considered acceptable. A meter reading of +20dB corresponds to 0dBFS in the Polycom HDX system audio. A signal at this level is likely clipping the audio system. Meters function only when the associated input is enabled. **Note:** Some audio meters are unavailable when a SoundStructure digital mixer is connected to the Polycom HDX system.

Reset System

Diagnostic Tool	Description
Reset System	Cycles power to the system. **Note:** If Security Mode is enabled, you must enter the room password to reset the system. When you reset the system using the remote control, the system’s user interface allows you to: • Keep your system settings (such as system name and network configuration) or restore factory settings. • Keep or delete the directory stored on the system. System reset does not affect the global directory. You may wish to download the CDR and CDR archive before you reset the system. See Call Detail Report (CDR) on page 11-8.

Recent Calls

When the **Call Detail Report** setting is enabled, Recent Calls shows a list of up to 99 calls made by the system. It includes the following information:

- Site name or number
- Date and time
- Call in or out

The Recent Calls list shows incoming and outgoing calls that connect, as well as outgoing calls that do not connect.

If Do Not Disturb has been enabled, any incoming calls attempted by other sites will not be listed.

The home screen can be configured to include Recent Calls. For more information about including the Recent Calls list on the home screen, see Customizing the Home Screen on page 7-3.

To view the Recent Calls screen:

➢ Go to **System > Admin Settings > Network > Recent Calls.**

You can see more detail about any call by highlighting an entry and pressing ⓘ **Info** on the remote. Information includes the far site’s number and name, and the type, speed (bandwidth), and duration of the call.

If you need even more detail about calls, you can view or download the Call Detail Report (CDR) from the Polycom HDX web interface. For more information about the CDR, see Call Detail Report (CDR).

Call Detail Report (CDR)

When enabled, the Call Detail Report (CDR) provides the system's call history. You can view the CDR from the Polycom HDX web interface. Within 5 minutes of the end of the call, the CDR is written to memory and then you can download the data in CSV format for sorting and formatting.

Every call that connects is added to the CDR, whether it is a call that you make or that you receive. If a call does not connect, the report shows the reason. In multipoint calls, each far site is shown as a separate call, but all have the same conference number.

The CDR does not include incoming calls that the Polycom HDX system does not answer, so if calls were missed while Do Not Disturb was enabled, details will not be included in the CDR.

To view and download the CDR via the Polycom HDX web interface:

1. On a PC, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. If prompted, enter `admin` as the user name, and enter the admin password.
4. Click **Utilities > Call Detail Report** to view the details of the file.
5. Click **Save** and then specify a location on your computer to save the file.

Information in the CDR

The following table describes the data fields in the CDR.

Data	Description
Row ID	Each call is logged on the first available row. A call is a connection to a single site, so there may be more than one call in a conference.
Start Date	The call start date, in the format dd-mm-yyyy.
Start Time	The call start time, in the 24-hour format hh:mm:ss.
End Date	The call end date.
End Time	The call end time.
Call Duration	The length of the call.
Account Number	If Require Account Number to Dial is enabled on the system, the value entered by the user is displayed in this field.

Data	Description
Remote System Name	The far site's system name.
Call Field Number 1	The number dialed from the first call field, not necessarily the transport address. For incoming calls — The caller ID information from the first number received from a far site.
Call Field Number 2 (If applicable for call)	For outgoing calls — The number dialed from the second call field, not necessarily the transport address. For incoming calls — The caller ID information from the second number received from a far site.
Transport Type	The type of call — Either H.320 (ISDN) or H.323 (IP).
Call Rate	The bandwidth negotiated with the far site.
System Manufacturer	The name of the system manufacturer, model, and software version, if they can be determined.
Call Direction	In — For calls received. Out — For calls placed from the system.
Conference ID	A number given to each conference. A conference can include more than one far site, so there may be more than one row with the same conference ID.
Call ID	Identifies individual calls within the same conference.
Total H.320 Channels Used	The total number of ISDN B channels used in the call. For example, a 384K call would use six B channels.
Endpoint Alias	The alias of the far site.
Endpoint Additional Alias	An additional alias of the far site.
Endpoint Type	Terminal, gateway, or MCU.
Endpoint Transport Address	The actual address of the far site (not necessarily the address dialed).
Audio Protocol (Tx)	The audio protocol transmitted to the far site, such as G.728 or G.722.1.
Audio Protocol (Rx)	The audio protocol received from the far site, such as G.728 or G.722.
Video Protocol (Tx)	The video protocol transmitted to the far site, such as H.263 or H.264.
Video Protocol (Rx)	The video protocol received from the far site, such as H.261 or H.263.
Video Format (Tx)	The video format transmitted to the far site, such as CIF or SIF.

Data	Description
Video Format (Rx)	The video format received from the far site, such as CIF or SIF.
Disconnect Reason	The description of the Q.850 (ISDN) cause code showing how the call ended.
Q.850 Cause Code	The Q.850 cause code showing how the call ended.
Total H.320 Errors	The number of errors during an H.320 call.
Average Percent of Packet Loss (Tx)	The combined average of the percentage of both audio and video packets transmitted that were lost during the 5 seconds preceding the moment at which a sample was taken. This value does not report a cumulative average for the entire H.323 call. However, it does report an average of the sampled values.
Average Percent of Packet Loss (Rx)	The combined average of the percentage of both audio and video packets received that were lost during the 5 seconds preceding the moment at which a sample was taken. This value does not report a cumulative average for the entire H.323 call. However, it does report an average of the sampled values.
Average Packets Lost (Tx)	The number of packets transmitted that were lost during an H.323 call.
Average Packets Lost (Rx)	The number of packets from the far site that were lost during an H.323 call.
Average Latency (Tx)	The average latency of packets transmitted during an H.323 call based on round-trip delay, calculated from sample tests done once per minute.
Average Latency (Rx)	The average latency of packets received during an H.323 call based on round-trip delay, calculated from sample tests done once per minute.
Maximum Latency (Tx)	The maximum latency for packets transmitted during an H.323 call based on round-trip delay, calculated from sample tests done once per minute.
Maximum Latency (Rx)	The maximum latency for packets received during an H.323 call based on round-trip delay, calculated from sample tests done once per minute.
Average Jitter (Tx)	The average jitter of packets transmitted during an H.323 call, calculated from sample tests done once per minute.

Data	Description
Average Jitter (Rx)	The average jitter of packets received during an H.323 call, calculated from sample tests done once per minute.
Maximum Jitter (Tx)	The maximum jitter of packets transmitted during an H.323 call, calculated from sample tests done once per minute.
Maximum Jitter (Rx)	The maximum jitter of packets received during an H.323 call, calculated from sample tests done once per minute.

Call Detail Report Archives

Calls are added to the CDR until the file size reaches 50 KB, which is equivalent to about 150 calls. The system then automatically archives the CDR and creates a new CDR file. If an archive is already present, the new archive overwrites it.

The CDR starts with Row 1, but the conference numbers continue from the file most recently archived. Conference numbering restarts at 1 after the system assigns conference number 100,000.

To view and download a CDR archive via the Polycom HDX web interface:

1. On a PC, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. If prompted, enter `admin` as the user name, and enter the admin password.
4. Click **Utilities > Call Detail Report** to view the details of the file.
5. Click **Save Archive** and then specify a location on your computer to save the file.

System Logs

You can use the Polycom HDX web interface to view or download system logs. You can use this information for troubleshooting.

Viewing System Logs

To view the system logs:

1. On a PC, open a web browser.
2. In the browser address line, enter the system’s IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. If prompted, enter `admin` as the user name, and enter the admin password.
4. Click **Diagnostics > System Log > View Logs**.

You can view current logs or archived logs. You can also filter what information is displayed.

> Setting a filter only changes the display in the current web browser. It does not affect which messages are logged, and it does not affect other web browser sessions.

Downloading System Logs

The support information package contains logs, configuration settings, and other diagnostic information that you can use to troubleshoot the system.

To download a system log via the Polycom HDX web interface:

1. On a PC, open a web browser.
2. In the browser address line, enter the system’s IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. If prompted, enter `admin` as the user name, and enter the admin password.
4. Click **Diagnostics > System Log > Download Logs**.
5. Click **Download support information package** and then specify a location on your computer to save the file.

System Log Settings

To configure system log settings via the Polycom HDX web interface:

1. On a PC, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. If prompted, enter `admin` as the user name, and enter the admin password.
4. Click **Diagnostics > System Log > System Log Settings**.
5. Configure these settings:

Setting	Description
Log Level	Sets the minimum log level of messages stored in the Polycom HDX system flash memory. DEBUG logs all messages. WARNING logs the fewest number of messages. Polycom recommends leaving this setting at the default value of DEBUG.
Remote Logging Enabled	Specifies whether remote logging is enabled. Enabling this setting causes the Polycom HDX system to send each log message to the specified server in addition to logging it locally. The system immediately begins forwarding its log messages when you click **Update**. Encryption is not supported for remote logging, so Polycom recommends remote logging only for secure, local networks.
Remote Log Server	Specifies the domain name or IP address of the syslog server. The server must support the standard syslog protocol (RFC 3164).
Enable ISDN Trace	Logs additional ISDN connectivity information.
Enable H.323 Trace	Logs additional H.323 connectivity information.

12

Troubleshooting

Placing a Test Call

When you finish configuring the system, you can use one of the sample numbers in the directory to test your setup.

To place a test call:

1. On the **Place a Call** screen, select 📖 **Directory**.
2. Select **Group**.
3. Select **Sample Sites** and highlight a location.
4. Press ☎ **Call** on the remote control or keypad.

You can also find a list of worldwide numbers that you can use to test your Polycom HDX system at www.polycom.com/videotest.

If you have trouble making video calls:

- Make sure the number you dialed is correct, then try the call again. For example, you may need to dial 9 for an outside line or include a long distance access code or country code.
- To find out if the problem exists in your system, ask the person you were trying to reach to call you instead.
- Find out if the system you are calling has its power turned on and is functioning properly.
- If you can make calls but not receive them, make sure that your system is configured with the correct number.

