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Installation and Upgrade Guide for Cisco Unified Videoconferencing 3545 PRI Gateway and 3545 Serial Gateway Release 5.6

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C O N T E N T S

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Functionality

About Cisco Unified Videoconferencing 3545 Gateway Products

Cisco Unified Videoconferencing 3545 Gateway series consists of these products:

- Cisco Unified Videoconferencing 3545 PRI Gateway

  The Cisco Unified Videoconferencing 3545 PRI Gateway enables audio, video, and data communication between H.320 endpoints that connect through ISDN, and H.323 endpoints that connect through a packet-based network. For voice-over-IP, the gateway enables PSTN voice callers to connect from the ISDN network to IP voice callers. The Cisco Unified Videoconferencing 3545 PRI Gateway supports two PRI ISDN ports.

- Cisco Unified Videoconferencing 3545 Serial Gateway

  The Cisco Unified Videoconferencing 3545 Serial Gateway supports multimedia conferencing over IP by translating between H.323 and serial protocols. With the help of a V.35 Adtran Imux, the gateway can also translate between H.323 and H.320 protocols.

  The gateway offers a serial leg for multimedia conferencing over IP by providing an interface for legacy endpoints with serial interfaces, encryption/decryption devices, satellite networks and leased line services.

About Gateway Features

Table 1-1 lists the major features of the Cisco Unified Videoconferencing 3545 Gateway.

Table 1-1   Gateway Feature Summary

Feature	Description
Interoperability	The gateway provides a high degree of interoperability with other H.323 compliant gateways, gatekeepers, terminals, proxy, and Multipoint Control Unit (MCU) products by being based on the H.320 standard and H.323 protocol stack.
Web-based management	The gateway features the gateway interface. This is a web interface used to configure and monitor the gateway. You can view and modify all aspects of the gateway configuration from a remote location using a Java-enabled web browser.
SNMP management	The gateway features Simple Network Management Protocol (SNMP) management that supports all aspects of monitoring, diagnostics, configuration, and trapping.
Diagnostics	The gateway features front and rear panel LED indicators that display status for the unit. You can also access remote diagnostics of the unit through the gateway interface, Telnet, SNMP, or a serial port.
Network load balancing	The gateway supports load balancing on the network by communicating with a gatekeeper through H.323 RAI (Resource Available Indication)/RAC (Resource Available Confirmation) messages.
T.120 data collaboration	The gateway supports data transfers in calls between ISDN and IP by using high speed T.120 in HMLP and VarMLP formats.
Quality of service (QoS)	The gateway features configurable coding of media packets to achieve QoS routing priority on the Internet Protocol (IP) network. The Type of Service (ToS) bits of the IP datagram header can be configured for priority level.
Dial plan	The gateway supports a simplified dial plan for outbound dialing using a single universal prefix. Using the dial plan, the gateway automatically detects the capabilities received in the Setup message from the IP endpoint and sets the same bit rate for the ISDN (or serial interface) side of the call.
Direct dialing and call routing	The gateway dial plan supports these direct dialing and call routing facilities: • Direct Inward Dialing (DID) – Multiple Subscriber Network (MSN) – Q.931 Sub-addressing Information Element Cisco Unified Videoconferencing 3545 Serial Gateway supports DID in DCE mode only. • Internal and External Interactive Voice Response (IVR) • TCS4 • Default extension
Access control	The gateway features password-controlled access to the gateway interface. You can define up to ten different administrator access profiles for the gateway.
DTMF translation	The gateway supports translation between in-band Dual Tone Multi-Frequency (DTMF) signals (on the ISDN side) and out-of-band H.245 messages (on the IP side). DTMF translation occurs for voice and video calls.

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Table 1-1   Gateway Feature Summary (continued)

Feature	Description
Dual video	The gateway supports H.239 standards-based dual video and TANDBERG DuoVideo technology. Dual video streams enable a screen to carry video images from one source while simultaneously displaying images from a second source.
Hot swap	The gateway features hot swap functionality that you can use to remove and replace gateway cards under power.
Conceal caller ID	The gateway supports a conceal caller ID feature that instructs the gatekeeper to conceal the identity of the calling endpoint on the IP or ISDN network, whether the presentation restricted feature is enabled or not.
H.323 fast start	The gateway H.323 fast start feature enables endpoints to join a voice conference in the gateway more quickly.
ISDN rollover (available in Cisco Unified Videoconferencing 3545 PRI Gateway only)	The gateway features ISDN rollover. In this feature, the gateway sends a "busy out" channel request to the PSTN switch when the current PRI connection is left with less than a predefined number of available B channels. The PSTN switch "rolls over" to the next available gateway.
Network Specific Facility (available in Cisco Unified Videoconferencing 3545 PRI Gateway only)	The gateway provides support for Network Specific Facility Information Elements (NSF IEs) which enable system administrators to specify to service providers the equipment, service, or network through which they want a call routed.
ISDN connection failure	The gateway responds to ISDN connection failure events, by unregistering from its gatekeeper. The gatekeeper is forced to send new IP-to-ISDN calls through a different gateway, thus ensuring high call completion rates. The gateway re-registers to the gatekeeper when the ISDN connection is restored.
Downspeeding	The gateway features downspeeding functionality. In the downspeeding feature, the gateway attempts to reconnect a disconnected video call either at a lower bandwidth or as a voice call. Downspeeding contributes to a higher percentage of call completion on the network. The gateway supports downspeeding at call setup and in mid-call.
Multiple trap server support	The gateway supports up to three SNMP trap servers.
H.239 support	The gateway supports the H.239 protocol in ISDN-to-IP calls and in IP-to-ISDN calls.
Encryption support	The gateway supports H.235-compliant AES 128 encryption for calls over IP networks, and H.233 and H.234-compliant AES 128 encryption for calls over ISDN networks.
H.243 Conference Control support	The gateway supports the H.243 protocol in ISDN-to-IP calls and in IP-to-ISDN calls. The gateway identifies the protocol version that an IP endpoint uses and sends H.239 capabilities only to those endpoints working with protocol version 4.0 or later.
Peer-to-peer connectivity	The gateway supports connectivity to the IP network through a gatekeeper, or directly to a peer device such as Cisco Unified Communications Manager.
IP network connections	The gateway has one 10/100Base-T Ethernet IP port (on the front panel) and connects to an IP segment through a direct connection to a network switch.

Table 1-2 on page 1-4 lists features for specific Cisco gateways.

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Table 1-2   ***Cisco Gateway Feature Specifics***

Feature	Cisco Unified Videoconferencing 3545 PRI Gateway	Cisco Unified Videoconferencing 3545 Serial Gateway
Supported ports	2 PRI ISDN ports	4 serial ports
Supported video conferencing protocols	H.320, H.323 (using Cisco Stack v4.0)	
Supported audio codecs	The term *audio transcoded video calls* refers to the process whereby an *audio* stream in a multimedia call can be transcoded from one codec type to another. Basic and advanced audio coding supported codecs: G.711, G.722, G.722.1, G.723.1, G.728	
Audio Transcoding	G.711 (ISDN) < > G.723.1 (IP) for up to 60 voice channels. G.711 (IP) < > G.728 (ISDN) for up to 20 audio transcoded video channels. The gateway automatically performs A-Law G.711-to-µ-Law G.711 translation between the IP and ISDN sides if needed. **Note** When your Cisco unit includes both a gateway and a MCU, G.728 transcoding is supported on the MCU only.	Transcoding for the 4 supported multimedia calls.
Supported video protocols	H.261, H.263, H.263+ (Annexes F, J and N), H.263++ (Annex W), H.264	
Supported video resolutions	VGA, XGA, SVGA, SIF, 4SIF, CIF, QCIF, 4CIF, 16CIF	
Supported bandwidths (Kbps)	56, 64, 112, 128, 168, 192, 224, 256, 280, 320, 336, 384, 448, 512, 672, 768, 1288, 1472, 1680 and 1920 **Note** Bandwidth rates of 256 Kbps and up support the G.722 audio codec.	56, 64, 112, 128, 168, 192, 224, 256, 280, 320, 336, 384, 448, 512, 672, 768, 1288, 1472 and 1920

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Table 1-2   Cisco Gateway Feature Specifics (continued)

Feature	Cisco Unified Videoconferencing 3545 PRI Gateway	Cisco Unified Videoconferencing 3545 Serial Gateway
Call handling capabilities	For 1 x PRI T1 line: 23 ports (voice) 23 ports 1B (video and data) 11 ports 2B (video and data) 3 ports 6B (video and data) For 2 x PRI T1 lines: 46 ports (voice) 30 ports 1B (video and data) 23 ports 2B (video and data) 7 ports 6B (video and data) For 1 x PRI E1 line: 30 ports (voice) 30 ports 1B (video and data) 15 ports 2B (video and data) 5 ports 6B (video and data) For 2 x PRI E1 lines: 60 ports (voice) 30 ports 1B/2B (video and data) 10 ports 6B (video and data)	1 call per serial connection, up to a maximum bandwidth of 1920 Kbps per port.
Line quality	Supports line echo cancellation, H.323 Fast Start and DTMF detection for voice and video calls.	Supports line echo cancellation and DTMF detection for voice calls.
IP network connection	I10/100Base-T Ethernet IP UTP connection (on the front panel).	
Serial control port (DB-9) connection	RS-232 DTE 9-pin D-type connection on front panel for connection to a PC terminal or an external modem.	
Supported media protocols	N/A	V.35, RS-449, EIA-530, EIA-530A
Supported signaling protocols	5ESS and 4ESS, DMS100, National ISDN, Euro-ISDN, VN6 Dialing (France), NTT (Japan), Hong Kong Dialing (Hong Kong), Support for Taiwan PRI system.	RS-366, Manual Control, Data Triggered.
Supported media + signaling combinations	N/A	RS-449 + RS-366 V.35 + RS-366 EIA-530 + RS-366 EIA-530A + RS-366

Table 1-2   *Cisco Gateway Feature Specifics (continued)*

Feature	Cisco Unified Videoconferencing 3545 PRI Gateway	Cisco Unified Videoconferencing 3545 Serial Gateway
Encryption interoperability	N/A	KIV-7, KG-194
PRI interface	Configurable E1/T1 PRI network interface. Support for fractional E1/T1 channel selection. Configurable as terminal side (TE) or network side (NT) device. Configurable Long Haul PRI module (supported in Japan only).	N/A
Switch information	Numbering Plan Identifier (NPI), Type of Number (TON) and Network Specific Facility (NSF) information elements are configurable per PRI port.	N/A
Bonding calls	Internal Imux providing calls at 128 Kbps (2B) up to full PRI of 1472 Kbps (23B) for T1 and up to full PRI of 1920 Kbps (30B) for E1 using bonding mode 1. Parallel dialing for bonded calls.	N/A
Internal IVR capacity	30 simultaneous calls	4 simultaneous calls

About Cisco Unified Videoconferencing 3545 Gateway Applications and Topologies

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About Multimedia Conferencing

The Cisco PRI gateway enables H.323 endpoints on the IP network to communicate with an H.320 terminal, an ISDN phone, or a regular phone on a circuit-switched public network without having to connect directly to these networks. The gateway allows all IP network terminals to support video conferences without connecting every desktop computer to an ISDN line (see Figure 1-1).

Figure 1-1   Multimedia Conferencing through the Gateway
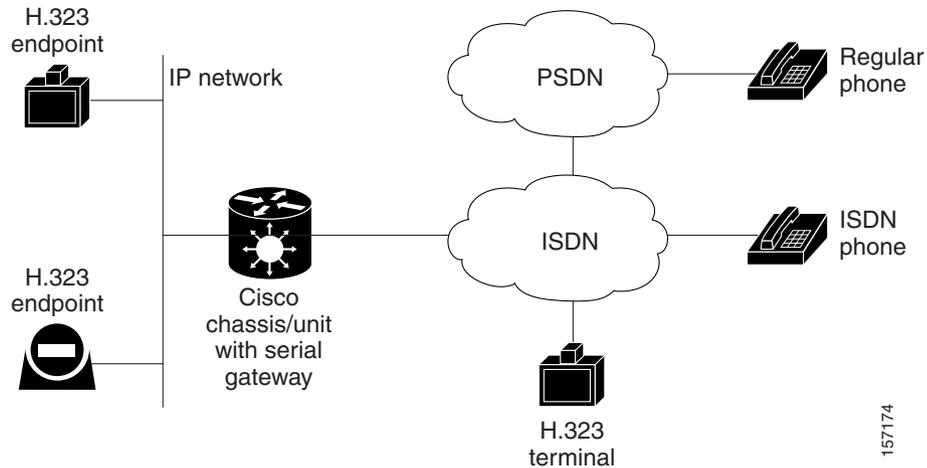
Typical multimedia conferencing applications include:

- Business video conferencing
- Distance learning
- Telemedicine
- Video-enabled call centers
- Telecommuting

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About Point-to-Point Conferencing

The Cisco PRI gateway enables direct video, voice, and data communication between an H.320 (ISDN) terminal and H.323 (IP) terminals at bandwidths of up to 1472 Kbps (23B bonding for T1) and up to 1920 Kbps (30B bonding for E1).

Figure 1-2   *Point-to-Point Conferencing through the Gateway*
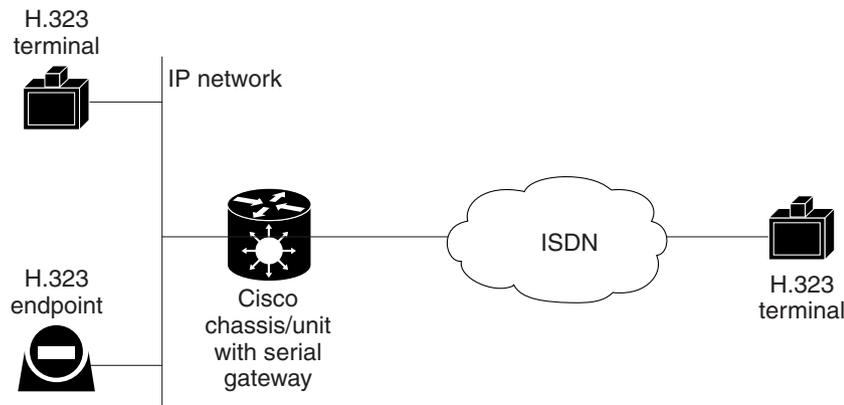
About Multipoint Conferencing

Together with the Cisco MCU, the Cisco PRI gateway enables H.320 ISDN terminals to participate in a mixed ISDN-IP multipoint multimedia conference with IP network endpoints (see Figure 1-3).

For example, when an H.320 ISDN terminal wants to participate in a multipoint conference with H.323 IP endpoints, the H.320 ISDN terminal can either join the multipoint conference by dialing to the gateway, or be invited into the conference by one of the participating IP endpoints. In either case, the gateway connects the ISDN terminal to the Cisco MCU, enabling it to participate in the multipoint conference.

Figure 1-3   *Mixed ISDN-IP Multipoint Multimedia Conference*
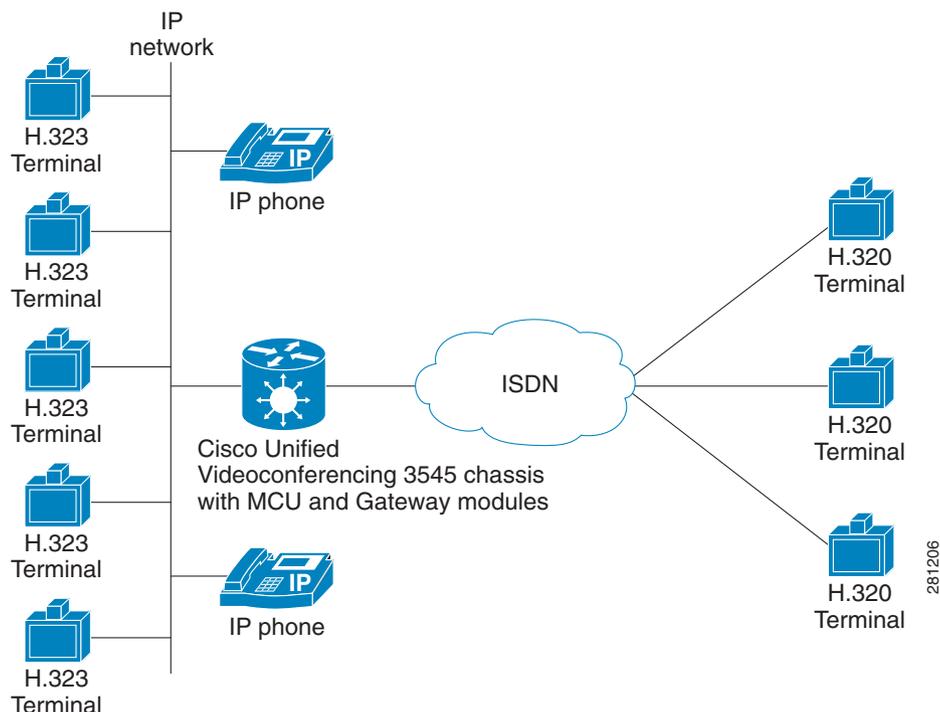
About Gateway IP Network Connections

The Cisco PRI gateway features one 10/100Base-T Ethernet IP port (on the front panel) and connects to an IP segment through a direct connection to a network switch.

About Gateway ISDN Network Connections

The Cisco PRI gateway features configurable E1/T1 PRI ISDN connections. When configured as an E1 connection, each port provides 30 B channels and one D signaling channel. When configured as a T1 connection, each port provides 23 B channels and one D signaling channel. The type of line available depends on your local ISDN provider. You configure the gateway PRI port to an E1 or T1 interface accordingly. In addition, you can choose to activate only specific channels by using fractional channel selection.

PRI Gateways

You can connect the PRI gateway directly to a PRI line provided by your local ISDN provider (as shown in Figure 1-4), or to a local private branch exchange (PBX) that provides the PRI connection (as shown in Figure 1-5).

Figure 1-4   Connecting the PRI Gateway Directly to a Central Office Switch
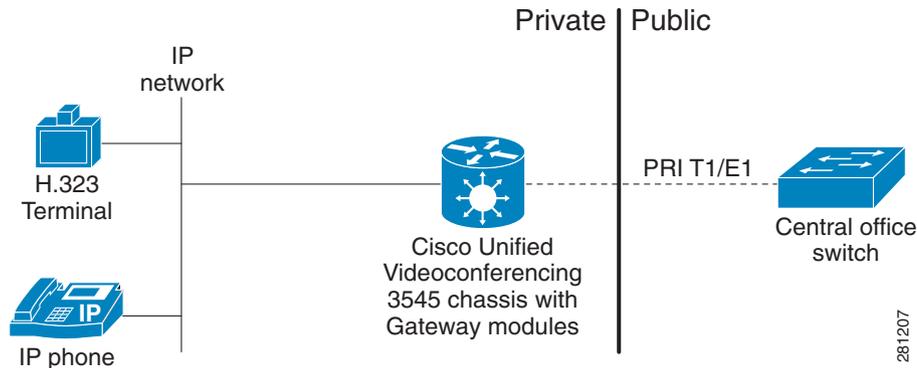
Figure 1-5   Connecting the PRI Gateway to a PBX that Provides a PRI Line

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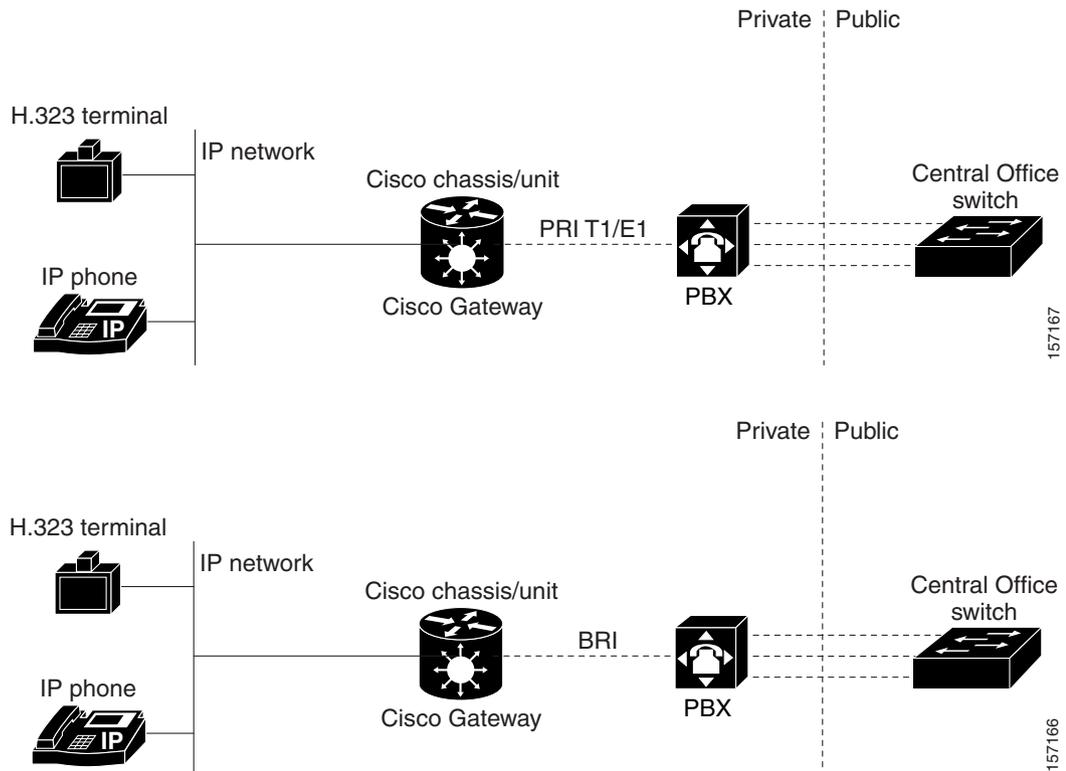
About Gateway Encryption

The serial gateway enables encrypted videoconferencing between H.323 endpoints on the IP network and endpoints on remote sites by connecting to external encryption/decryption devices via serial interfaces (as shown in Figure 1-6). The serial gateway also enables encrypted videoconferencing via satellite with or without RS-366 signaling (as shown in Figure 1-7).

Figure 1-6   Encrypted Videoconferencing
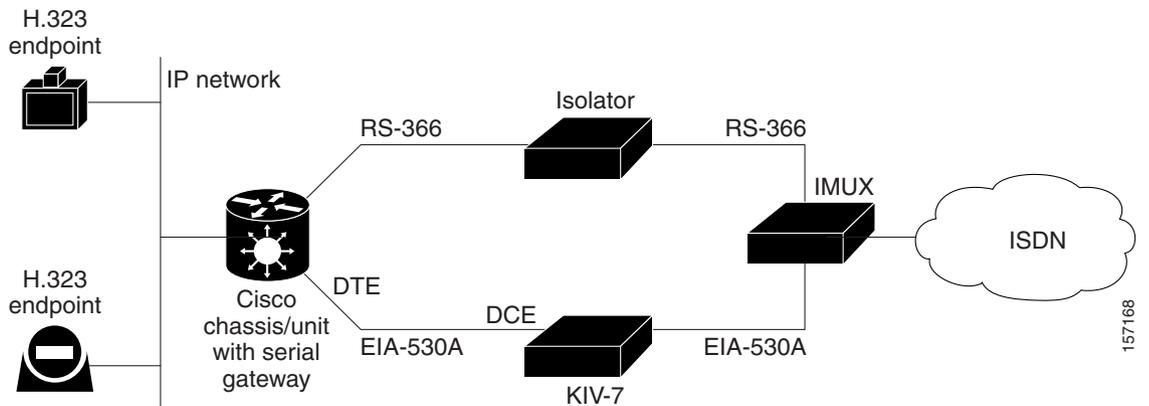
Figure 1-7   Encrypted Videoconferencing via Satellite

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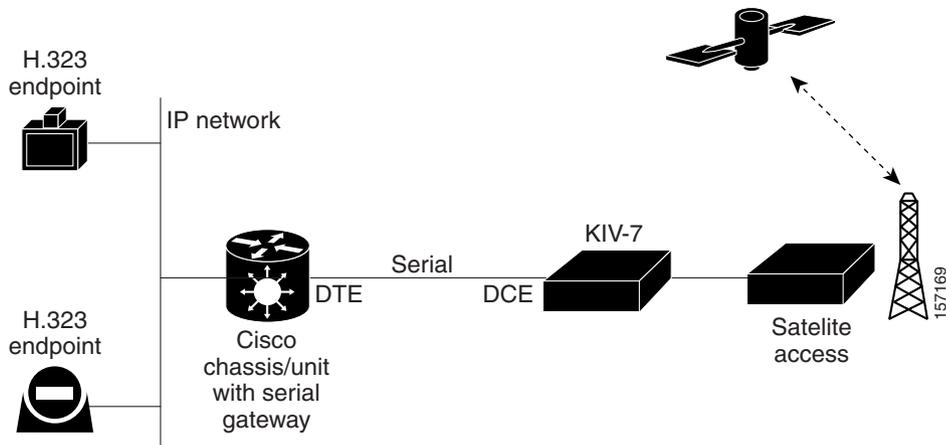
About Conferencing via Leased Lines

The serial gateway enables conferencing between H.323 endpoints on IP networks connected via a leased line (as shown in Figure 1-8).