Enabling Basic Mode

Basic Mode is a limited operating mode that uses H.261 for video and G.711 for audio. It provides administrators with a workaround for interoperability issues that cannot be solved using other methods. The Basic Mode setting stays in effect until you change it.

Basic Mode disables many system features such as content sharing, far end camera control, and advanced audio and video algorithms. Use Basic Mode only when calling systems that fail to operate properly with these advanced features.

To enable Basic Mode in the Polycom HDX system interface:

1. Go to **System > Admin Settings > Network > Call Preference**.
2. Select **Basic Mode**.

To enable Basic Mode using the Polycom HDX web interface:

1. On a computer, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://10.11.12.13`, to go to the Polycom HDX web interface.
3. Go to **Admin Settings > Network > Call Preference**.
4. Select **Enable Basic Mode**.

General Troubleshooting

This section presents problems, likely causes, and corrective actions. It is organized by category to help you troubleshoot any issue.

- Power and Start-up
- Controls
- Access to Screens and Systems
- Calling
- Displays
- Cameras
- Audio
- Error Indications

Power and Start-up

Symptom	Problem	Corrective action
The system does not start or respond in any way.	The power switch is off.	Turn on the power switches for the system and all equipment connected to it.
	The power cord is not connected.	Make sure that the system’s power cord is in place, and that it is connected to a power outlet.
	The power outlet is not active, or the system’s power supply is not operating properly.	If you connect the system’s power cord to a power strip, be sure the power strip is connected to a power outlet and its power switch is on. Check the power outlet by unplugging the system and plugging in a lamp, radio, or other small appliance. If it does not operate, the outlet is not active — connect the system to a different outlet. If the outlet is active, the problem could be in the system’s power supply. In this case, call Polycom Technical Support and arrange to return the system for service.

Controls

Symptom	Problem	Corrective action
The system does not respond to the remote control.	No, low, or dead batteries in the remote control.	Install four AAA batteries in the remote control.
	The batteries are installed incorrectly in the remote control.	Insert the batteries in the correct +/- position.
	The room lights operate in the 38 Khz range and interfere with the remote control signals.	Turn off the lights in the room and try the remote control again.
	The infrared sensor is not receiving signals from the remote control.	To check the remote control: Point the remote control directly at the system or camera and press a button. If the light on the system flashes, the remote control works properly. Make sure you are pointing the remote control at the infrared sensor on the front of the system or the camera.
	The external infrared sensor is not operating properly.	Check the connections between the rear panel, cable adapter, and infrared sensor cable.
	The remote control is set to the wrong channel ID.	Follow steps 3 - 7 in Configuring the Remote Control Channel ID on page 10-2 to set the remote control channel ID to 3. Then follow the entire procedure to configure the system and remote control channel ID settings.
The system does not respond to the touch-panel control.	The RS-232 serial port is not configured as a touch-panel input.	Go to **Admin Settings > General Settings > Serial Port** and verify the following: • **Baud Rate** is set to the same value on the system as on the touch-panel. • **RS-232 Mode** is set to **Control**. • The touch-panel is connected to the port that is configured as a touch-panel port.
The buttons on a Polycom HDX 4000 series keypad do not light up.	Monitor is not connected correctly to the system.	Verify that the monitor is connected correctly according to the setup sheet you received with the system.

Access to Screens and Systems

Symptom	Problem	Corrective action
Cannot navigate to Admin screens — System button is not displayed.	The home screen is not configured to display the **System** button.	Press the i button on the remote and select **System** at the end of the help message, or access the system remotely using the Polycom HDX web interface, Telnet, or SNMP. From the Polycom HDX web interface, you can add the **System** button back to the home screen. Click **System Setup** and navigate to **Admin Settings > General Settings > Home Screen Settings**, then select **System**. The change takes effect after you navigate away from the home screen and then back again on the system.
Cannot navigate to Admin screens without a password.	The system administrator has set a password, or The default password was not deleted.	Enter the password. The default password is the system's serial number. Use the hardware restore button described on page 12-21.

Symptom	**Problem**	**Corrective action**
Cannot access the system remotely.	The system does not allow remote access.	On the system, go to **System > Admin Settings > General Settings > Security** > ▶ and enable access.
	The system or your computer is not connected to the LAN.	Check the LAN cable to the LAN port on the rear of the system. Check the LAN cable to your computer.
	The LAN cable to the system or to your computer is bad. To verify this, check the lights on the system. There should be a steady green light indicating a connection to the LAN, and a flashing orange light indicating LAN traffic if the cable is good.	Replace the appropriate LAN cable.
	DHCP Client is ON and no DHCP server is available.	Contact your network administrator.
	There is a firewall between your computer and your system.	Contact your network administrator.
	Your computer is on a different network and there is not connectivity between the networks.	Place your computer and system on the same subnet. If this corrects the problem, check your router configuration. If it does not, contact your network service provider.
	The system is in Security Mode, which requires secure access.	Use secure modes of access. For more information, refer to Configuring Security Mode on page 8-6.
Cannot manage the system remotely.	You have not entered the correct password.	Enter the correct user name and remote access password. **Note**: For web access, the user name is **admin**, and the default password is the unit's serial number.
	Too many managers are logged into the system.	Only five system managers are allowed at any one time. To log everyone out, restart your system.

Calling

Symptom	Problem	Corrective action
Error message occurs when placing an IP (H.323) call.	The system is not connected to the LAN.	Verify that the LAN cable is connected properly.
	The system's LAN cable is bad.	Replace the system's LAN cable.
	The far site is not connected.	Use the PING test (**System > Diagnostics > Network > PING**) to determine whether the far site is accessible to your system. If the test fails, the far site system is unavailable.
	The system is not configured correctly for the network.	Check your IP configuration.
	The IP Gateway/Gatekeeper is not operating or is not configured correctly.	Contact the gatekeeper/gateway administrator.
	Calls do not connect.	Use the PING test (**System > Diagnostics > Network > PING**) to determine whether the far site is an H.323 device. If it is not an H.323 device and you are sure the IP address is correct it is likely that address is not on your network. This is especially true with addresses beginning with 10., 168.254, 172.16 through 172.31, or 192.168, which are private networking addresses.
	If you are unable to place calls to known sites on your network, a gatekeeper might be blocking calls from unregistered systems.	Register with the gatekeeper.
System displays a message indicating network congestion when placing an ISDN call immediately after starting the system.	This can occur if the system uses a PRI E1 network interface module that is connected to an Adtran Atlas 800 Plus module. After power on, the Adtran module must complete channel restarts before the system can complete ISDN calls.	Wait about three minutes and try the call again.

Symptom	Problem	Corrective action
ISDN: Line Status icons do not go away so video calls cannot be made.	The system is not connected to an ISDN.	Check the ISDN line connections.
	The ISDN number is entered incorrectly.	Check the ISDN numbers with your service provider.
	The ISDN line is provisioned incorrectly by the ISDN service provider.	Check that your ISDN line is provisioned for Voice/Data.
	The system is in an unknown state.	Power off the system, wait five seconds, and power on the system.
	The system was not able to auto-detect SPIDs, or the SPID numbers are entered incorrectly. **Note**: The AT&T point-to-point protocol does not require SPIDs.	Select the **Clear** icon on the **Auto Detect SPIDs** page, and then select the **Start** icon to automatically detect the new SPIDs. Make sure your ISDN numbers are entered correctly. Check with your ISDN service provider and enter the SPIDs and switch protocol manually. **Note**: The AT&T point-to-point protocol does not require SPIDs.
	The Quad BRI network interface is directly connected to a U interface.	Install an NT-1 device between your network interface module and the ISDN connection.
	The Quad BRI network interface is connected to an NT-1 then to a PBX S/T interface.	You do not need an NT-1device when connecting to a PBX S/T interface. Connect the system directly to the PBX S/T connection.
ISDN: When placing a call, progress indicators do not turn green.	The call does not connect properly.	Try the call again.
	The NT-1 device is not powered on.	Verify power on the NT-1 device.
ISDN: Calls cannot be completed successfully. The green light on the NT-1 device flashes slowly.	There is a problem with the system or between it and the NT-1 device.	Check for other problems listed in this table.
ISDN: Calls cannot be completed successfully. The green light on the NT-1 device flashes rapidly.	There is a problem on the network side of the NT-1 device.	Contact your ISDN service provider.

Symptom	Problem	Corrective action
Error message occurs when placing an ISDN (H.320) call.	An ISDN cause code is received from the ISDN line.	Try the call again. For more information, please refer to Q.850 Cause Codes on page C-4.
	The highest-numbered channel did not connect. The system cannot make a call if this channel does not connect.	Be sure you are calling the correct number. The number may need to include: • A digit for an outside line • A long distance access code • An international access code • A country code • An area code or city code Check that all network cables are properly connected. Power off the system, wait five seconds, and power on the system. Then wait about two minutes to allow the ISDN lines to resynchronize. Ask the person at the far site to call your system.
	The ISDN switch type is not configured correctly on the system.	Check the ISDN configuration and verify with your ISDN service provider that the system is configured correctly.
	The network interface module is not connected properly.	Check the cables to the network interface module.
The PBX does not accept calls of type “unknown” from the PRI network interface module.	The PRI network interface is not configured correctly.	Verify that you have configured the system’s PRI network interface correctly. For detailed instructions, see Configuring the PRI Network Interface on page 2-21.
ISDN Calls do not connect at the requested data rate.	Not all the ISDN B channels connect.	Set the number of lines to be dialed to a lower number. For more information on specifying the number of lines, refer to Configuring the BRI Network Interface on page 2-19.
A system using a V.35/RS-449/RS-530 interface cannot receive calls at certain speeds.	V.35/RS-449/RS-530 systems cannot determine how to allocate bandwidth for call speeds that are divisible by both 56 and 64 (such as 448K: 8 x 56K), so the call cannot be connected correctly.	Call the far site, or have the caller try again at a different call speed.