Figure 1-8   Conferencing via Leased Lines
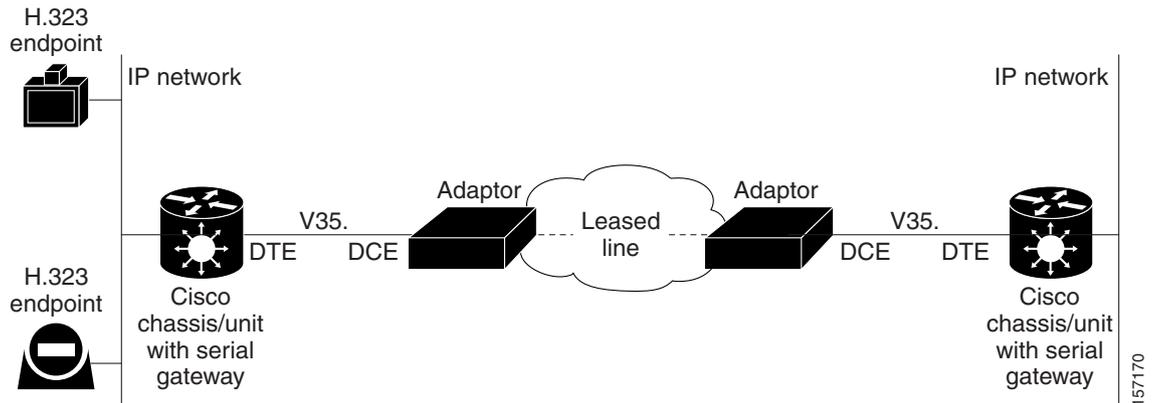
About IP-to-Legacy MCU Conferencing

The serial gateway provides an IP-to-serial interface for communication with legacy MCU equipment (as shown in Figure 1-9).

Figure 1-9   IP-to-Serial Interface Communication via Legacy MCU

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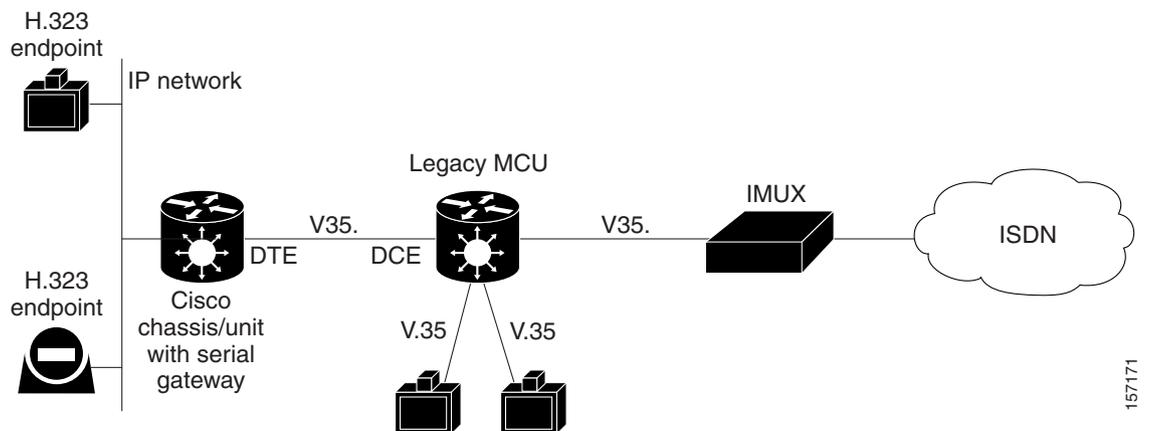
About Cisco Unified Videoconferencing 3545 Gateway Functionality

- About PRI Gateway Call Handling Capacity, page 1-13
- About Gateway Call Bandwidth Overhead, page 1-13
- About Peer-to-Peer Connectivity, page 1-14

About PRI Gateway Call Handling Capacity

Table 1-3 lists the maximum call handling capacity of the PRI gateway for different types of calls.

Table 1-3   PRI Gateway Call Handling Capacity

Call Type	Maximum Number of Calls Using 1 x E1 PRI Line	Maximum Number of Calls Using 1 X T1 PRI Line	Maximum Number of Calls Using 2 x E1 PRI Lines	Maximum Number of Calls Using 2 x T1 PRI Lines
voice (64 Kbps)	30	23	60	46
2B video (128 Kbps)	15	11	30	23
6B video (384 Kbps)	5	3	10	7
12B video (768 Kbps)	2	1	5	3

Note Enabling ISDN-to-IP DTMF detection in the PRI gateway for video calls reduces the number of supported calls by half.

About Gateway Call Bandwidth Overhead

According to the H.320 standard, the available bandwidth allocated to a call at any given bit rate will always be slightly less than the stated maximum for the following reasons:

- All stated maximum call bandwidths include provision for control, audio, video, and data traffic.
- Video traffic on the ISDN side contains additional bits for error correction purposes which also consume bandwidth. Video traffic on the IP side does not include this additional load.
- Opening an audio channel further reduces the bandwidth available to the video traffic.

For example, a call at 384 Kbps actually has only 363 Kbps available to it. Control and error correction account for the remaining 21 Kbps.

Resource Allocation across E1/T1 Lines

The gateway can allocate bandwidth resources to calls across separate E1 or T1 connections to maximize bandwidth capacity in cases where there is not enough capacity for a call on a single E1 or T1 connection, but where sufficient capacity does exist when remaining capacity on both E1/T1 lines is combined.

For example, a gateway using two T1 lines can support three 6B calls on each T1 line, with 320 Kbps spare capacity per line:

- Each T1 line provides 23 B channels.

- Each B channel supports 64 Kbps

- Each T1 line supports 23 x 64 = 1472 Kbps

- Each 6B call requires 6 x 64 = 384 Kbps

- Each T1 line supports 1472/384 = 3 6B calls + 320 Kbps spare

The gateway processes an additional 6B call requiring a further 384 Kbps by taking bandwidth resources from each of the two T1 lines, both of which have 320 Kbps available. In this way, the gateway spreads the call over both T1 lines.

About Peer-to-Peer Connectivity

The gateway supports the following types of connectivity to the IP network

- Through a gatekeeper

- Directly to a peer device such as Cisco Unified Communications Manager without the need for a gatekeeper.

Installing the Cisco Unified Videoconferencing 3545 Gateway

Physical Description

Gateway Module

The gateway module has a 10/100BaseT Ethernet port on the front panel that uses an RJ-45 connector to connect to the network. There is an asynchronous, 9-pin serial port that you can use with a hyperterminal program to configure and monitor the module.

Figure 2-1 shows the front panel components of the gateway module. Table 2-1 describes these components.

Figure 2-1   Gateway Front Panel
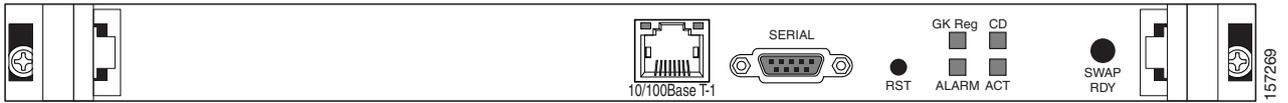
Table 2-1   Front Panel Components

Component	Description
10/100 Base T-1 connector	An RJ-45 connector that provides the primary Ethernet connection for the IP network port.
SERIAL connector	A DB-9 connector that allows you to connect a PC terminal for local configuration.
RST button	Allows you to reset the gateway manually.
GK Reg LED	Lights green when the gateway is registered with a gatekeeper.
CD LED	Lights green when at least one gateway port connection is online.
ACT LED	Lights green to indicate that there are active calls in the gateway.
ALARM LED	Lights green to indicate that an error has occurred and the gateway requires resetting.
10/100 Base T-1 LEDs	The top part of the 10/100 Base T-1 connector contains two LED indicators. The left-hand LED lights green when the local IP network link is active. The right-hand LED lights green if the connection speed is 100 Mbps, and is off when the connection speed is 10 Mbps.
SWAP RDY LED	Hot Swap indication. Lights blue when the latches of a board are unlocked and it is safe to remove the board from the chassis. Goes off when the board is completely detached.

Cisco Unified Videoconferencing 3545 PRI Gateway RTM

The Rear Transition Module (RTM) provides the PRI line connections for the Cisco Unified Videoconferencing 3545 PRI Gateway.

Figure 2-2 shows the RTM panel components of the Cisco Unified Videoconferencing 3545 PRI Gateway module. Table 2-2 describes these components.

Figure 2-2   PRI Gateway: Rear Transition Module

Table 2-2   PRI Gateway Rear Transition Module Components

Component	Description
ACT LEDs	Lights green to indicate that there are active calls in the gateway.
D-Ch LEDs	Lights green to indicate that the PRI line is enabled and a carrier signal is detected.

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Table 2-2   PRI Gateway Rear Transition Module Components (continued)

Component	Description
ALARM LEDs	Displays alarm events for the PRI line. • YELLOW —Lights yellow when there is a loss of frame alignment at the remote side. • ORANGE—Lights orange when there is a loss of frame alignment in the gateway.
PRI LINE connectors	RJ-45 connectors that provide the PRI line connections for the specified gateway ISDN PRI port.

Cisco Unified Videoconferencing 3545 Serial Gateway RTM

The Rear Transition Module (RTM) provides the serial line connections for the Cisco Unified Videoconferencing 3545 Serial Gateway.

Figure 2-3 shows the RTM panel components of the Cisco Unified Videoconferencing 3545 Serial Gateway module. Table 2-3 describes these components.

Figure 2-3   Serial Gateway: Rear Transition Module

Table 2-3   Serial Rear Transition Module Components

Component	Description
PORT connectors	DB-60 connectors that provide the serial line connections for gateway serial ports 1 to 4.
ACT and ALARM LEDs	ACT lights green to indicate that the specified serial line is currently in use. ALARM lights red to indicate an internal error related to the specified line.

Requirements for Installation

This section describes the requirements for installing the Cisco Unified Videoconferencing 3545 PRI Gateway and the Cisco Unified Videoconferencing 3545 Serial Gateway in a Cisco Unified Videoconferencing 3545 chassis. For more information, see the Platform Guide for Cisco IPVC 3644 Chassis. The requirements are as follows:

⚠ **Warning**   **During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.**

• Cisco Unified Videoconferencing 3545 chassis

• Proper clearance at the sides of the unit to allow adequate ventilation, and at least 20 cm clearance at the back of the chassis to allow access to the boards and cable connections

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- A PC with a serial port and terminal emulation software to assign the gateway an IP address

- Dedicated IP address for the gateway

- The IP address of the router the gateway will use to communicate across the network

- The IP address of the H.323 gatekeeper with which you want the gateway to register

- Available IP network ports on the switch for the Cisco Unified Videoconferencing 3545 chassis

- A grounded AC power outlet

- A 10BaseT or 100BaseT LAN cable

- Ambient room temperature range of 32° to 104^oF (0° to 40^oC)

- Non-condensing relative humidity range of 5% to 85%

Verifying the Package Contents

Procedure

Step 1   Inspect the contents of the box for shipping damage.

Step 2   Report any damage or missing items to your Cisco representative.

Step 3   Verify the contents. See Table 2-4.

Table 2-4   *Package Contents with Cisco Unified Videoconferencing 3545 PRI Gateway or Cisco Unified Videoconferencing 3545 Serial Gateway*

Product	Contents
Cisco Unified Videoconferencing 3545 chassis with Cisco Unified Videoconferencing 3545 PRI Gateway or Cisco Unified Videoconferencing 3545 Serial Gateway	- Cisco Unified Videoconferencing 3545 PRI Gateway or Cisco Unified Videoconferencing 3545 Serial Gateway - Cisco Unified Videoconferencing 3545 PRI Gateway or Cisco Unified Videoconferencing 3545 Serial Gateway Rear Transition Module - LAN cable - Regulatory Compliance and Safety Information for Cisco Unified Videoconferencing 3500 Products - Cisco Unified Videoconferencing Software CD-ROM - Cisco Information Package

You can also order the following cables for the Cisco Unified Videoconferencing 3545 Serial Gateway:

- V.35/RS366-DTE cable

- EIA449/RS366-DTE cable

- EIA530/RS366-DTE cable

- EIA530/RS366-DTE-LOS cable

- EIA530A/RS366-DTE cable

- KIV7/RS366-DTE cable

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- V.35/RS366-DCE cable
- EIA449/RS366-DCE cable
- EIA530/RS366-DCE cable

Related Topics
- Serial Gateway Cable Connections and Pin-outs, page 2-16

Mounting the Cisco Unified Videoconferencing 3545 Chassis in a 19-inch Rack

You can optionally mount the Cisco Unified Videoconferencing 3545 chassis in a standard 19-inch rack. Two mounting brackets and a set of screws are included in the Cisco Unified Videoconferencing 3545 chassis shipping box.

Procedure

Step 1   Disconnect all cables including the power cables.

Step 2   Place the Cisco Unified Videoconferencing 3545 chassis right-side up on a hard flat surface, with the front panel facing you.

Step 3   Position a mounting bracket over the mounting holes on each side of the Cisco Unified Videoconferencing 3545 chassis, as shown in Figure 2-4.

Step 4   Pass the screws through the brackets and tighten them into the screw holes on each side of the Cisco Unified Videoconferencing 3545 chassis using a suitable screwdriver.

Figure 2-4   Fitting a Bracket for Rack Mounting
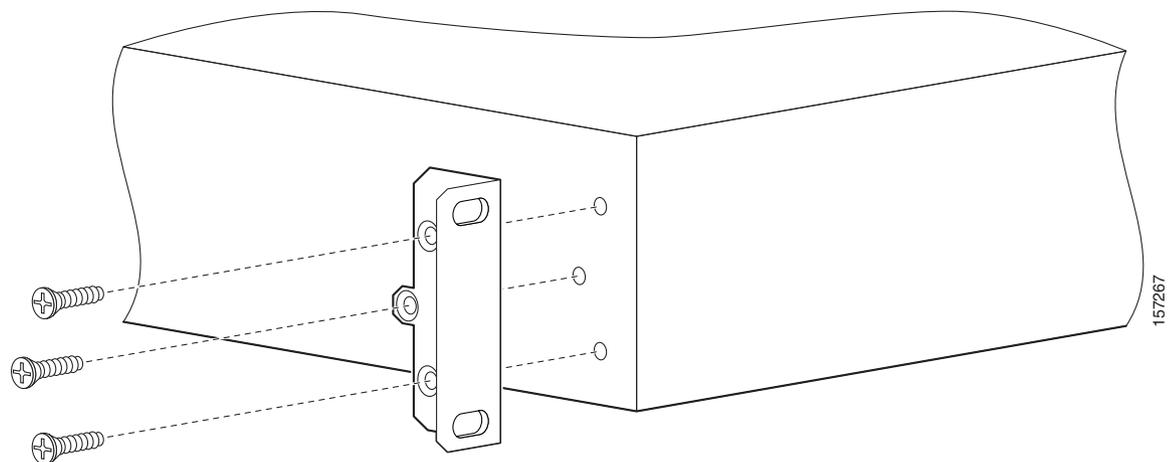
Step 5   Insert the Cisco Unified Videoconferencing 3545 chassis into the 19-inch rack.

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Step 6   Fasten the brackets to the side rails of the rack.

Step 7   Make sure that the air vents at the sides of the Cisco Unified Videoconferencing 3545 chassis are not blocked.

How to Install the Gateway

- Installation Preparations, page 2-6
- Installing the RTM Module, page 2-7
- Installing the Gateway Module, page 2-8
- Removing a Module, page 2-9

Installation Preparations

This section describes how to prepare a gateway for insertion into the Cisco Unified Videoconferencing 3545 chassis.

Note the following:

- The Cisco Unified Videoconferencing 3545 chassis has four slots. You can install the Cisco Unified Videoconferencing 3545 Gateway in any of the slots.
- Insert the gateway in the top slot at the front of the Cisco Unified Videoconferencing 3545 chassis to view status and identification information via the **System** web user interface.

The Cisco Unified Videoconferencing 3545 Gateway has two components that you must install in the chassis: the Cisco Unified Videoconferencing 3545 Gateway module and the corresponding Rear Transition Module (RTM), as indicated in Table 2-5.

Table 2-5   Identifying RTM Boards

Gateway	Corresponding RTM
Cisco Unified Videoconferencing 3545 PRI Gateway	Dual PRI RTM board
Cisco Unified Videoconferencing 3545 Serial Gateway	Quad Serial RTM board

The gateway module installs in the front of the chassis and provides ISDN or serial functionality. The RTM installs in the rear of the chassis and provides the physical interface for the ISDN or serial line. You must install these modules in corresponding slots in the chassis. That is, if you insert the gateway module in the top slot in the front of the chassis, you must insert the RTM in the top slot in the rear of the chassis.

Before You Begin

Warning   **During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

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Before working on a system that has an on/off switch, turn OFF the power and unplug the power cord.

Before opening the chassis, disconnect the telephone network cables to avoid contact with telephone network voltages.

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.

The telecommunications lines must be disconnected 1) before unplugging the main power connector and/or 2) while the housing is open.

Installing the RTM Module

This section describes how to install the RTM module in the Cisco Unified Videoconferencing 3545 chassis. The Rear Transition Module (RTM) provides the ISDN or serial line connections for the gateway.

Before You Begin

Warning   **You must install the RTM module before you install the gateway module. Inserting an RTM module in the rear of the chassis when a gateway module is already installed in the same position at the front of the chassis may damage the chassis.**

Procedure

Step 1   On the back of the chassis, loosen the screws of the blank panel covering the slot into which the RTM module is to be installed.

Step 2   Remove the blank panel.

Step 3   Remove the new RTM from the antistatic bag.

Step 4   Press the red buttons and open the handles of the RTM module.

Step 5   Align the edges of the RTM module with the chassis guide rails.

Step 6   Slide the RTM module into the chassis until it stops (see Figure 2-5).

Figure 2-5   Inserting the RTM Module in the Cisco Unified Videoconferencing 3545 Chassis
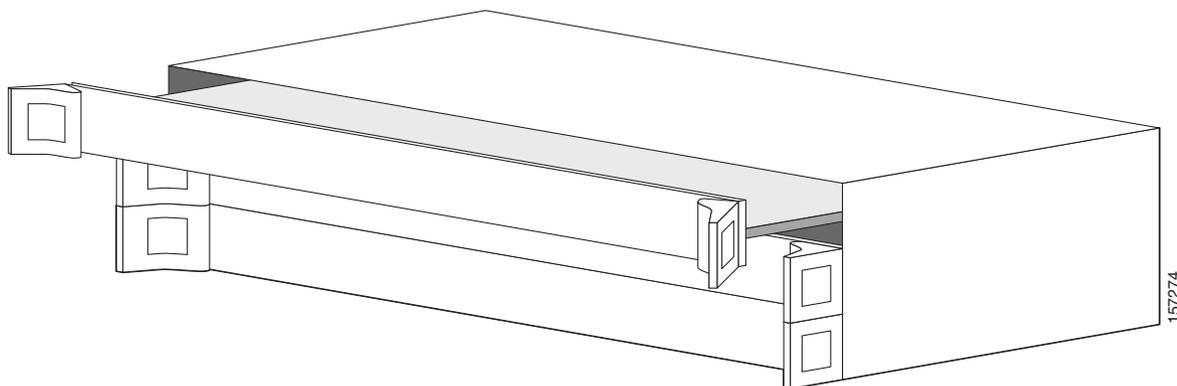
Step 7   Use even pressure to push the module further into the slot.

⚠

Caution   Do not force the connection. Forcing the connection can bend or damage the pins in the connector inside the chassis.

Step 8   Snap the handles forward to secure the RTM module in the slot.

Step 9   Secure the RTM module screws.

⚠

Caution   Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Installing the Gateway Module

This section describes how to install the Cisco Unified Videoconferencing 3545 Gateway module in the Cisco Unified Videoconferencing 3545 chassis.

Before You Begin

⚠

Warning   **You must install the RTM module before you install the gateway module. Inserting an RTM module in the rear of the chassis when a gateway module is already installed in the same position at the front of the chassis may damage the chassis.**

Procedure

Step 1   On the front of the chassis, loosen the screws of the blank panel covering the slot into which the gateway module is to be installed.

Step 2   Remove the blank panel.

Step 3   Remove the new gateway module from the antistatic bag.

Step 4   Press the red buttons and open the handles of the gateway module.

Step 5   Align the edges of the gateway module with the chassis guide rails.

Step 6   Slide the gateway module into the chassis until it stops (see Figure 2-5 for the Cisco Unified Videoconferencing 3545 chassis).

Step 7   Use even pressure to push the module further into the slot.

⚠

Caution   Do not force the connection. Forcing the connection can bend or damage the pins in the connector inside the chassis.

Note   If you are installing the gateway module and the power to the chassis is on, the SWAP RDY LED on the module front panel turns blue when you slide the module into the chassis as far as it will go. This means that you can secure the module safely. The LED turns off when the handles are closed.

Step 8   Snap the handles forward to secure the gateway module in the slot.

Step 9   Secure the gateway module screws.

Caution   Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Removing a Module

This section describes how to remove the Cisco Unified Videoconferencing 3545 Gateway or the RTM module from the Cisco Unified Videoconferencing 3545 chassis.

Before You Begin

Warning   **You must remove the gateway module from the slot at the front of the chassis before removing the corresponding RTM module from the same slot position at the rear of the chassis.**

Procedure

Step 1   Loosen the gateway or RTM module screws.

Step 2   Press the red buttons and open the handles of the gateway or RTM module (see Figure 2-6).

Figure 2-6   ***Removing a Module from the Cisco Unified Videoconferencing 3545 Chassis***

Step 3   Wait for the blue SWAP RDY LED to light up. The SWAP RDY LED indicates that it is safe to remove the module.

> ✎
> **Note**   It may take up to one minute for the LED to light up while the Windows operating system is shutting down.

The light goes out when the board is completely detached from the backplane.

Step 4   Remove the module completely.

Step 5   Insert a blank cover panel provided by Cisco.

Step 6   Secure the blank cover panel screws.

> ⚠
> **Caution**   Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

How to Perform the Initial Gateway Configuration

- About the Initial Configuration and Boot Phases, page 2-11
- Connecting to a PC, page 2-11
- Setting the IP Address, page 2-11
- Setting Ethernet Speed and Duplex Parameters, page 2-13
- Changing the Configuration Tool Login Password, page 2-14
- Upgrading Gateway Software, page 2-14

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About the Initial Configuration and Boot Phases

Initial monitoring and administration of the gateway are performed from a remote PC via a serial connection. This allows you to access the boot configuration menu of the gateway. At power-up, the gateway goes through the following boot phases:

- **Auto-boot**—The embedded operating system initializes and displays basic information.
- **Configuration menu**—A 6-second countdown allows you to enter the configuration menu.
- **Initialization**—The gateway completes its boot sequence and is ready for operation.

✎
Note You can perform serial port configuration of the gateway only at startup, during a short period indicated by a 6-second countdown. Once the initialization phase is complete, the only way you can access the configuration menu is by restarting the gateway.

Connecting to a PC

Procedure

Step 1 Locate the terminal cable shipped with the gateway.

Step 2 Connect the end labeled **PC** to the serial port on the computer.

Step 3 Connect the end labeled **Unit** to the serial port connector on the gateway front panel.

Setting the IP Address

You use the serial port to configure the unit with an IP address and other address information.

You use the serial port on the gateway front panel to assign a new IP address to your gateway. You must assign the IP address before you connect the gateway to the network.

Before You Begin

The PC terminal should have an installed terminal emulation application, such as HyperTerminal.

Gather the items listed in Table 2-6 to assign an IP address to the gateway.

Table 2-6   Requirements for Setting the IP Address

Requirements	Notes
Dedicated IP address for the gateway	
IP address of the default router the gateway uses to communicate over the network	

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Table 2-6   Requirements for Setting the IP Address

Requirements	Notes
PC with available serial port and terminal emulator software installed	
RS-232 terminal cable (shipped with the unit)	

Procedure

Step 1   Connect the supplied terminal cable to the PC terminal.