Symptom	Problem	Corrective action
Cannot dial remote system in BONDING 384 K calls. (The call progress circles only show blue or yellow.)	Switch protocol issue.	Start by calling the far site at 1x56, 1x64, 2x56, or 2x64K, as appropriate. This will verify the primary number. If these calls complete, try 256K, then 384K. Being able to dial non-bonded but unable to dial bonded to all locations is usually a switch protocol issue. Verify your ISDN provisioning with the telephone service provider.
Dialing a remote site in calls above some particular speed does not work. (The call progress circles do not turn green, or remain blue after the first channel connects.)	The far site may be unable to accept calls above this speed.	Go to the **Call Status** screen. Highlight each of the circles for each of the channels dialed. The number dialed for each channel will be displayed as you highlight the corresponding circle. Make sure that the far site has entered the number for each of its ISDN lines correctly. The numbers for Line 1 - Line 4 should correspond to connections 1 - 4 on the Quad BRI network interface module. Lower the number of lines to dial in parallel.
Cannot select the desired speeds for BONDING calls from the speed selection.	Speeds do not show when selecting the speed icon.	**1.** Go to **System > Admin Settings > Network > Call Preference** and select ▶ four times to go to the **Call Speeds** screen. **2.** Select the desired call speeds.
Multipoint calls downspeed when a voice-only call is added.	This is normal.	No action is necessary.
Voice-only calls cannot be placed.	The system might not have a good connection to a phone line.	Make sure the system is connected to an analog phone line. Use a telephone to verify that there is a dial tone on the line connected to the input on the system.

Displays

Symptom	Problem	Corrective action
Screen is blank; start music plays and Polycom logo appears briefly.	The system is starting. This is normal.	No action required.
Picture is blank on the main monitor.	The system goes to "sleep" after a period of inactivity.	The system is sleeping. The system wakes up on any action from the remote control or on an incoming call.
	The monitor is not connected correctly to the system.	Verify that the monitor is connected correctly according to the manufacturer's instructions and the setup sheet you received with the system.

Symptom	Problem	Corrective action
The monitor screen remains blank when you use the remote control or keypad.	The monitor's power cord is not plugged in.	Connect the monitor's power cord and then power on the monitor.
	The monitor is powered off.	Power on the monitor.
	The monitor is not connected correctly to the system.	Verify that the monitor is connected correctly according to the manufacturer's instructions and the setup sheet you received with the system.
	The video output format of the system does not match the format of your monitor.	Press and hold the **Display** button on the remote control for 5 seconds. Then scroll to the correct format in the remote control window and press the right arrow to save your change.
The call connects but you cannot see or hear people at the far site although they can see and hear you.	The system is configured for use with a NAT but is not behind a NAT.	Go to **System > Admin Settings > Network > IP > Firewall** and ensure that **NAT Configuration** is **Off**.
When using multiple monitors, you don't see what you expect on each monitor.	Monitors are not enabled.	Enable the connected monitors on the **System > Admin Settings > Monitors > Monitors** screen.
	Monitors are not connected to the correct video outputs.	Verify that the monitors are connected correctly according to the setup sheet you received with the system.
When using two monitors, the same picture is seen on the first and second monitor.	You are the only participant in a call placed through an external MCU.	MCUs generally loop the first participant back to itself. Wait for others to join the conference.
	The system is performing a Near End Loop test.	Press ⊙ **Select** on the remote to end the test.
The people at the far site cannot see you.	You have selected a camera that is not connected.	Select the main camera.
Video is in black and white.	The monitor is connected using the composite monitor connector, but it is configured as S-Video.	Go to **System > Admin Settings > Monitors > Monitors** and change the setting to Composite.
	The monitor cable is not connected properly.	Verify that the monitor is connected correctly according to the manufacturer's instructions and the setup sheet you received with the system.
	The monitor cable is bad.	Replace the cable.
VCR/DVD records in black and white.	VCR video format setting does not match the VCR connection.	Go to **System > Admin Settings > Monitors > Monitors** and change the **VCR** setting.

Symptom	Problem	Corrective action
The people at your site show up in silhouette in the PIP.	The camera is pointing toward a source of bright light, such as a window.	If it is practical to do so, have the call participants sit in a location where there is no light source behind them. Otherwise, go to **System > Admin Settings > Cameras** and select **Backlight Compensation**.
Video from your site is too dark or too light in the PIP.	Lighting at your site has changed within the past few minutes. During calls, the camera adjusts for the lighting at five-minute intervals.	Pan the camera. It adjusts for the lighting whenever it is moved.
The system does not receive closed captions correctly.	The modem is not connected correctly, or is not configured correctly.	Verify that the modem is connected correctly according to the manufacturer's instructions and the setup sheet you received with the system. Go to **Admin Settings > General Settings > Serial Port** and verify that **RS-232 Mode** is set to **Closed Caption**. Verify that the modem is configured for 8 bits, no parity.
Graphics are displayed on Monitor 1 at all sites even if a different monitor has been specified for content.	At least one site does not have dual-stream, People+Content, or H.239 capability. This can occur in calls to older systems that do not support this feature.	ViewStation® EX/FX owners can upgrade to the latest version of software.
	Bridges, which support this feature, must have the conference configured for this feature.	Configure the bridge for this feature.
Edges of picture are cut off when viewing graphics.	Graphics from the far site are displayed on an NTSC monitor.	Use a VGA monitor to display graphics.
Call participants cannot see or hear what is being played on the VCR or DVD.	The VCR or DVD is not selected.	Select the VCR (Camera 3): Press **Camera**, then press 3.
	The VCR or DVD is not set up correctly.	Check that the VCR or DVD is connected according to the instructions in the section Connecting VCR/DVDs on page 5-1. Refer to the manufacturer's instructions to set up the VCR or DVD correctly.

Symptom	Problem	Corrective action
Picture freezes frequently or becomes blocky during an IP call.	There is too much traffic on the LAN. Check the error count on the Call Statistics screen.	Go to **System > Admin Settings > Network > IP > Quality of Service** and enable dynamic bandwidth.
	The network is experiencing packet loss.	Go to **System > Admin Settings > Network > IP > Quality of Service** and specify a smaller value for Maximum Transmission Unit Size.
Picture freezes frequently during an ISDN call.	Too many network line transmission errors. Check the error count on the **Diagnostics > Call Statistics** screen to verify this.	Try the call again.
	Network interface cable or cables may be bad.	Replace the cable or cables.
Picture is slow or jerky.	The system is receiving video that includes a large amount of motion.	A background with less motion provides a better, smoother video picture.
	Too many network line transmission errors. Check the error count on the **Diagnostics > Call Statistics** screen to verify this.	Try the call again, possibly at a lower network speed.
	Only one 64 kbps channel is connecting in your call.	Check the ISDN number of the far site. Ask the far site to call your site.
Blue screen in the PIP window.	The VCR input is selected and the VCR is not running. Most VCRs generate a blue screen when the tape is not playing.	Select a different camera or play a tape on the VCR.
	The camera selection is incorrect.	Select the appropriate camera: Press **Camera** on the remote, then press the number of the camera you wish to use.
	No video input.	Check that there is a video source connected to the selected input.
	Main camera not working and Polycom HDX system displays camera alert.	Restart the Polycom HDX system.

Symptom	Problem	Corrective action
PIP goes out of focus when there is no motion for several minutes.	The camera is pointing at an area with no contrasting features. To focus properly, the camera must be able to detect an edge.	Point the camera to an area with limited objects, at different distances, which are moving.

Cameras

Symptom	Problem	Corrective action
Camera does not pan or tilt.	You are attempting to move a camera that does not have pan/tilt/zoom capabilities.	Make sure you have selected a pan/tilt/zoom camera.
	Camera control cable is not connected properly.	Check that the camera is connected according to the manufacturer's instructions and the setup sheet you received with the system.
	The RS-232 port is not configured for camera control.	Go to **System > Admin Settings > General Settings > Serial Port** and verify that **RS-232 Mode** is set to **Camera PTZ**.
	The remote control is not working.	Check that the remote control is functioning according to the instructions in the section Controls on page 12-4.
Camera does not work.	The camera is not connected correctly or its power pack is not plugged in.	Check that the camera is connected according to the manufacturer's instructions and the setup sheet you received with the system. If the Polycom EagleEye HD camera is more than 10 feet away from the system or is connected to video input 2, it requires a separate power supply.
One site cannot control the other site's camera.	Far-site camera control is not enabled.	Go to **System > Admin Settings > Cameras > ▶ > ▶ > ▶ > ▶ >** and enable **Far Control of Near Camera**.
	One of the systems does not have the far-site camera control capability.	Ask the participants at the far site to aim the camera.

Audio

Symptom	Problem	Corrective action
No audio at your site	The far site is muted.	Look for the far site **Mute** icon. Ask the far site to unmute the microphone. **Note**: The far site's microphone may be muted even if you do not see a far site **Mute** icon.
	The volume may be turned all the way down on the monitor or external audio system.	Turn up the volume on the appropriate device. Use the remote control or keypad to turn up the volume. Check the monitor's or external audio system's volume setting. Then check the system's audio output using the **Speaker Test** under **Diagnostics > Audio**. You should hear a 473 Hz tone.
	The far site's microphones are not placed correctly.	Ensure that each person who speaks is facing a microphone and is close enough to it.
	The far site's microphone is not connected or does not have power.	Ask the far site to check the cable to the microphone.
	Too many line errors.	Try the call again later.
	ISDN voice algorithm is incorrect.	Go to **System > Admin Settings > Network > ISDN.** Change the **ISDN Voice Algorithm** selection (**aLaw** or **uLaw**).
	The monitor's audio inputs are not connected properly.	Check audio output using the **Speaker Test** screen under **System > Diagnostics > Audio**. You should hear a 473 Hz tone. Ask someone at the far site to speak into the microphone, and check the **Far Site Audio** meter on the **Audio Meter** screen under **System > Diagnostics > Audio** to determine whether your system is receiving audio.
	The system's audio outputs are not connected properly.	Check the system's audio connections to the monitor, or to the external audio system if one is connected. Verify that the system is connected to the correct audio connectors on the monitor.