Step 2   Connect the power cable.

Step 3   Start the terminal emulation application on the PC.

Step 4   Set the communication settings in the terminal emulation application on the PC as follows:

- Baud rate: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

Step 5   Turn on the power to the gateway.

Step 6   After the terminal emulator session starts, press the **RST** button on the gateway front panel to reset the module.

A log of the auto-boot events and a VxWorks banner scrolls across the computer monitor.

Note   When the gateway is started for the first time, two VxWorks banners appear. The configuration option appears after the second banner.

Step 7   When the message "Press any key to start configuration" appears on the screen, press any key within 6 seconds.

The network configuration **Main** menu displays:

```
Press any Key To start configuration...
Main menu
Enter <N> to configure default network port values
Enter <P> to change the configuration software password
Enter <A> to display advanced configuration menu
Enter <Q> to quit configuration menu and start GW
```

Caution   If you do not press a key before the countdown ends, the device continues its initialization and you can only configure the device by pressing the **RST** button on the front panel.

Step 8   At the prompt, type **N** to configure default network port values and press **Enter**.

Step 9   At the **Enter IP address for default interface** prompt, type the IP address you want to assign to the gateway and press **Enter**.

⚠

Caution   Do not use leading zeros in the IP address.

Step 10   At the **Enter Default Router IP Address** prompt, type the IP address of the router associated with the segment in which the unit will be installed and press **Enter**.

⚠

Caution   Do not use leading zeros in the IP address.

Step 11   At the **Enter IP Mask for default device** prompt, type the subnet mask without leading zeros, and then press **Enter**. If a subnet mask is not used, press **Enter**.

Step 12   Allow the unit to complete the reboot process. A new emulator session begins.

Step 13   Close the terminal emulator session.

Setting Ethernet Speed and Duplex Parameters

Use the serial port to set the Ethernet speed and duplex parameters that you want the Cisco Unified Videoconferencing 3500 Gateway to use.

Procedure

Step 1   Access the gateway through the serial port and start a terminal emulator session.

✎

Note   If the gateway is already running, you need to reboot or restart the device.

Step 2   When the message "Press any key to start configuration" appears on the screen, press any key within 6 seconds.

The network configuration Main menu appears.

Step 3   At the prompt, enter **A** to display the Advanced Configuration menu and press **Enter**.

The Advanced Configuration menu appears.

Step 4   At the prompt, enter **3** to select "Change LAN port Settings" and press **Enter**.

Step 5   At the prompt, enter the number or letter for one of the following:

- **1** - 10Mbps Half Duplex
- **2** - 100Mbps Half Duplex
- **3** - 10Mbps Full Duplex
- **4** - 100Mbps Full Duplex
- **5** - Auto
- **Q** - Quit

✎

Note   We recommend that you select "5 - Auto" here and also set the Port settings option to "Auto" in the gateway web user interface at Gateway > Board > Addressing.

Step 6   Press **Enter**.

The network configuration Main menu appears.

Step 7   At the Network Configuration menu, do one of the following:

- Enter the letter for the set of parameters that you want to configure.
- Enter **Q** to save your changes and allow the device to complete the boot process.

Changing the Configuration Tool Login Password

You can use the terminal emulator to change the default password of the default login user before others can use the gateway interface.

Procedure

Step 1   Start a terminal emulator session for the gateway.

Step 2   Press the **RST** button on the front panel of the gateway.

After 60 seconds, a new terminal emulator session begins on the computer monitor.

After the second VxWorks banner scrolls across the screen, the following message appears: "Press any Key to start the configuration."

Step 3   Press any key and then press **Enter**.

Step 4   At the prompt, enter **P** and press **Enter** to select "change the configuration software password."

Step 5   Type the user login name for which you want to change the password and press **Enter**.

The default user name is admin. This is the user name that allows you to access the gateway interface.

Step 6   Type the password you want the user to use to log in to the gateway interface and press **Enter**.

There is no default password.

Step 7   The network configuration **Main** menu re-appears.

Step 8   Enter **Q** and press **Enter** to exit.

Upgrading Gateway Software

Software upgrades for the gateway include the software components that are upgraded for the new version and a utility to upload the software to the unit.

Procedure

Step 1   Download the upgrade software to a host that can access the gateway.

Step 2   Unzip the upgrade file.

Step 3   Double click the *upgrade.exe* file.

Step 4   In the **Target IP** field, type the IP address of the gateway for which you want to upload the software.

Step 5   In the **User Name** field, type the software user name.

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This is a global login name that the upload, upgrade, and Telnet utilities use to log in to the gateway software. It can also be used to access the Administrator interface. The default user name is admin.

Step 6   In the **Password** field, type the software password.

The default value is null.

> ✎
>
> **Note**   To view the software components that will upgrade, click **Customize**. The **Customize** dialog box appears. If you do not want to upgrade a component, deselect it.

Step 7   Click **Upgrade**.

The upgrade process takes a few minutes. After the upload completes, the **Upload Complete Message** dialog box appears.

Step 8   Click **OK**.

Related Topics

- Chapter 3, "Using the Cisco Software Upgrade Utility"

Connecting the Gateway to the Network

The Cisco Unified Videoconferencing 3545 Gateway can connect to the LAN only through the front panel. The gateway supports a 10/100BaseT, full-duplex Ethernet interface through an RJ-45 connector.

Procedure

Step 1   Connect the supplied LAN cable from your network hub to the 10/100BaseT Ethernet port on the front panel of the gateway. The 10/100BaseT port accepts an RJ-45 connector.

Step 2   Connect a separate ISDN or serial line to each PRI or serial port in the rear panel of the gateway. The port accepts an RJ-45 connector.

Connecting PRI Lines to the Gateway

You must connect a PRI line to at least one Cisco Unified Videoconferencing 3545 PRI Gateway port. The gateway supports T1 and E1 PRI configurations.

Connecting Serial Lines to the Gateway

You can connect the Cisco Unified Videoconferencing 3545 Serial Gateway to four serial lines that may support different physical standards (V.35, RS-449 or EIA-530). The system is capable of recognizing the type of cable connected.

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Procedure

Step 1   Connect the DB-60 male connector of the cable to the DB-60 female connector of the unit.

Step 2   Tighten the screws.

Step 3   Connect the remote connectors (V.35, RS-449, EIA-530 and RS-366) to the connectors or the connecting cable of the remote equipment

Serial Gateway Cable Connections and Pin-outs

Physical Description of DTE Cables

These are the DTE cables supplied with the Cisco Unified Videoconferencing 3545 Serial Gateway:

Note
- The **DB-25** connector provides the data interface for the "EIA530/RS366-DTE" and "EIA530/RS366-DTE-LOS" cables.

- The **DB-37** connector provides the data interface for the "EIA449/RS366-DTE" and "KIV7/RS366-DTE" cables.

- The **DB-25** connector provides the RS-366 signaling interface for all Cisco Unified Videoconferencing 3545 Serial Gateway cables.

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V.35/RS366-DTE

Figure 2-7 shows the V.35/RS366-DTE cable.

Figure 2-7   V.35/RS366-DTE Cable
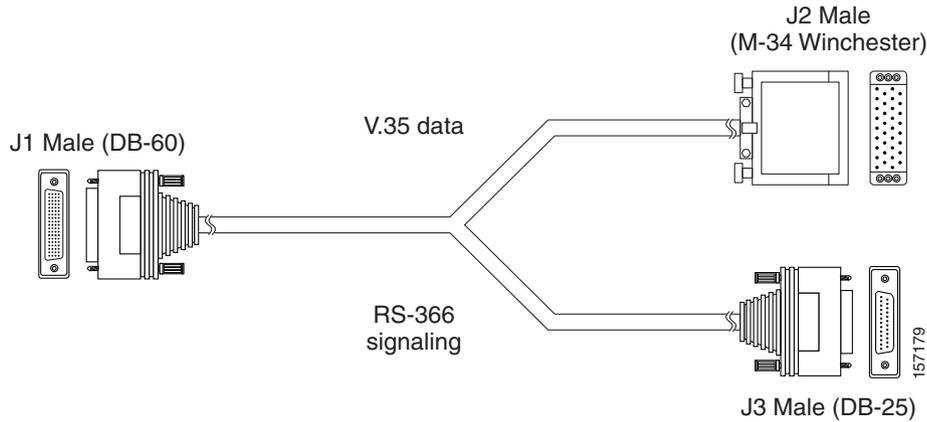
EIA449/RS366-DTE

Figure 2-8 shows the EIA449/RS366-DTE cable.

Figure 2-8   EIA449/RS366-DTE Cable

EIA530/RS366-DTE

Figure 2-9 shows the EIA530/RS366-DTE cable.

Figure 2-9   *EIA530/RS366-DTE Cable*

EIA530/RS366-DTE-LOS

Figure 2-10 shows the EIA530/RS366-DTE-LOS cable.

Figure 2-10   *EIA530/RS366-DTE-LOS Cable*

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EIA530A/RS366-DTE

Figure 2-11 shows the EIA530A/RS366-DTE cable.

Figure 2-11   *EIA530A/RS366-DTE Cable*

KIV7/RS366-DTE

Figure 2-12 shows the KIV7/RS366-DTE cable.

Figure 2-12   *KIV7/RS366-DTE Cable*
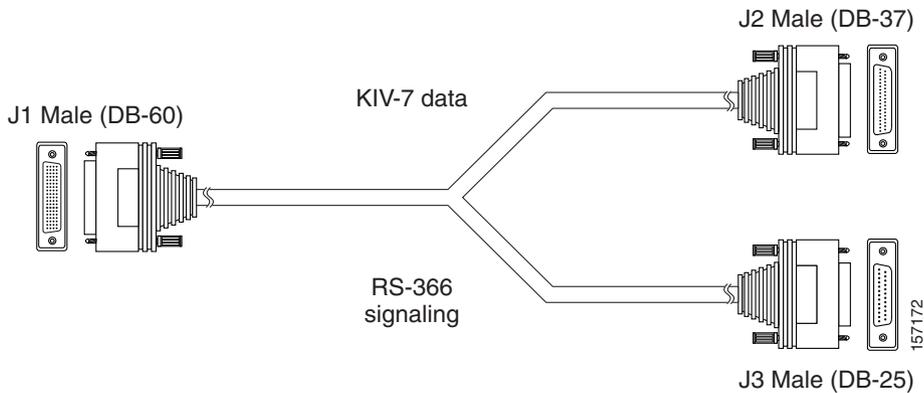
Physical Description of DCE Cables

These are the DCE cables supplied with the Cisco Unified Videoconferencing 3545 Serial Gateway:

- "V.35/RS366-DCE"
- "EIA449/RS366-DCE"
- "EIA530/RS366-DCE"

Note

- The **DB-25** connector provides the data interface for the "EIA530/RS366-DCE" cable.
- The **DB-37** connector provides the data interface for the "EIA449/RS366-DCE" cable.
- The **DB-25** connector provides the RS-366 signaling interface for all Serial Gateway cables.

V.35/RS366-DCE

Figure 2-13 shows the V.35/RS366-DCE cable.

Figure 2-13   V.35/RS366-DCE Cable
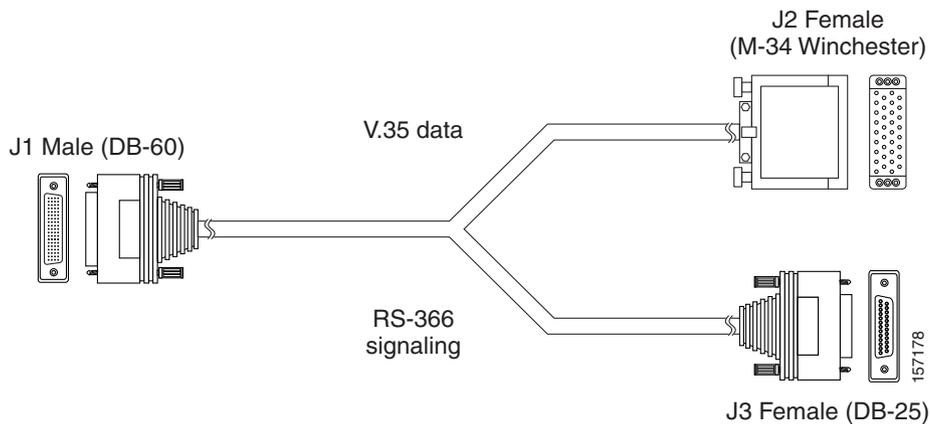
EIA449/RS366-DCE

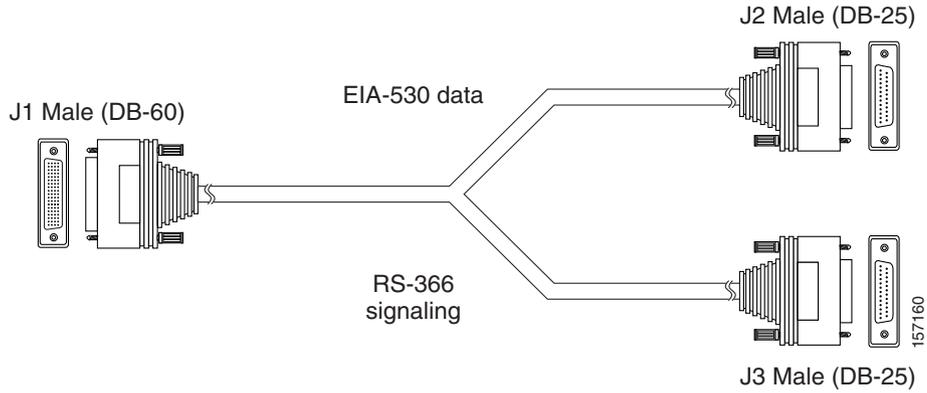Figure 2-14 shows the EIA449/RS366-DCE cable.

Figure 2-14   EIA449/RS366-DCE Cable

EIA530/RS366-DCE

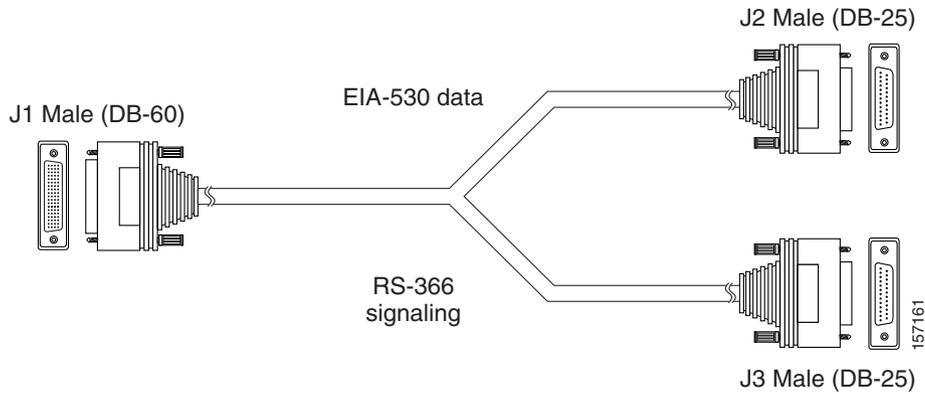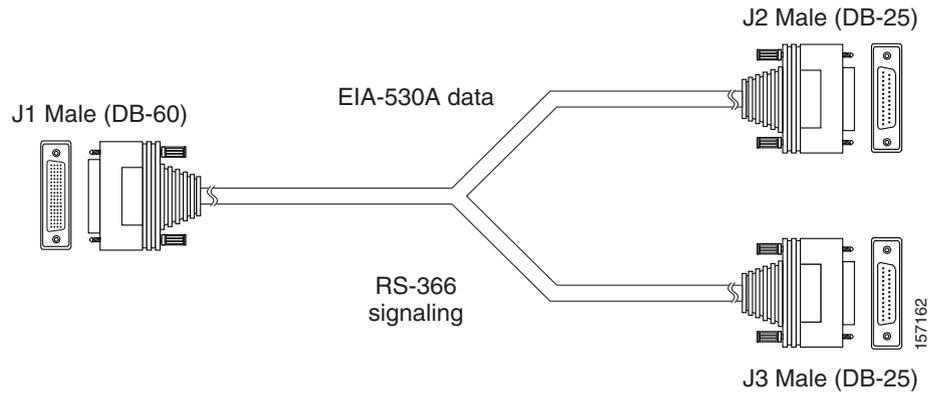Figure 2-15 shows the EIA530/RS366-DCE cable.

Figure 2-15   EIA530/RS366-DCE Cable

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Data Interface Cable Pin-out Configurations

Table 2-7 describes the data interface pin-out configuration for the serial gateway cables.

Table 2-7   Serial Gateway Data Interface Cable Pin-out

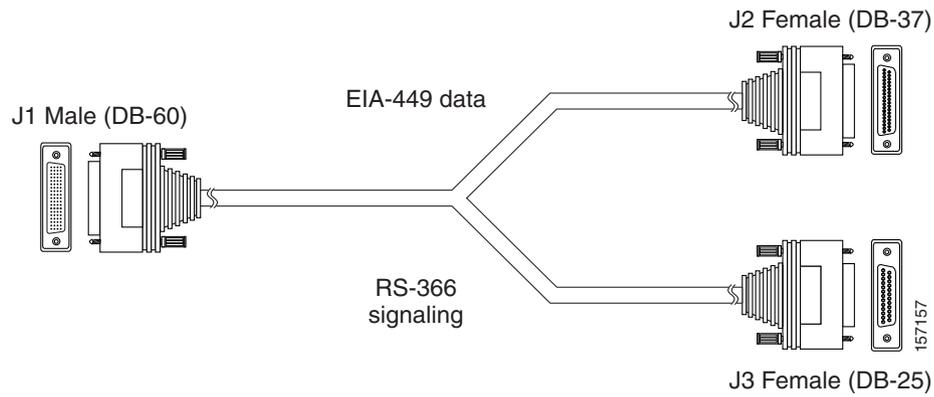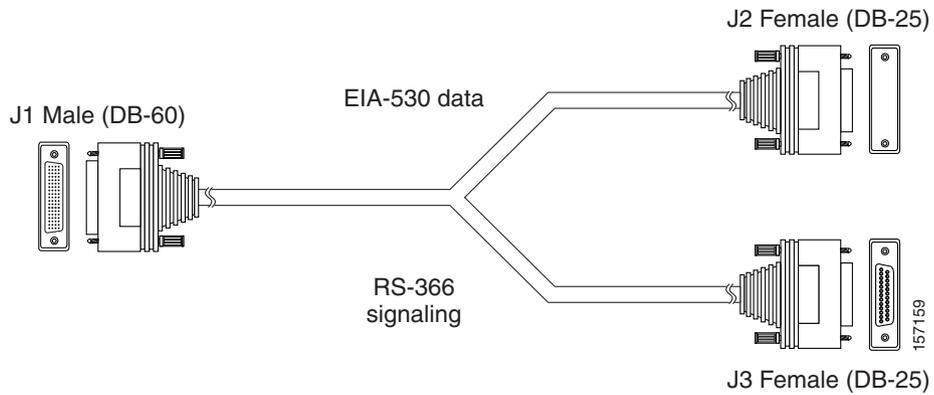| Signal Name	Mnemonic	KIV-7 (DB-37) DTE only	EIA-449 (DB-37)	EIA-530 (DB-25)	EIA-530 LOS (DB-25) DTE only	EIA-530A LOS (DB-25) DTE only	V.35 (M-34)
Shield	—	1	1	1	1	1	A
Transmit Data	TXD A	2	4	2	2	2	P
Transmit Timing	TXC A	15	5	15	15	15	Y
Receive Data	RXD A	3	6	3	3	3	R
Request To Send	RTS A	4	7	4	4	4	C
Receive Timing	RXC A	17	8	17	17	17	V
Clear To Send	CTS A	5	9	5	5	5	D
Data Set Ready	DSR A	6	11	6	6	6	E
Data Terminal ready	DTR A	20	12	20	20	20	H
Carrier Detect	DCD A	8	13	8	8	8	F
Terminal Timing	TT A	24	17	24	24	24	U
Signal Ground	—	27	19	7	7	7	B
Transmit Data	TXD B	14	22	14	14	14	S
Transmit Timing	TXC B	12	23	12	12	12	AA
Receive Data	RXD B	16	24	16	16	16	T
Request To Send	RTS B	19	25	19	19	19	—
Receive Timing	RXC B	9	26	9	9	9	X
Clear To Send	CTS B	13	27	13	13	13	—
Data Set Ready	DSR B	22	29	22	22	—	—
Data Terminal ready	DTR B	23	30	23	23	—	—
Carrier Detect	DCD B	10	31	10	10	10	—
Terminal Timing	TT B	11	35	11	11	11	W
Local Loopback	LL	—	10	18	—	18	L, K
Remote Loopback	RLB	—	14	21	—	21	N
Loss of Sync	LOS unbalanced	31	36	—	—	—	—
Loss of Sync	LOS A	—	3	—	18	—	—
Loss of Sync	LOS B	—	21	—	21	—	—

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Data Interface Pin Layouts

This section illustrates the pin layouts for the serial gateway cable connectors.

M-34 Connector

Figure 2-16 shows the M-34 pin assignment.

Figure 2-16   M-34 Pin Layout

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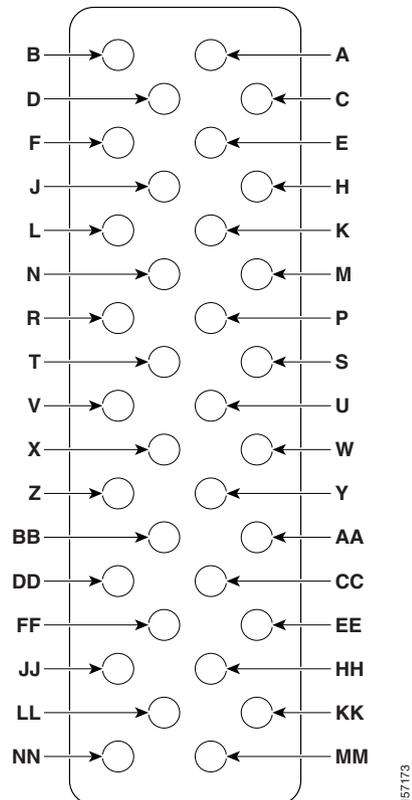
DB-37 Connector

Figure 2-17 shows the DB-37 pin layout.

Figure 2-17   *DB-37 Pin Layout*

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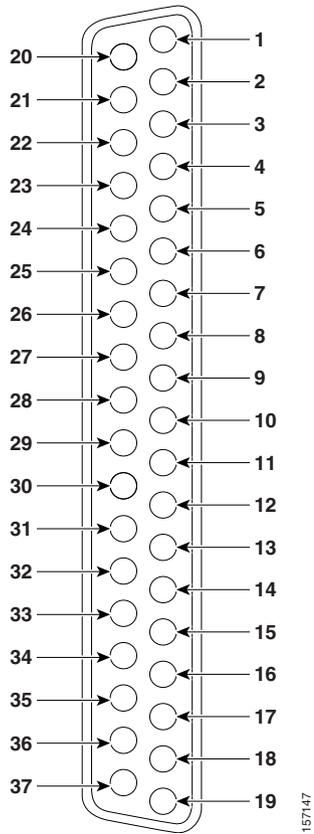
DB-25 Connector

Figure 2-18 shows the DB-25 pin layout.

Figure 2-18   DB-25 Pin Layout
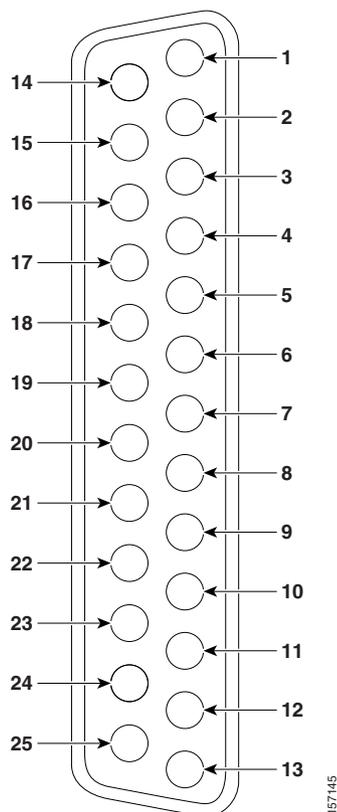
Signaling Interface Cable Pin-out Configuration

Table 2-8 describes the signaling interface pin-out configuration for the serial gateway cables.