Symptom	Problem	Corrective action
The people at the far site cannot hear you.	The people at your site are too far from the microphone.	Move closer to the microphone.
	Your system's microphone is muted.	Check your system for one or more of these mute indications: • Near site mute icon on the screen • Polycom microphones: Microphone mute light is on To unmute the system, press the 🎤 **Mute** button on the remote control or keypad.
	Your system's microphone is not enabled.	Go to **System > Admin Settings > Audio > Audio Settings**. Select **Enable Polycom Microphones** if it is not selected.
	No power to near site microphone.	Mute the microphone. If the light remains off, there is no power to the microphone. Check that the microphone cable is properly seated. Replace the microphone cable if the people at the far site still cannot hear you.
	Your system's microphone is not connected, or is connected incorrectly.	Check to be sure the microphone is installed correctly. Check the **Polycom Mic** or **Line Input** meter on the **Audio Meter** screen under **System > Diagnostics > Audio** to determine whether your system is sending audio.
	Your system's microphone does not work.	Contact your Polycom reseller.
Not enough volume during a call.	The people at the far site are too far from the microphone.	Ask the people at the far site to move closer to the microphone.
	The volume is set too low on the system.	Turn up the volume using the remote control or keypad.
	The volume is set too low on the monitor.	Turn up the volume on your monitor or external audio system.
Sound effects such as the incoming call ring are too loud or too soft.	The sound effects volume is not set at desired level.	Adjust the sound effects volume on the **Audio Settings** screen. If you do not want to hear sound effects, set the volume to 0.
Audio sounds raspy in ISDN calls.	ISDN voice algorithm is incorrect.	Go to **System > Admin Settings > Network > ISDN.** Change the **ISDN Voice Algorithm** selection (**aLaw** or **uLaw**).

Symptom	Problem	Corrective action
You can hear yourself on your system’s monitor or external audio system.	The far-site microphone is too close to the system’s audio speaker. (Far-site systems with separate microphones only).	At the far site, make sure the microphone is placed away from the system’s audio speaker.
	The far site audio volume may be too loud.	Turn down the audio volume at the far site.
	The monitor or external audio system is connected to the VCR audio output.	Verify that all equipment is connected correctly according to the manufacturer’s instructions and the setup sheet you received with the system.
There is audio feedback when a VCR is connected.	A single VCR is connected so that it can play or record, no tape is present, and **VCR Audio Out Always On** is selected.	Place a tape in the VCR.
When music is played during the call, it sounds distorted at the other sites.	The music source is not connected to the system. The system’s echo cancellation and noise suppression features may interfere with music that the microphone picks up.	Connect the music source to the system’s audio input.

Symptom	Problem	Corrective action
Audio is not in stereo.	Microphones at the sending site are not placed correctly.	Be sure the microphones are set up as described in Connecting Polycom Microphones on page 4-2. Microphones must be at least 3 ft. (0.9 m) apart and properly positioned. Move the microphones farther apart for clearer stereo imaging. Small changes in distance can have large effects on sound reproduction.
	Speakers at the receiving site are not placed correctly.	Ensure the speakers are about 60° apart as seen from the middle of the seating area.
	Speakers at the receiving site are not connected correctly.	Test both speakers using the test on **System > Diagnostics > Audio > Speaker Test**. If you do not hear the tone from both speakers, check the speaker wires and other external audio connections.
	The receiving site is not set up for stereo sound.	Advise the people at the receiving site that the sound will be in stereo only if the system is set up for stereo as described in Placing Speakers to Play Stereo from Far Sites on page 4-7 and StereoSurround Settings on page 4-12. Check whether stereo is enabled on the **System > Admin Settings > Audio Settings** screen.
	The receiving site does not support Siren™ 14 or Siren 22 stereo audio.	VSX system owners can upgrade to the latest version of VSX software.
	The call speed is too low. The system only sends stereo audio in calls placed at 256 kbps and higher.	Try the call at a higher speed.
Stereo audio comes from the wrong speaker.	Speakers are connected incorrectly.	Connect the speaker on the left to the system's white audio output connector, and the speaker on the right to the red audio output connector.
Video and audio are not synchronized.	The video quality for the camera in use is set for Sharpness. This setting is for images with no motion.	Go to **System > Admin Settings > Cameras >** ▶ **>** ▶ **> Video Quality.** Change the **Camera** setting to Motion.
Voices at the near site sound distorted through the speakers at the near site.	The far site has distorted audio from the far-site speakers. The far site's distorted audio is often caused by overloading the input stage of the far site's audio amplifier.	Ask the far site to reduce their Polycom HDX system volume control to about 25, and to increase their external audio amplifier volume control to maintain the same loudness.

Symptom	Problem	Corrective action
The **Audio Meter** screen shows a reading for **Polycom Mic** but no microphone is connected - the system receives local audio from a mixer.	Echo cancellation is in use. The system displays the audio line input level in this case.	This is normal.

Error Indications

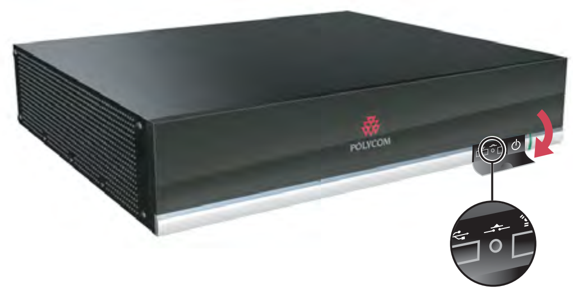
Symptom	Problem	Corrective action
The System Information screen shows "waiting" in the IP Video Number field.	The LAN is not working.	Check the LAN connection. Contact your network administrator.
	The DHCP server is not available.	Contact your network administrator to correct the problem with the server or to assign a static IP address.
The home screen shows "0.0.0.0" as the system's IP address.	The LAN cable is not connected.	Check the LAN cable connection to the LAN port on the system.
	The system was configured for a static IP address of 0.0.0.0.	Go to **System > Admin Settings > LAN Properties** and correct the IP address settings.
	The system is configured for DHCP, and no DHCP server is available or responding on the network.	Contact your network administrator to correct the problem with the server or to assign a static IP address.
	The system is partially or incorrectly configured for firewall/NAT operation.	Go to **System > Admin Settings > Network > IP > Firewall >** ▶ and verify the **NAT (WAN) Public Address** setting.
System displays a message indicating network congestion when placing an ISDN call immediately after starting the system.	This can occur if the system uses a PRI E1 network interface module that is connected to an Adtran Atlas 800 Plus module. After power on, the Adtran module must complete channel restarts before the system can complete ISDN calls.	Wait about three minutes and try the call again.
The system displays a message stating that there are too many global directory entries.	The system's global directory display is limited to 4000 entries.	**1.** Go to **System > System Information >** ▶ **>** ▶ **>** ▶ **System Status**, highlight Global Directories, and press the ⓘ **Info** button. The system lists the Global Directory servers to which it is registered, and the number of directory entries from each. **2.** Unregister the system from one or more of the Global Directory servers.
Low battery icon on the screen.	Low batteries in the remote control.	Replace the batteries in the remote control with four AAA batteries.

Using the Restore Button

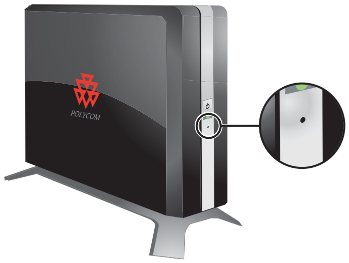
You can use the hardware restore button on the Polycom HDX system to reset the system in one of these ways:

- Restoring configuration—Restores the configuration, which resets most system settings to default values.
- Factory restore—Completely erases the system and restores it to its original factory software version and default configuration.

The restore button is on the front of the Polycom HDX 9000 series system, as shown in the following figure.



The restore button is on the front of the Polycom HDX 8000 HD and Polycom HDX 4000 series systems, as shown in the following figure.



Restoring Configuration

If the system is not functioning correctly or you have forgotten the room password, you can use the restore button to delete system settings and restart the system. This operation is similar to using the Reset System feature on the system Diagnostics screen with **Delete System Settings** enabled.

The following items are saved:

- Current software version
- Option keys
- Remote control channel ID setting

- Directory entries
- CDR data and logs

To reset system configuration using the restore button:

➢ While the system is powered on, press and hold the restore button for at least 15 seconds.

After 15 seconds, the system restarts and displays the setup wizard.

Factory Restore

If the Polycom HDX system will not start up or develops serious problems after a software update, you can use the restore button to restart the system with its original factory software. This operation completely erases the system's flash memory and reinstalls the original factory software.

The following items are *not* saved:

- Software updates
- All system settings including option keys and the remote control channel ID
- Directory entries
- CDR data and logs

> If you follow the procedure to restore the system to factory defaults while a USB storage device is connected, the system restores from the USB device instead of the system's factory partition.

To reset the system to its original factory software using the restore button:

1. While the system is powered off, press and hold the restore button.
2. While holding the restore button, press the power button once.
3. Keep holding the restore button for 5 more seconds, then release it.

During the factory restore process, the system displays the Polycom startup screen on component monitors. Other types of monitors will be blank. Do not power off the system during the factory restore process. The system restarts automatically when the process is complete.

How to Contact Technical Support

If you are not able to make test calls successfully and you have verified that the equipment is installed and set up correctly, contact your Polycom distributor or Polycom Technical Support.

To contact Polycom Technical Support, go to www.polycom.com/support.

Enter the following information, then ask a question or describe the problem. This information helps us to respond faster to your issue:

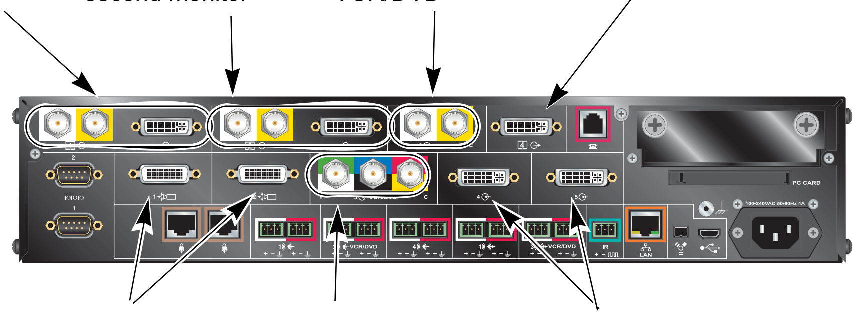
- The 14-digit serial number from the System Information screen or the back of the system
- The software version (from the home screen, select **System > System Information**)
- Information about your network
- Troubleshooting steps you have already tried

A

System Back Panel Views

Video Inputs and Outputs

Polycom HDX 9004



Video Output 1: BNC and DVI for main monitor

Video Output 2: BNC and DVI for second monitor

Video Output 3: BNC for recording calls to VCR/DVD

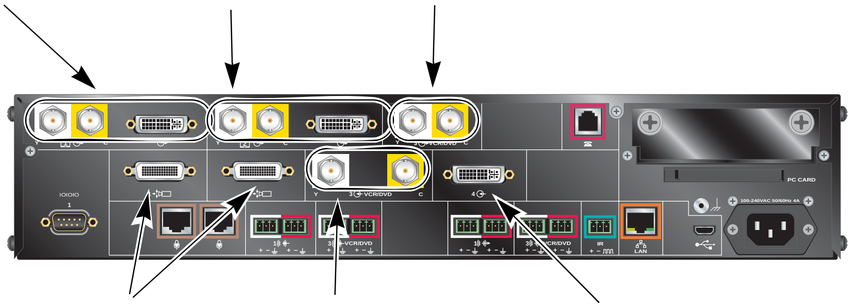
Video Output 4: DVI for content display

Video Inputs 1 and 2: HDCI for camera 1 and camera 2

Video Input 3: BNC for VCR/DVD to play content into calls

Video Input 4 and 5: DVI for playing content from a computer into calls

Polycom HDX 9001 and Polycom HDX 9002



Video Output 1: BNC and DVI for main monitor

Video Output 2: BNC and DVI for second monitor

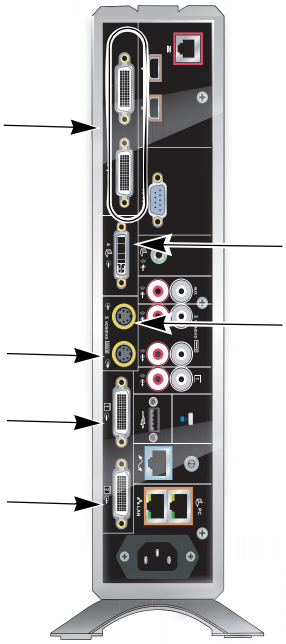
Video Output 3: BNC for recording calls to VCR/DVD

Video Inputs 1 and 2: HDCI for camera 1 and camera 2

Video Input 3: BNC for VCR/DVD to play content into calls

Video Input 4: DVI for playing content from a computer into calls

Polycom HDX 8000 HD System



Video Inputs 1 and 2: HDCI for camera 1 and camera 2

Video Input 4: DVI for playing content from a computer into calls

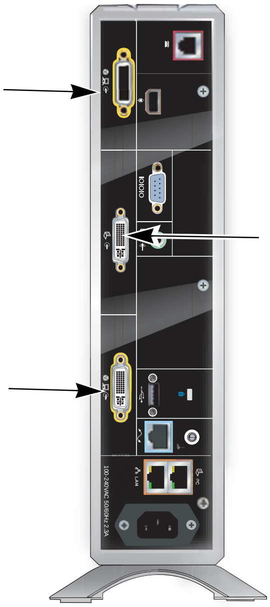
Video Output 3: BNC for recording calls to VCR/DVD

Video Input 3: BNC for VCR/DVD to play content into calls

Video Output 1: BNC and DVI for main monitor

Video Output 2: BNC and DVI for second monitor

Polycom HDX 4000 Series System



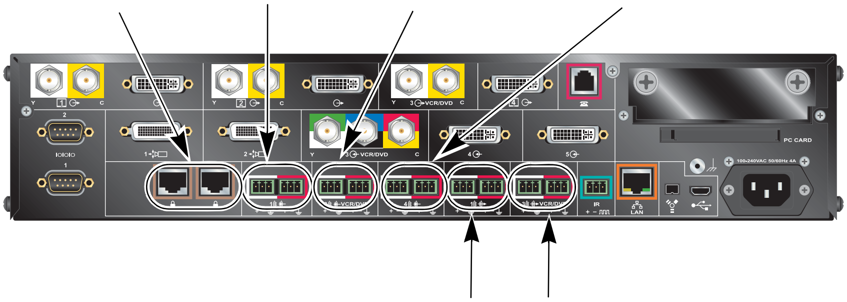
Video Input: HDCI for monitor's built-in camera

Video Input: DVI for playing content from a computer into calls

Video Output: HDCI for Polycom HDX 4000 monitor

Audio Inputs and Outputs

Polycom HDX 9004



Polycom Microphone Inputs

Audio Input 1: Phoenix for microphone or line input

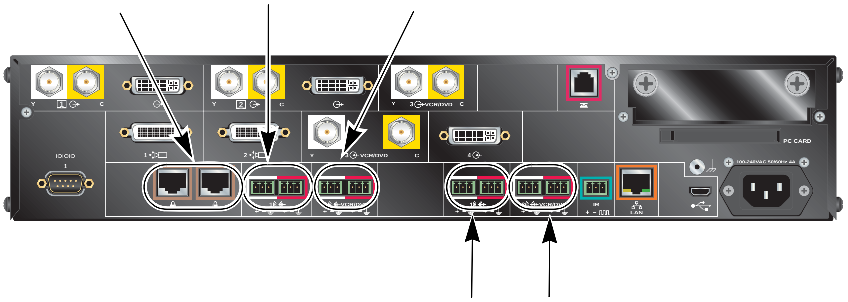
Audio Input 3: Phoenix for VCR/DVD player audio

Audio Input 4: Phoenix for content audio

Audio Output 1: Phoenix for main monitor audio or external speaker system

Audio Output 3: Phoenix for VCR/DVD player audio

Polycom HDX 9001 and Polycom HDX 9002



Polycom Microphone Inputs

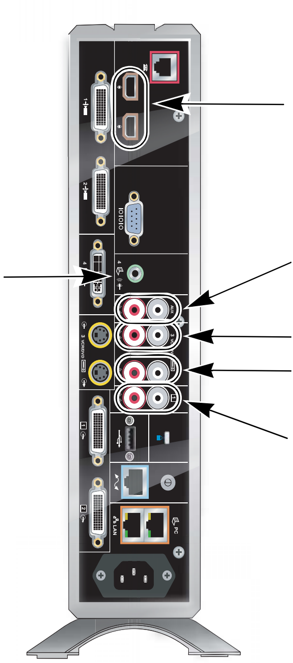
Audio Input 1: Phoenix for microphone or line input