Table 2-8   Serial Gateway Signaling Interface Cable Pin-out

Signal Name	Mnemonic	RS-366 (DB-25)
Shield	—	1
Digit Present	DPR	2
Abandon Call & Retry	ACR	3
Call Request	CRQ	4
Present Next Digit	PND	5
Power Indication	PWI	6
Signal Ground	—	7
Distant Station Connection	DSC	13

Table 2-8   Serial Gateway Signaling Interface Cable Pin-out (continued)

Signal Name	Mnemonic	RS-366 (DB-25)
Digit Signal Circuit 1	NB1	14
Digit Signal Circuit 2	NB2	15
Digit Signal Circuit 4	NB4	16
Digit Signal Circuit 8	NB8	17
Receive Common	RC	18
Send Common	SC	19
Data Link Occupied	DLO	22

Signaling Interface Pin Layout

This section illustrates the pin layout for the serial gateway signaling cable connector.

DB-25 Connector

shows the DB-25 pin layout.

Figure 2-19   DB-25 Pin Layout
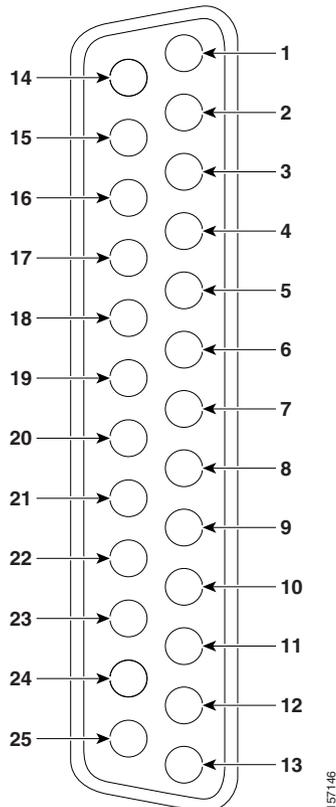
Connecting the Gateway to a Power Source

This section describes how to supply power to the gateway. The gateway is equipped with an autoswitching power supply that supports 100-240 VAC at 50/60 Hz.

Warning   **Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.**

Procedure

Step 1   Plug a power cord into the power socket on the rear panel of the gateway.

Step 2   Connect the power cable to a grounded AC outlet.

Step 3   Turn the power on.

Accessing the Gateway Administrator Interface

The Gateway Administrator is a web interface that allows you to view and configure the gateway hardware and application parameters. You can use the gateway interface to:

- Set administrative parameters to define access to the gateway
- Set gateway application parameters that specify how the gateway processes incoming and outgoing calls
- Set chassis operating parameters for Cisco Unified Videoconferencing 3545 Gateway modules installed in the top slot of a Cisco Unified Videoconferencing 3545 chassis

Before You Begin

These are the requirements for accessing the gateway Administrator web interface:

- A Java-compliant browser. Microsoft Internet Explorer version 5.5 or later is recommended.
- The gateway IP address or a web link to the gateway.
- Administrator level-access
- The required user name and password.

Note   For first-time installation, you must assign an IP address to the gateway using a serial port connection before you can access the web interface. For more information, see the "Setting the IP Address" section on page 2-11.

Procedure

Step 1   Launch your browser and type the IP address or the name of the gateway.

For example, **http://125.221.23.44** or **board_name**.

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Step 2   Type the Administrator user name and password in the appropriate fields and click **Login**. The default global user name is *admin*. The default password is <null>.

Note   If you try to sign in as an Administrator and another Administrator is currently signed in, the gateway signs you in as a **Read only** user and the words *Read Only* appear at the top of the window. **Read only** users cannot edit any of the gateway settings.

Online Help Registration

The online help files for the Cisco Unified Videoconferencing 3545 Gateway Administrator interface are shipped on the Cisco Unified Videoconferencing Software CD-ROM. To use the online help, you must install the help files for the appropriate Cisco Unified Videoconferencing 3545 Gateway in a shared directory on your network and register the directory location in the Administrator interface.

If you wish to install the online help on a shared network location and link it to the Cisco Unified Videoconferencing 3545 Gateway Administrator, see the document *Installing Online Help for Cisco Unified Videoconferencing 3500 Products*.

Netscape Navigator Users

Online help files located on the local network and accessed using Netscape Navigator 4.x must be located on a mapped network drive.

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Using the Cisco Software Upgrade Utility

About the Cisco Software Upgrade Utility

The Cisco Software Upgrade Utility is an interactive GUI interface that enables you to upgrade Cisco software installed on Cisco devices.

The Cisco Software Upgrade Utility enables you to select files to be uploaded via a network or modem connection to the Cisco device. You can select either to perform a typical upgrade which includes all the new files or a customized upgrade which enables you to select which files to upload.

The upgrade files are uploaded and then burned into the memory of the Cisco device.

Note Cisco devices automatically save configuration settings before a software upgrade takes place. However, it is recommended that you save all configuration information using the Export button in the Cisco device web interface toolbar. You can retrieve all these settings after the software upgrade is complete by using the Import button in the Cisco device web interface toolbar.

Launching the Cisco Software Upgrade Utility

Procedure

Step 1 Download the UpgradeUtility.exe file from the Cisco Unified Videoconferencing Software CD-ROM.

Step 2 Double click the UpgradeUtility.exe file to run the Software Upgrade Utility.

The upgrade files are extracted and the **Upgrade Utility** dialog box appears.

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Upgrading Software

You use the Software Upgrade Utility to upgrade Cisco software installed on Cisco devices.

Procedure

Step 1   In the **General Information** section of the **Upgrade Utility** dialog box, enter the IP address of the device you want to upgrade.

Step 2   In the **Login Information** section, enter the administrator user name and password for the target device, as configured in the device network configuration settings.

Step 3   (Optional) Modify the read and write community settings for the target device as follows:

- **Click Customize SNMP Settings.**

    The Customize SNMP Settings dialog box displays.

- **Enter th**e required read community and write community values.

    Note   We recommend that you modify the default settings for security purposes.

- Click **OK** to return to the **Upgrade Utility** dialog box.

Step 4   (Optional) Select the components of the target device you want to upgrade as follows:

- Click **Customize**.

    The **Customize** dialog box appears.

- Check the device components you want to upgrade in the **Select the components you want to upgrade** list.

    Note   The components displayed vary according to the Cisco device upgraded.

- Click **OK** to return to the **Upgrade Utility** dialog box.

Step 5   Click **Upgrade** to upgrade all components of the Cisco device software (or only those components you manually selected via the **Customize** option).

The Cisco Software Upgrade Utility informs you whether or not the upgrade is successful.

Note   When the upgrade is complete, the Cisco device automatically resets itself and starts operation with the new software version.

■

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Cable Connections and Pin-outs

RS-232 9-Pin Serial Port

Table 4-1 describes the Cisco Unified Videoconferencing 3545 chassis RS-232 9-pin D-type serial port pin-out configuration.

Table 4-1   RS-232 9-pin D-Type Serial Port Pin-out

Pin	Function	I/O
1	NC	
2	RXD	Input
3	TXD	Output
4	NC	
5	GND	
6	NC	
7	NC	
8	NC	
9	NC	

9-Pin Serial Port Terminal Cable

Table 4-2 describes the pin-to-pin configuration of the RS-232 terminal cable provided with the Cisco Unified Videoconferencing 3545 chassis.

Table 4-2   S-232 Terminal Cable Pin-to-Pin Configuration

To Chassis (DB-9 Male)	Function	To PC Terminal (DB-9 Female)
2	TXD	3
3	RXD	2
5	GND	5

RJ-45 8-Pin IP Network Port

Table 4-3 describes the pin-out configuration of the RJ-45 IP network port.

Table 4-3   Pin-out Configuration of the RJ-45 IP Network Port

Pin	Function	I/O
1	TXD+	Output
2	TXD+	Output
3	RXD+	Input
4	NC	
5	NC	
6	RXD-	Input
7	NC	
8	NC	

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Circuit Switch Network Port

Table 4-4 describes the circuit switch network port RJ-45 connector pin-out configuration.

Table 4-4   Circuit Switch Network Port RJ-45 Connector Pin-out

Pin	Function
1	RXD +
2	RXD -
3	NC
4	TXD +
5	TXD -
6	NC
7	NC
8	NC

ISDN Port

Table 4-5 describes the ISDN Port RJ-45 connector pin-out configuration.

Table 4-5   ISDN Port RJ-45 Connector Pin-out

Pin	Function
1	RXD +
2	RXD -
3	NC
4	TXD +
5	TXD -
6	NC
7	NC
8	NC

C H A P T E R 5

Technical Specifications

Table 5-1　　　**Cisco Unified Videoconferencing 3545 Chassis Technical Specifications**

Chassis Dimensions	• Height: 2U (3.5 inches or 88.9 mm) • Width: 17.25 inches (438.15 mm) • Depth: 10 inches (254 mm) • Weight: 8 kg (17.64 lbs) empty, 11 kg (24.25 lbs) full—may vary according to configuration
Element Board Dimensions	• Width: 9.19 inches (233.35 mm) • Depth: 6.3 inches (160 mm)
RTM Board Dimensions	• Width: 9.19 inches (233.35 mm) • Depth: 3.15 inches (80 mm)
System Monitoring LED Indicators	• POWER • ALARM • FAN • TEMP
Board LED Indicators	
Front panel	• ETHERNET: 　– Link 　– Connection Speed • GK Reg • CPU High (MCU only) • CD (gateways only) • ALARM • ACT • MC (EMP only)

Table 5-1   Cisco Unified Videoconferencing 3545 Chassis Technical Specifications (continued)

Rear panel (Cisco Unified Videoconferencing 3545 PRI Gateway)	• PRI 1 or 2:
	  – ACT
	  – D-Ch
	  – ALRM

Rear panel (Cisco Unified Videoconferencing 3545 Serial Gateway)	• PORT 1 to 4:
	  – ACT
	  – ALARM

Push Buttons	• RST (front panel)
Communication Interfaces	
Front panel	• Ethernet 10/100 Mbps auto-negotiate speed select • Asynchronous serial port RS-232 connected via 9-pin D-type connector

Rear panel (Cisco Unified Videoconferencing 3545 PRI Gateway)	• 2 x ISDN E1/T1 PRI port:
	  – T1 mode
	Channels: 23B + 1D
	Clock rate: 1.544 Mbps
	Framing: F4, F12, ESF no CRC, ESF, F72
	Encoding: NRZ, AMI-B7, B8ZS
	Line impedance: 100Ω
	  – E1 mode
	Channels: 30B + 1D
	Clock rate: 2.048 Mbps
	Framing: Double framing, CRC4, Extended CRC4
	Encoding: NRZ, CMI, AMI, HDB3
	Line impedance: 120Ω

Rear panel (Cisco Unified Videoconferencing 3545 Serial Gateway)	• 4 x serial ports
Chipset	• PowerPC MPC7410 32-bit RISC microprocessor running at 500MHz. • MPC8260 communication processor running at 300/200MHz.
Operating System	• RTOS, VxWorks 5.4

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Table 5-1   Cisco Unified Videoconferencing 3545 Chassis Technical Specifications (continued)

Memory	• 32 MB on-board flash memory for field upgrades • 2 MB L-2 Cache at 250MHz • 128 MB SDRAM
Failsafe	• Watchdog timer built in
Power supply	• Dual power supply units • Full redundancy • Power on/alarm LED on each unit. • Input 100-240VAC, 50/60Hz, autoswitched • Output + 3.3VDC, + 5VDC, ± 12VDC • Maximum power load 300W
Ventilation Fans	• 2 fan units • Brushless 12V DC motor • Locked rotor detection • Polarity protection • Auto-restart capability

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Safety

Electrical Safety

To avoid an electric shock or damage to the Cisco Unified Videoconferencing 3545 System, servicing should be performed by qualified service personnel only.

To reduce the risk of damaging power surges, Cisco recommends installing an AC surge arrestor in the AC outlet from which the Cisco Unified Videoconferencing 3545 System is powered.

Warning   **Changes or modifications to the device that are not approved by the party responsible for compliance could void the user's authority to operate the equipment.**

Warning   **There is a danger of explosion if the cPCI board battery is incorrectly replaced. Replace with the same type, or an equivalent type recommended by the manufacturer. Dispose of used batteries only according to manufacturer instructions.**

Grounding

The power cable of the Cisco Unified Videoconferencing 3545 System should only be connected to a power outlet that has a protective earth contact. Do not use an extension cord that does not have a protective conductor (ground). The Cisco Unified Videoconferencing 3545 chassis can become dangerous if you interrupt any of the protective conductors (grounding) or disconnect any of the protective earth terminals.

Caution   For North American installations, select a 3-conductor (18 AWG) power supply cord that is UL listed and CSA certified. The cord must be terminated in a molded-on plug cap rated 125V/5A, with a minimum length of 1.5m (6 feet) and no longer than 4.5m (approximately 14 feet).