Audio Input 3: Phoenix for VCR/DVD player audio

Audio Output 1: Phoenix for main monitor audio or external speaker system

Audio Output 3: Phoenix for VCR/DVD player audio

Polycom HDX 8000 HD System



Polycom Microphone Inputs

Audio Input 4: 3.5mm for content audio

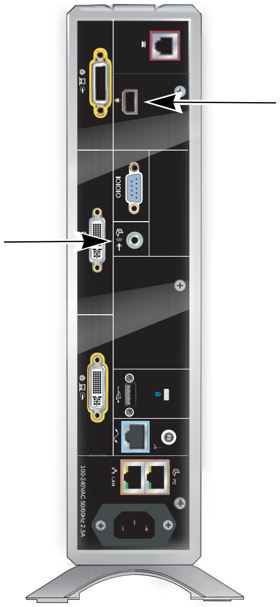
Audio Input 1: RCA for line input

Audio Input 3: RCA for VCR/DVD player audio

Audio Output 3: RCA for VCR/DVD player audio

Audio Output 1: RCA for main monitor audio or external speaker system

Polycom HDX 4000 Series System

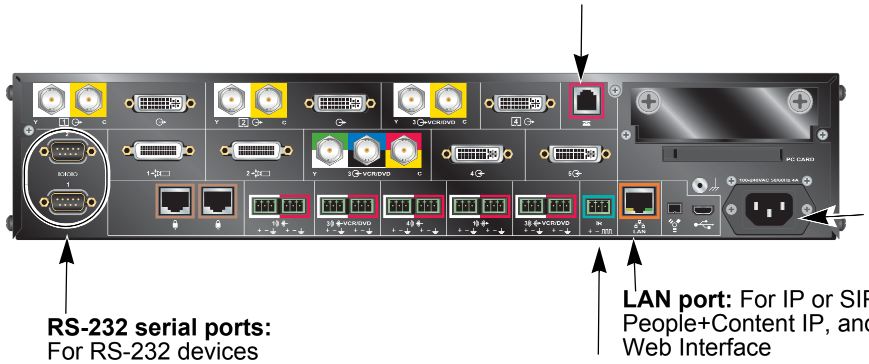


Polycom Microphone Input

Audio Input: 3.5mm for content audio

Network/Power Inputs and Outputs

Polycom HDX 9004



Analog phone port: For analog phone calls

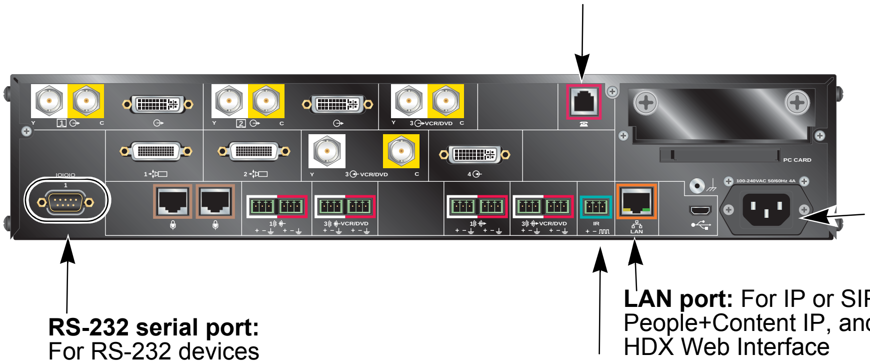
Power connector: For power supply

RS-232 serial ports: For RS-232 devices

LAN port: For IP or SIP calls, People+Content IP, and Polycom HDX Web Interface

IR: Phoenix for IR receiver

Polycom HDX 9001 and Polycom HDX 9002



Analog phone port: For analog phone calls

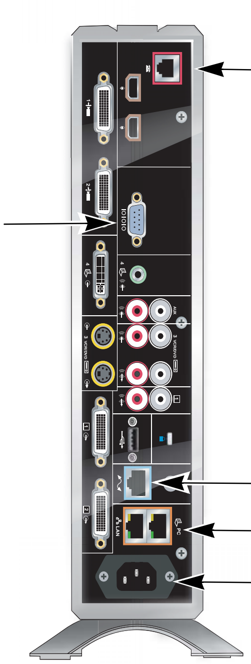
Power connector: For power supply

RS-232 serial port: For RS-232 devices

LAN port: For IP or SIP calls, People+Content IP, and Polycom HDX Web Interface

IR: Phoenix for IR receiver

Polycom HDX 8000 HD System



Analog phone port:
For analog phone calls

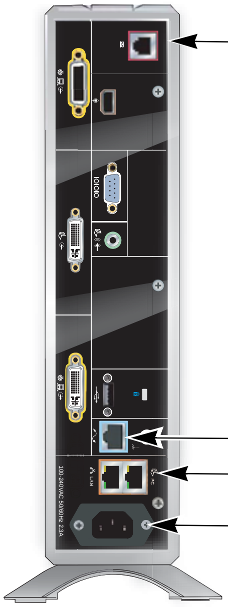
RS-232 serial port:
For RS-232 devices

ISDN port: For QBRI, PRI, or V.35 module

LAN ports: For IP or SIP calls, People+Content IP, and Polycom HDX Web Interface

Power connector:
For power supply

Polycom HDX 4000 Series System



Analog phone port:
For analog phone calls

ISDN port: For QBRI, PRI, or V.35 module

LAN ports: For IP or SIP calls, People+Content IP, and Polycom HDX Web Interface

Power connector:
For power supply

B

Port Usage

You may need this information when you configure your network equipment for video conferencing.

The following table shows IP port usage.

Port	Function
23	(Telnet) For diagnostics
24	Polycom API
80	(HTTP) Pulling Polycom HDX system, Polycom VSX system, ViewStation, and VS4000™ information (HTTP) Software upgrades and provisioning for iPower™ Static - TCP HTTP interface (optional)
123	UPD Network time protocol (NTP)
161-162	TCP/UDP SNMP
389	LDAP and ILS Static - TCP/UDP ILS registration (LDAP)
443	TCP HTTPS
514	UDP syslog
636	Secure LDAP communication (LDAPS)
1024-65535	Dynamic TCP H245. Can be set to “Fixed Ports” on Polycom systems. Dynamic UDP - RTP (video data). Can be set to “Fixed Ports” on Polycom systems. Dynamic UDP - RTP (audio data). Can be set to “Fixed Ports” on Polycom systems. Dynamic UDP - RTCP (control information). Can be set to “Fixed Ports” on Polycom systems.
1503-Static	TCP T.120
1718-Static	TCP Gatekeeper discovery (must be bidirectional)

Port	Function
1719-Static	TCP Gatekeeper RAS (must be bidirectional)
1720-Static	TCP H.323 call setup (must be bidirectional)
1731-Static	TCP Audio call control (must be bidirectional)
3601	TCP (Proprietary - data traffic) - Global directory data
5001	TCP/UDP People+Content IP
5060-Static	TCP/UDP SIP call setup (must be bidirectional)
8080-Static	TCP HTTP server push (optional)

C

PathNavigator Errors and Q.850 Cause Codes

PathNavigator Error Codes

The following table lists PathNavigator error codes.

Code	Cause	Description
150	No Network Resources	The network does not have enough resources to complete your call. Try calling at a lower rate, or try the call again later.
151	No Network Resources	The network does not have enough resources to complete your call. Try calling at a lower rate, or try the call again later.
152	Gatekeeper Problems	Your call could not be completed because of an internal error in the gatekeeper or endpoint. Contact the gatekeeper or endpoint vendor for assistance.
153	Incorrect Address	Your call could not be completed because of an internal error in the gatekeeper or endpoint. Contact the gatekeeper or endpoint vendor for assistance.
154	Gatekeeper Problems	Your call could not be completed because of an internal error in the gatekeeper or endpoint. Contact the gatekeeper or endpoint vendor for assistance.
155	Gatekeeper Problems	Your call could not be completed because of an internal error in the gatekeeper or endpoint. Contact the gatekeeper or endpoint vendor for assistance.
156	Gatekeeper Problems	Your call was rejected by the gatekeeper. Contact your Network Administrator for assistance.

Code	Cause	Description
157	Gatekeeper Problems	Your call could not be completed because of an internal error in the gatekeeper or endpoint. Contact the gatekeeper or endpoint vendor for assistance.
158	Gatekeeper Problems	Your call could not be completed due to gatekeeper problems. Try the call again later.
159	System Not Registered with Gatekeeper	Your system must be registered with the gatekeeper before you can place a call. Contact your Network Administrator for assistance.
160	Far Site Not Registered with Gatekeeper	The system you are trying to call is not registered with the gatekeeper.
164	Far Site Busy	The system you called is busy. Try the call again later.
167	System Not Registered with Gatekeeper	Your system must be registered with the gatekeeper before you can place a call. Contact your Network Administrator for assistance.
168	Unknown Issues	Your call could not be completed due to an unknown problem. Try the call again later.
169	Call Rejected by Gatekeeper.	Your call was rejected by the gatekeeper. Contact your Network Administrator for assistance.
172	No Network Resources	The network does not have the necessary resources to complete your call. Try the call again later.
173	Site Not Found	The site you called could not be located. Check the calling information and try again.
174	Security/Permission Denial	Your call could not be completed because of security or permission issues. Contact your Network Administrator for assistance.
175	QoS Not Supported	The network cannot provide sufficient Quality of Service for your call. Contact your Network Administrator for assistance.
176	No Network Resources	The network does not have the necessary resources to complete your call. Try the call again later.
179	QoS Not Supported	The network cannot provide sufficient Quality of Service for your call. Contact your Network Administrator for assistance.
180	Invalid Address	The address you entered is not valid. Check the calling information and try again.

Code	Cause	Description
203	Call Rejected	The far site system did not accept the call. Check the calling information and try again.
204	Connection Problem	Your call cannot be completed because the far-end system is not compatible with the H.323 communication standards used by this system.
208	Invalid Address	The address you entered is not valid. Check the calling information and try again.
221	Far Site Busy	The system you called is busy. Try the call again later.
222	Site Not Responding	The site you called did not answer. Try the call again later.
255	ISDN command processing error	The ISDN signaling code has encountered an error processing an ISDN action. ISDN adapter busy-wait and retry.
516	Invalid Address	The address you entered is not valid. Check the calling information and try again.
518	Invalid Address	The address you entered is not valid. Check the calling information and try again.
521	Gatekeeper Problems	Your call could not be completed due to gatekeeper problems. Try the call again later.
531	Invalid Address	The address you entered is not valid. Check the calling information and try again.
534	Gatekeeper Problems	Your call could not be completed due to gatekeeper problems. Try the call again later.
551	Invalid Address	The address you entered is not valid. Check the calling information and try again.
552	Invalid Address	The address you entered is not valid. Check the calling information and try again.
553	Invalid Address	The address you entered is not valid. Check the calling information and try again.
554	Invalid Address	The address you entered is not valid. Check the calling information and try again.
576	Invalid Address	The address you entered is not valid. Check the calling information and try again.
595	Invalid Address	The address you entered is not valid. Check the calling information and try again.
596	Invalid Address	The address you entered is not valid. Check the calling information and try again.

Code	Cause	Description
621	Invalid Address	The address you entered is not valid. Check the calling information and try again.
626	Invalid Address	The address you entered is not valid. Check the calling information and try again.
627	Invalid Address	The address you entered is not valid. Check the calling information and try again.
648	No Network Resources	The network does not have the necessary resources to complete your call. Try the call again later.
681	No Network Resources	The network does not have the necessary resources to complete your call. Try the call again later.

Q.850 Cause Codes

The following table describes codes that the ISDN switch sends to the Polycom HDX system to indicate call status. Although the codes are standardized, each ISDN service provider defines them differently. Because of this, the definitions in the table may not exactly match the messages that you see.

Code	Cause	Definition
1	Unassigned number	The switch received the sent ISDN number in the correct format, but no destination equipment uses the number.
2	No route to specified transit network	The ISDN exchange does not recognize the intermediate network through which to route the call.
3	No route to destination	The intermediate network through which the call is routed does not serve the destination address.
6	Channel unacceptable	The specified channel does not provide adequate service quality to accept the requested connection.
7	Call awarded and delivered	The user is assigned an incoming call that is being connected to a call channel that has already been established for this user and this type of call.
16	Normal call clearing	The originator or receiver of the call has requested that it be cleared.
17	User busy	All B channels are in use; the called system acknowledges the connection request, but is unable to accept the call.

Code	Cause	Definition
18	No user responding	The destination equipment does not respond to the call, so the connection cannot be completed.
19	No answer from user (user alerted)	The destination equipment did not complete the connection within the prescribed time after responding to the connection request. The problem is at the remote end of the connection.
21	Call rejected	The destination equipment is capable of accepting the call, but has rejected it for an unknown reason.
22	Number changed	The ISDN number used to set up the call is no longer valid. (The diagnostic field of the message may return an alternate address assigned to the called equipment.)
26	Non-selected user clearing	The destination is capable of accepting the call, but did not assign it to the user.
27	Destination out of order	A signaling message cannot be delivered because the interface is not functioning correctly, and the destination cannot be reached. This condition might be temporary; for example, remote equipment might be turned off.
28	Invalid number format	Destination address was incomplete or presented in an unrecognizable format, which prevented the connection from being established.
29	Facility rejected	The network cannot provide the facility requested by the user.
30	Response to STATUS INQUIRY	The equipment returns this message when it receives a STATUS INQUIRY message.
31	Normal, unspecified	A normal event has occurred with no standard cause applying. No resulting action is required.
34	No circuit/channel available	The call cannot be taken because no appropriate channel is available to establish the connection.
38	Network out of order	A network problem prevented the call from reaching its destination. Attempts to reconnect will probably fail until the network problem is corrected.
41	Temporary failure	A network error occurred. The problem will be resolved shortly. Attempts to reconnect may succeed.
42	Switching equipment congestion	The destination cannot be reached because the network switching equipment is temporarily overloaded.