⚠
Caution   This is a class I unit. In Denmark, use this unit with an AC cord suited to Danish specifications. The cord should include an earthing conductor. Plug the unit into a wall socket outlet which is connected to the protective earth contact. Do not use socket outlets which are not connected to a protective earth contact!

⚠
Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

⚠
Apparatet må tilkoples jordet stikkontakt.

⚠
Apparaten skall anslutas till jordat uttag.

High Voltage

Disconnect the Cisco Unified Videoconferencing 3545 chassis from the power line before removing the cover. Avoid any adjustment, maintenance, or repair of an opened chassis under voltage. These actions should only be carried out by a skilled person who is aware of the dangers involved. Capacitors inside the chassis may still be charged, even if the unit has been disconnected from the power source.

Power Supply

⚠
Caution   Risk of electric shock and energy hazard. Disconnecting one power supply disconnects only one power supply module. To isolate the unit completely, disconnect all power supplies.

ESD Procedures

To prevent damage to Cisco element boards by random electrostatic discharge (ESD), the use of wrist straps is highly recommended.

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Batteries

This product may contain a battery. Recycle or dispose of batteries in accordance with the battery manufacturer's instructions and local/national disposal and recycling regulations.

廢電池請回收

Sicherheit

Dieses Kapitel beschreibt die Sicherheitsvorschriften und -vorgaben zur Bedienung der Cisco Unified Videoconferencing 3545-Plattform einschließlich des Folgenden:

- Elektrische Sicherheit, page 6-4
- ESD-Verfahren, page 6-5
- Warnhinweise, page 6-5

Elektrische Sicherheit

Zur Vermeidung eines elektrischen Schlags oder Schäden an der Cisco Unified Videoconferencing 3545-Plattform darf die Wartung von qualifiziertem Fachpersonal vorgenommen werden.

Cisco empfiehlt zur Minderung des Risikos von Stromstößen die Installation eines Stromableiters in der Stromquelle, aus der die Cisco Unified Videoconferencing 3545 gespeist wird.

Erdung

Das Stromkabel der Cisco Unified Videoconferencing 3545 Plattform darf nur an Stromquellen angeschlossen werden, die einen sch?tzenden Erdkontakt aufweisen. Keine Verlängerungsschnur verwenden, die keinen Schutzleiter (Erdung) aufweisen. Das Cisco Unified Videoconferencing 3545 Gehäuse kann gefährlich werden, wenn einer der Schutzleiter (Erdung) unterbrochen oder einer der schützenden Erdungskontakte abgeklemmt wird.

Hochspannung

Das Cisco Unified Videoconferencing 3545 Gehäuse vom Stromnetz nehmen, bevor die Abdeckung entfernt wird. Anpassungen, Wartung oder Reparaturen eines geöffneten Gehäuses unter Spannung vermeiden. Diese Tätigkeiten dürfen nur von einer qualifizierten Person durchgeführt werden, die sich der Gefahren bewusst ist. Kondensatoren im Gehäuse können immer noch geladen sein, selbst wenn das Gerät bereits vom Stromnetz genommen wurde.

Netzteil

⚠

Gafahr des elektrischen Schocks. Enterfernen des Netzsteckers eines Netzteils spannungsfrei Um alle Einheiten spannungsfrei zu machen, sind die Netzstecker aller Netzteile zu entfernen.

ESD-Verfahren

Zur Vermeidung von Beschädigungen der Cisco Einsatzelemente durch zufällige elektrostatische Entladungen (ESD) wird die Verwendung von Schlaufen sehr empfohlen.

Warnhinweise

- Änderungen oder Modifikationen, die von der für die Einhaltung verantwortlichen Partei nicht ausdrücklich genehmigt sind, können die Erlaubnis zur Nutzung des Geräts durch den Benutzer unwirksam machen.

- Es besteht Explosionsgefahr, wenn die cPCI Steckbatterie nicht richtig eingesetzt wird. Durch denselben oder einen gleichwertigen, vom Hersteller empfohlenen Typersetzen. Entsorgung gebrauchter Batterien nur gemäß der Herstelleranweisungen.

- Die Stromversorgung darf nur von qualifiziertem Fachpersonal ersetzt werden.

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Seguridad

Seguridad Electrica

Para prevenir un choque eléctrico o dañar la plataforma Cisco Unified Videoconferencing 3545, los servicios deben ser hechos solamente por personal de servicios calificados.

Para reducir el riesgo de daño por picos de voltaje, Cisco recomienda la instalación de un supresor de voltaje para corriente alterna AC en el circuito del tomacorriente para la plataforma Cisco Unified Videoconferencing 3545.

⚠ Cambios o modificaciones al dispositivo que no son aprobados por el grupo responsable de su cumplimiento podría invalidar la autoridad del usuario para operar el equipo.

⚠ Existe el peligro de explosión si la batería de la tarjeta cPCI es incorrectamente reemplazada. Reempla cela con una del mismo tipo, o con una equivalente y recomendada por el fabricante. Desechar las baterías usadas solamente de acuerdo a las instrucciones del fabricante.

Tierra

El cable eléctrico de energia para la plataforma Cisco Unified Videoconferencing 3545 debe ser conectado solamente a un receptáculo de enchufe que tiene un contacto protector a tierra. No utilice un cable de extensión sin un conductor protector a tierra. El chasis de la Cisco Unified Videoconferencing 3545 puede ser muy peligroso si usted interrumpe cualquiera de los conductores protectores a tierra, o si usted desconecta cualquiera de los terminales protectores a tierra.

Alto Voltage

Desconecte el chasis Cisco Unified Videoconferencing 3545 de la fuente de suministro de energia antes de remover la tapa. Evite hacer ajustes, mantenimiento o reparar un chasis abierto y encendido. Estas acciones pueden ser hechas solamente por una persona calificada que está conciente de los potenciales peligros. Capacitores dentro del chasis pueden todavía estar cargados, incluso cuando la unidad ha sido desconectada de la fuente de suministro de energia.

Abastecimiento de Electricidad

⚠ Para evitar peligro de golpe eléctrico. Desconectando un solo abastecimiento eléctrico desconectara un solo modulo. Para evitar contacto eléctrico de toda la unidad debe desconectar todos los abastecimientos eléctricos.

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Procedimientos ESD

Para prevenir daño a las tarjetas elementos de Cisco por descargas electrostáticas aleatorias (ESD), el uso de bandas conductoras para descarga en la muñeca de los operadores en el área es altamente recomendado.

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Securite

Cette section décrit les procédures et les exigences en matière de sécurité concernant la mise en exploitation de la Cisco Unified Videoconferencing 3545 System. Les sujets suivants y sont en particulier abordés:

- Sécurité Électrique
- Prevention des Décharges Électrostatiques

Securite Electrique

Afin de prévenir tout risque d'électrocution ou de détérioration de la Cisco Unified Videoconferencing 3545 System, l'entretien doit être effectué exclusivement par des techniciens de maintenance qualifiés.

Afin de réduire le risque de dommages occasionnés par les surtensions électriques, Cisco recommande de brancher un parasurtenseur dans la prise électrique à partir de laquelle la Cisco Unified Videoconferencing 3545 System sera alimentée.

⚠ Apporter des changements ou modifications à l'équipement sans avoir obtenu l'approbation de l'entité responsable de la conformité peut annuler l'autorisation d'utilisation de l'équipement dont bénéficie l'utilisateur.

⚠ Il y a risque d'explosion si la batterie de la carte cPCI n'est pas remplacée correctement. Remplacer par une pile de même type, ou d'un type équivalent recommandé par le fabricant. Ne se débarrasser des piles usagées qu'en suivant les instructions du fabricant.

Mise a la Terre

Le câble d'alimentation électrique de la Cisco Unified Videoconferencing 3545 System doit être connecté uniquement à une prise électrique reliée à une prise de terre. N'utilisez pas de rallonge ne possédant pas de conducteur de protection (terre). Le Cisco Unified Videoconferencing 3545 chassis peut présenter un danger si vous coupez l'un quelconque des conducteurs de protection (terre) ou déconnectez l'un quelconque des équipements terminaux de mise à la terre.

Le connecteur de terre externe doit toujours être relié au circuit de prise de terre.

⚠ Pour les installations d'Amérique du Nord, sélectionnez un cordon d'alimentation électrique à trois conducteurs (18 AWG) bénéficiant d'une inscription UL et certifié CSA. Le cordon doit être terminé par un connecteur moulé et autoriser une intensité de 5 A en 125V; sa longueur doit être comprise entre 1,5 m et 4,5 m.

⚠️ Cette unité est de classe I. Au Danemark, utilisez cette unité avec un cordon d'alimentation électrique conforme aux spécifications danoises. Le cordon électrique doit comporter un conducteur de terre. Branchez l'unité sur une prise électrique murale reliée à la prise de terre. N'utilisez pas de prise électrique non connectée à une prise de terre!

⚠️ En Suède et en Finlande, l'installation ne doit se faire que dans des zones à accès contrôlé.

Haute Tension

Débranchez le Cisco Unified Videoconferencing 3545 chassis de la prise électrique avant d'enlever le couvercle. Évitez toute intervention, opération d'entretien ou réparation sur un châssis ouvert sous tension. Ces actions ne devraient être effectuées que par une personne expérimentée et connaissant les dangers encourus. Certains condensateurs à l'intérieur du châssis peuvent être encore chargés, même après que l'unité a été déconnectée de la source électrique.

Alimentation Electrique

⚠️ Risque d'électrocution et autres dangers liés à l'électricité. Débrancher un câble d'alimentation ne déconnecte qu'un seul module d'alimentation électrique. Pour isoler complètement l'unité, vous devez déconnecter tous les câbles d'alimentation électrique.

Prevention des Decharges Electrostatiques

Afin d'éviter d'endommager les composants des cartes Cisco par suite de décharges électrostatiques imprévues, il est vivement recommandé de porter un bracelet électrostatique.

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Compliance and Certifications

Safety Compliance

The Cisco Unified Videoconferencing 3545 System supports these safety standards:

- UL 60950
- CSA C22.2 No. 60950
- EN 60950
- TS 001
- AS/NZS 60950
- IEC 60950

EMC

The Cisco Unified Videoconferencing 3545 System supports these EMC compliance standards:

- FCC Part 15 (CFR 47) Class A
- ICES-003 Class A
- EN 55022 Class A
- CISPR22 Class A
- AS/NZS CISPR22 Class A
- VCCI Class A
- CISPR24
- EN 55024
- EN 50082-1
- EN 61000-3-2

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- EN 61000-3-3

- EN 61000-6-1

⚠
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.**

FCC Part 15 Notice

This section provides RF interference information for the user.

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 one's own expense.

⚠
Warning   **Changes or modifications to the device that are not approved by the party responsible for compliance could void the user's authority to operate the equipment.**

Telecom

This section lists standards compliance for products that connect to ISDN lines.

- Administrative Council for Terminal Attachments (ACTA) Customer Information.

- Canadian Department of Communications Notice.

- CE CTR3

- CE CTR4

ACTA Customer Information

Step 1   This equipment complies with Part 68 of the FCC rules, and the requirement adopted by the ACTA. On the cover of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX, made out to CLPISR-45023-DW-N. If requested, this information must be provided to the telephone company.

Step 2   Applicable registration jack USOCs (Universal Service Order Codes) for the equipment is RJ48C.

Step 3   A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See Installation Instructions for details.

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Step 4 If the Cisco Unified Videoconferencing 3545 System equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Step 5 The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

Step 6 If trouble is experienced with the Cisco Unified Videoconferencing 3545 System equipment, for repairs or warranty information please contact your Cisco representative for information on service or repairs. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Step 7 Only Cisco Systems, Inc. qualified service personnel may repair the equipment.

Canadian Department of Communications Notice

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. 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. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above condition may not prevent degradation of service in some situations.

Repairs to some certified equipment should be made by an authorized maintenance facility 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 ground connections of the power utility, telephone lines and internal metallic water pipe platform, are connected together. This precaution may be particularly important in rural areas.

⚠
Warning   **Users should not attempt to make such connections themselves, but should contact the appropriate E1/T1/PRI electric inspection authority, or appropriate E1/T1/PRI electrician.**

Environmental Compliance

Cisco complies with the following EU Directives:

- Restrictions on the Use of Hazardous Substances (RoHS) Directive 2002/95/EC
- Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC

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