Code	Cause	Definition
43	Access information discarded	The requested access information cannot be provided by the network. The diagnostic message may explain the problem.
44	Requested circuit/channel not available	The remote equipment cannot provide the requested channel. This may be temporary.
47	Resource unavailable, unspecified	An unknown problem prevents the remote equipment from providing the requested resource.
49	Quality of service unavailable	The network cannot provide the requested quality of service (as defined by CCITT recommendation X.213). This may be a subscription problem.
50	Requested facility not subscribed	The remote equipment is capable of providing the requested supplementary service, but is not subscribed to it.
57	Bearer capability not authorized	The caller has requested a bearer capability that the network can provide, but the user is not authorized to use. This may be a subscription problem.
58	Bearer capability not presently available	The network normally provides the requested bearer capability, but cannot provide it now. This may be a temporary network problem or a subscription problem.
63	Service or option not available, unspecified	An unspecified problem prevents the network or remote equipment from providing the requested service or option. This might be a subscription problem.
65	Bearer capability not implemented	The network is not capable of providing the bearer capability requested by the user.
66	Channel type not implemented	The requested channel type is not supported by the equipment sending this code.
69	Requested facility not implemented	The remote equipment is not capable of providing the requested supplementary service.
70	Only restricted digital information bearer is available	The network is unable to provide unrestricted digital information over bearer capability.
79	Service or option not available, unspecified	The network or remote equipment is unable to provide the requested service option for an unspecified reason. This might be a subscription problem.

Code	Cause	Definition
81	Invalid call reference value	The remote equipment received a call with a call reference that is not currently in use on the user-network interface.
82	Identified channel does not exist	The receiving equipment is requested to use a channel that is not activated on the interface for calls.
83	A suspended call exists but this call identity does not	The network received a call resume request that contained a call identity information element that does not match any suspended call.
84	Call identity in use	The network received a call suspend request that contained a call identity information element for a call that is already suspended.
85	No call suspended	The network received a call resume request when there was not a suspended call pending. This might be a transient error that will be resolved by successive call retries.
86	Call having requested call identity has been cleared	The network received a call resume request containing a call identity information element for a call that was cleared while suspended, either by timeout or by the remote user.
88	Incompatible destination	Indicates that an attempt was made to connect to non-ISDN equipment, such as an analog line.
91	Invalid transit network specified	The ISDN exchange was asked to route the call through an unrecognized intermediate network.
95	Invalid message, unspecified	An invalid message was received, for an unknown reason. This is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
96	Mandatory information element is missing	The equipment received a message that did not include one of the mandatory information elements. This is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
97	Message type nonexistent or not implemented	The equipment received a message of a type that is invalid or not supported. This code indicates either a problem with the remote configuration or a problem with the local D channel.
98	Message incompatible with call state or message type nonexistent	The equipment received a message that is not valid in the current call state. Cause 98 is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.

Code	Cause	Definition
99	Information element nonexistent or not implemented	The equipment received a message that includes information elements which were not recognized. This is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
100	Invalid information element contents	The equipment received a message that includes invalid information in the information element. This is usually due to a D-channel error.
101	Message not compatible with call state	The remote equipment received a message that does not correspond to the current state of the connection. This is usually due to a D-channel error.
102	Recovery on timer expiry	A time-out has triggered an error-handling (recovery) procedure. This problem is typically temporary.
111	Protocol error, unspecified	An unspecified D-channel error when no other standard cause applies.
127	Interworking, unspecified	An event occurred within a network that does not provide causes for the action that it takes. The precise problem is unknown.
145	ISDN layer 1 and/or 2 link not established	User needs to check cabling, ISDN adapter status and network connections.
146	ISDN layer 3 connection to the ISDN switch/network inactive	There is either a switch protocol error, or (in the United States or Canada) a SPID assignment problem.
255	ISDN command processing error	The ISDN signaling code has encountered an error processing an ISDN action. ISDN adapter busy-wait and retry.

D

Codes for Remote Control Recording Device Buttons

The following tables list codes for programming the Polycom remote control to control specific recording devices. For information about how to program these codes into the remote control, refer to Configuring the Remote to Control a Recording Device on page 10-2.

DVD Player Codes

Brand	**Code(s)**
Bush	1018, 1020, 1021, 1022, 1025, 1026, 1040
Changhong	1014
Daewoo	1031, 1043
Daewoo International	1043
Denon	1000
Dual	1017, 1025, 1026, 1033, 1040
Emerson	1012, 1019
GE	1088
Goldstar	1012, 1027
Grundig	1007, 1017, 1021, 1025, 1044, 1084, 1096
Hitachi	1010, 1021, 1083
Hyundai	1033, 1042
Integra	1014, 1042
JVC	1001, 1008, 1013, 1062, 1070, 1086, 1096

Brand	Code(s)
Kenwood	1000, 1005
LG	1012, 1027
Loewe	1090, 1096
Magnavox	1001, 1019, 1096
Marantz	1096
Mitsubishi	1002, 1025, 1081
Panasonic	1000, 1045, 1046
Philips	1001, 1019, 1089, 1090, 1091, 1092, 1093, 1094, 1096
Pioneer	1003, 1009, 1016, 1085
RCA	1009, 1088
Samsung	1000, 1010
Sanyo	1021
Schneider	1017, 1032, 1033, 1040, 1096
Shanghai	1018
Sharp	1015, 1028, 1069
Sony	1004, 1010, 1050, 1053, 1054
Tatung	1031
Teac	1009, 1027, 1030
Thomson	1007, 1080, 1088
Toshiba	1001, 1021, 1060, 1086
Yamaha	1000, 1006, 1089, 1096
Zenith	1001, 1012, 1027

DVD Recorder Codes

Brand	Code(s)
Hitachi	1083
JVC	1062, 1070
LG	1012, 1027

Brand	Code(s)
Mitsubishi	1081
Panasonic	1000, 1045, 1046
Philips	1089, 1091, 1092, 1093, 1094
Pioneer	1016, 1085
Samsung	1000, 1010
Sony	1050, 1053, 1054
Toshiba	1086
Zenith	1027

VCR Device Codes

Brand	Code(s)
Bush	1097, 1111, 1117, 1119, 1124
Changhong	1109, 1111
Daewoo	1106, 1107, 1112, 1124, 1136, 1140
Denon	1104
Dual	1097, 1103, 1111, 1119
Emerson	1097, 1100, 1101, 1105, 1106, 1113, 1116, 1140, 1153
Firstline	1101, 1105, 1106, 1119, 1136
GoldStar	1101, 1102, 1115, 1138
Grundig	1111, 1115, 1118, 1119, 1160
Hitachi	1097, 1101, 1103, 1104, 1107, 1111, 1116
Jensen	1103
JVC	1103, 1106, 1110, 1111, 1132, 1141
Kenwood	1102, 1103, 1110
LG	1101, 1102, 1104, 1106, 1136, 1138
Loewe	1101, 1111, 1114
Magnavox	1097, 1100, 1111, 1124, 1157, 1158
Marantz	1100, 1102, 1111

Brand	Code(s)
Mitsubishi	1097, 1103, 1105, 1109, 1110, 1111, 1124, 1129, 1150
NEC	1100, 1101, 1102, 1103, 1109, 1110, 1112, 1143
Panasonic	1100, 1114, 1115, 1161, 1121, 1134, 1139, 1146, 1133
Philips	1097, 1100, 1111, 1115, 1122, 1126, 1128
Pioneer	1104, 1110, 1111, 1114
Qisheng	1159
Quelle	1111
RCA	1097, 1100, 1104, 1109, 1115, 1116, 1118, 1129, 1133, 1159, 1162
Samaung	1106, 1116, 1120
Sanyo	1107, 1108, 1109, 1110, 1112, 1116, 1119, 1149
Schneider	1097, 1101, 1104, 1111, 1116, 1119, 1124
Sharp	1101, 1109, 1129, 1142
Shinco	1097
Sony	1097, 1098, 1099, 1100, 1123, 1137, 1147, 1148, 1151, 1152, 1155, 1164
Supra	1101, 1119
Tandy	1097, 1112
Tchibo	1119
Teac	1097, 1101, 1103, 1124
Telefunken	1103, 1118, 1124
Thomson	1103, 1110, 1118, 1125, 1156, 1159
Toshiba	1103, 1104, 1105, 1106, 1110, 1111, 1120, 1130, 1131, 1132, 1144, 1154, 1164
Yamaha	1102, 1103
Zenith	1097, 1099, 1136, 1153, 1158

PVR Device Codes

Brand	Code(s)
ABS	1164
Alienware	1164
CyberPower	1164
Dell	1164
DirecTV	1126
Gateway	1164
Hewlett Packard	1164
Howard Computers	1164
HP	1164
Hughes Network Systems	1126
Humax	1126
Hush	1164
iBUYPOWER	1164
JVC	1141
Linksys	1164
Media Center PC	1164
Microsoft	1164
Mind	1164
Niveus Media	1164
Northgate	1164
Panasonic	1121, 1139
Philips	1122, 1126, 1128
RCA	1162
Reel MultImedia	1163
ReplayTV	1161, 1121
Sonic Blue	1161, 1121
Sony	1123, 1151, 1152, 1155, 1164
Stack9	1164

Brand	Code(s)
Systemax	1164
Tagar Systems	1164
Thomson	1125, 1156
Tivo	1122, 1123, 1125, 1126, 1127, 1128, 1156
Toshiba	1130, 1132, 1164
Touch	1164
Viewsonic	1164
Voodoo	1164
ZTGroup	1164

Multipoint Dialing Speeds

The following table shows the maximum allowable H.323/SIP dialing speeds for the number of sites in a call, with Transcoding and AES Encryption disabled.

Number of Sites in a Call	Polycom HDX 9004 Max Speed for Each Site in kbps (4 Mbps/8 Mbps)	Polycom HDX 9002 Max Speed for Each Site in kbps (2 Mbps/4 Mbps)	Polycom HDX 9001 Polycom HDX 8000 HD Polycom HDX 4000 series Max Speed for Each Site in kbps (2 Mbps/4 Mbps)
2	4096/4096	1920/4096	1920/4096
3	1920/3072	1024/1920	960/1920
4	1344/1920	640/1344	640/1344
5	1024/1472	N/A	N/A
6	768/1024	N/A	N/A
7	640/1024	N/A	N/A
8	512/1024	N/A	N/A

Number of Sites in a Call	With T1 PRI Lines Max Speed for Each Site in kbps	With E1 PRI Lines Max Speed for Each Site in kbps
2	1472	1920
3	704	960
4	448	640
5	320	448
6	256	384
7	192	320
8	192	256

Number of Sites in a Call	With BRI Lines	
	Number of Lines	**Max Speed for Each Site in kbps**
2	2	256
2	3	384
2	4	512
3	2	128
3	3	192
3	4	256
4	2	64
4	3	128
4	4	128
5	2	64
5	3	64
5	4	128
6	2	N/A
6	3	64
6	4	64
7	2	N/A
7	3	64
7	4	64
8	2	N/A
8	3	N/A
8	4	64

Maximum speeds can be further limited by the communications equipment.

Regulatory Notices

Important Safeguards
Read and understand the following instructions before using the system: • Close supervision is necessary when the system is used by or near children. Do not leave unattended while in use. • Only use electrical extension cords with a current rating at least equal to that of the system. • Always disconnect the system from power before cleaning and servicing and when not in use. • Do not spray liquids directly onto the system when cleaning. Always apply the liquid first to a static free cloth. • Do not immerse the system in any liquid or place any liquids on it. • Do not disassemble this system. To reduce the risk of shock and to maintain the warranty on the system, a qualified technician must perform service or repair work. • Connect this appliance to a grounded outlet. • Only connect the system to surge protected power outlets. • Keep ventilation openings free of any obstructions. • If the system or any accessories are installed in an enclosed space such as a cabinet, ensure that the air temperature in the enclosure does not exceed 40°C (104° F). You may need to provide forced cooling to keep the equipment within its operating temperature range. • Caution – To reduce the risk of fire, use only No. 26AWG or larger telecommunication line cord. • Do not use this product near water. • Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lighting. SAVE THESE INSTRUCTIONS.

Electrical Specifications
Polycom HDX 9000 series: 100-240 VAC, 50-60 Hz, 4 A Polycom HDX 8000 HD: 100-240 VAC, 50-60 Hz, 2.3 A Polycom HDX 4000 series system: 100-240 VAC, 50-60 Hz,2.3 A Polycom HDX 4000 series monitor: 100-240 VAC, 50-60 Hz, 1.5 A

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- UNAUTHORIZED USE OF COMMON CARRIER COMMUNICATION SERVICES ACCESSED THROUGH THE PRODUCT.
- ABUSE, MISUSE, NEGLIGENT ACTS OR OMISSIONS OF CUSTOMER AND PERSONS UNDER CUSTOMER'S CONTROL; OR
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Regulatory Notices

Warning

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

USA and Canadian Regulatory Notices

FCC Notice

Class A Digital Device or Peripheral

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

In accordance with Part 15 of the FCC rules, the user is cautioned that any changes or modifications not expressly approved by Polycom Inc. could void the user's authority to operate this equipment.

The socket outlet to which this apparatus is connected must be installed near the equipment and must always be readily accessible.

Part 15 FCC Rules

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference, and

2) this device must accept any interference received, including interference that may cause undesired operation.

Part 68 FCC Rules

This equipment complies with part 68 of the FCC rules and the rules adopted by the ACTA. On the Network Interface Module of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ#TXXX. If requested, this number must be provided to the telephone company.

This equipment may not be used on a coin service or party line.

If you experience trouble with your Polycom HDX system, disconnect it from the telephone line to determine if the registered equipment is malfunctioning. For repair or warranty information, please contact Polycom Inc. at 1-888-248-4143 or 4750 Willow Road, Pleasanton, CA 94588-2708, USA. Contact information may also be found at http://www.polycom.com. If the system is causing harm to the network, the telephone company may request that you disconnect it until the problem is corrected.

If your Polycom HDX system causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. However, if advance notice is not practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of your equipment. If they do, you will be given advance notice so that you may make any changes necessary to maintain uninterrupted service.

The REN is useful to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs of all devices that may be connected to a line, is determined by the total RENs, contact the local telephone company.

Regulatory Notices

FCC compliant telephone cords and modular plugs are provided with this equipment. This equipment is designed to be connected to the telephone network or premises' wiring using a compatible modular jack, which is Part 68 compliant. See installation instructions for details.

WHEN PROGRAMMING EMERGENCY NUMBERS AND/OR MAKING TEST CALLS TO EMERGENCY NUMBERS:

1) Remain on the line and briefly explain to the dispatcher the reason for the call.

2) Perform such activities in the off-peak hours, such as early morning or late evening.

Industry Canada (IC)

This Class [A] digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la Classe [A] est conforme à la norme NMB-003 du Canada.

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Ringer Equivalence Number (REN) assigned to each relevant terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed 5.

The REN of this equipment is either marked on the unit or included in the new style USA FCC registration number. In the case that the REN is included in the FCC number, the user should use the following key to determine the value:

The FCC number is formatted as US:AAAEQ#TXXX.

# is the Ringer Equivalence Number without a decimal point (e.g. REN of 1.0 will be shown as 10, REN of 0.3 will be shown as 03). In the case of a Z ringer, ZZ shall appear. In the case of approved equipment without a network interface or equipment not to be connected to circuits with analog ringing supplied, NA shall appear.

Regulatory Notices

Mexico Regulatory Notices

Información del contacto para el importador de México
Polycom MÉXICO
Paseo de los Tamarindos
400-A 5to piso Suite: 21
Bosques de las Lomas
Cuajimalpa 05120 México, D.F.
Teléfono: +52-55-5091-4341
Fax: +52-55-5091-4472

Brazil Regulatory Notices

Este produto suporta apenas discagem DTMF (Tom).
Projetado para uso em escritório sempre conectado a um PABX.

EEA Regulatory Notices

CE Mark R & TTE Directive

This Polycom HDX system has been marked with the CE mark. This mark indicates compliance with EEC Directives 89/336/EEC, 73/23/EEC 1999/5/EC. A full copy of the Declaration of Conformity can be obtained from Polycom Ltd., 270 Bath Road, Slough UK SL1 4DX.

Declaration of Conformity:

Hereby, Polycom Ltd. declares that this Polycom HDX system is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Konformitetserklæring:

Hermed erklærer Polycom Ltd., at indestående Polycom HDX system er i overensstemmelse med de grundlæggende krav og de relevante punkter i direktiv 1999/5/EF.

Konformitätserklärung:

Hiermit erklärt Polycom Ltd., dass der Polycom HDX system die grundlegenden Anforderungen und sonstige maßgebliche Bestimmungen der Richtlinie 1999/5/EG erfüllt.

Δήλωση Συμμόρφωσης:
Δια του παρόντος, η εταιρεία Polycom Ltd. δηλώνει ότι η παρούσα συσκευή (δρομολογητής) VSX System; πληροί τις βασικές απαιτήσεις και άλλες βασικές προϋποθέσεις της Οδηγίας 1999/5/ΕΚ.

Vaatimustenmukaisuusvakuutus:

Polycom Ltd. vakuuttaa täten, että Polycom HDX system on direktiivin 1999/5/EC keskeisten vaatimusten ja sen muiden tätä koskevien säännösten mukainen.

Déclaration de conformité:

Par la présente, Polycom Ltd. déclare que ce Polycom HDX system est conforme aux conditions essentielles et à toute autre modalité pertinente de la Directive 1999/5/CE.

Regulatory Notices

Dichiarazione di conformità:

Con la presente Polycom Ltd. dichiara che il Polycom HDX system soddisfa i requisiti essenziali e le altre disposizioni pertinenti della direttiva 1999/5/CE.

Verklaring van overeenstemming:

Hierbij verklaart Polycom Ltd. dat diens Polycom HDX system voldoet aan de basisvereisten en andere relevante voorwaarden van EG-richtlijn 1999/5/EG.

Declaração de Conformidade:

Através da presente, a Polycom Ltd. declara que este Polycom HDX system se encontra em conformidade com os requisitos essenciais e outras disposições relevantes da Directiva 1999/5/CE.

Declaración de conformidad:

Por la presente declaración, Polycom Ltd. declara que este Polycom HDX system cumple los requisitos esenciales y otras cláusulas importantes de la directiva 1999/5/CE.

Överensstämmelseförklaring:

Polycom Ltd. förklarar härmed att denna Polycom HDX system överensstämmer med de väsentliga kraven och övriga relevanta stadganden i direktiv 1999/5/EG.

CE Mark LVD and EMC Directive

This Polycom HDX system has been marked with the CE mark. This mark indicates compliance with EEC Directives 89/336/EEC and 73/23/EEC. A full copy of the Declaration of Conformity can be obtained from Polycom Ltd., 270 Bath Road, Slough UK SL1 4DX, UK.

Mains Powered POTS Voice Telephony Without Emergency 000 Dialing

Warning: This equipment will be inoperable when mains power fails.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

声　明

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

A급 기기 (업무용 정보통신기기)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Regulatory Notices

Underwriters Laboratories Statement

The system is intended to be powered only by the supplied power supply unit.

Special Safety Instructions

Follow existing safety instructions and observe all safeguards as directed.

Installation Instructions

Installation must be performed in accordance with all relevant national wiring rules.

Plug Acts as Disconnect Device

The socket outlet to which this apparatus is connected must be installed near the equipment and must always be readily accessible.

Index