



Platform Guide for Cisco Unified Videoconferencing 3545 System Chassis

Release 5.x

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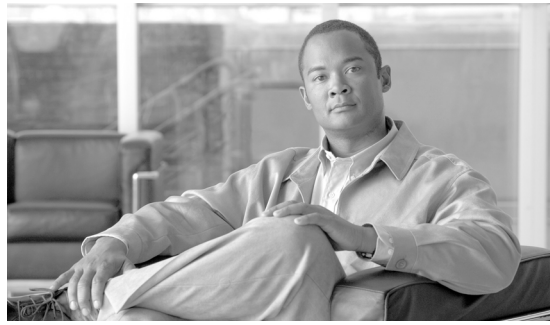
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Preface

Purpose

This guide describes how to use the Cisco Unified Videoconferencing 3545 System chassis.

Audience

This guide is intended for network administrators who need instructions about how to install and configure the Cisco Unified Videoconferencing 3545 System chassis.

Organization

This manual is organized as follows:

Chapter	Description
Chapter 1, “Cisco Unified Videoconferencing 3545 System Chassis Overview”	Provides a general overview of the Cisco Unified Videoconferencing 3545 System chassis.
Chapter 2, “Cisco Unified Videoconferencing 3545 System Device Overview”	Provides a general overview of Cisco Unified Videoconferencing 3545 System products.
Chapter 3, “Cable Connections and Pin-outs”	Describes the pin-to-pin and pin-out configurations of the connectors and cables of the Cisco Unified Videoconferencing 3545 chassis
Chapter 4, “Technical Specifications”	Describes the technical specifications for the Cisco Unified Videoconferencing 3545 chassis.
Chapter 5, “Safety”	Provides certifications that have been approved for the Cisco Unified Videoconferencing 3545 chassis.
Chapter 6, “Compliance and Certifications”	Describes safety procedures and requirements for operating the Cisco Unified Videoconferencing 3545 chassis.

Document Conventions

This document uses the following conventions:

Convention	Description
boldface font	Commands and keywords are in boldface .
<i>italic font</i>	Arguments for which you supply values are in <i>italics</i> .
[]	Elements in square brackets are optional.
{ x y z }	Alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
screen font	Terminal sessions and information the system displays are in screen font.
boldface screen font	Information you must enter is in boldface screen font .
<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .
^	The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords are in angle brackets.

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Cisco.com

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You can access the Cisco website at this URL:

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http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to:

- Report security vulnerabilities in Cisco products.
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- For Emergencies only—security-alert@cisco.com

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- For Nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

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Cisco Technical Support & Documentation Website

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<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

**Note**

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

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Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is down, or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired, while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

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- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco offerings. To order and find out more about the Cisco Product Quick Reference Guide, go to this URL:

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or view the digital edition at this URL:

<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:
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- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:
<http://www.cisco.com/en/US/products/index.html>
- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:
<http://www.cisco.com/discuss/networking>
- World-class networking training is available from Cisco. You can view current offerings at this URL:
<http://www.cisco.com/en/US/learning/index.html>



CHAPTER 1

Cisco Unified Videoconferencing 3545 System Chassis Overview

This section describes the following topics:

- [About the Cisco Unified Videoconferencing 3545 System, page 1-1](#)
- [About the Cisco Unified Videoconferencing 3545 Chassis, page 1-1](#)
- [About the Rear Transition Module, page 1-2](#)
- [Viewing System Indicators, page 1-2](#)
- [Cisco Unified Videoconferencing 3545 Chassis Power Supply, page 1-3](#)

About the Cisco Unified Videoconferencing 3545 System

The Cisco Unified Videoconferencing 3545 System is a high performance, multi-functional chassis that supports mix-and-match functionality. This highly configurable and scalable design provides maximum flexibility for configuring platforms to meet a wide variety of functional and performance application requirements.

The Cisco Unified Videoconferencing 3545 System consists of a number of embedded applications on blades that are inserted into the Cisco Unified Videoconferencing 3545 chassis.

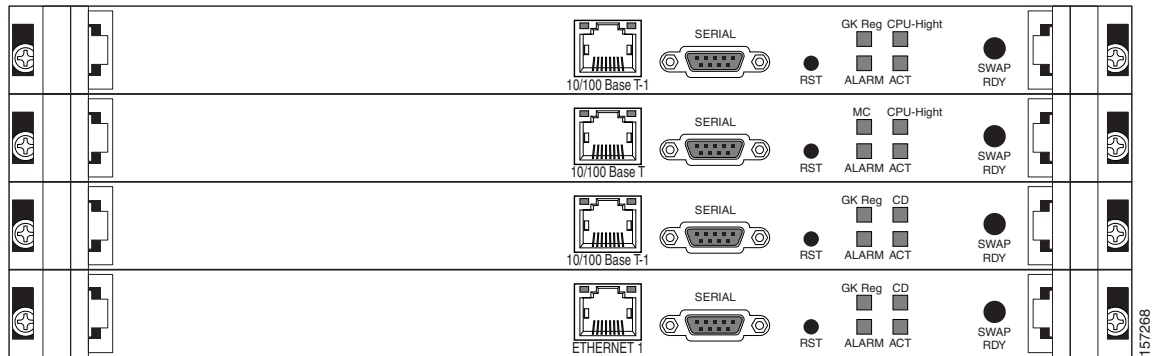
About the Cisco Unified Videoconferencing 3545 Chassis

The Cisco Unified Videoconferencing 3545 chassis is 3.5" (2U) high and can mount in a 19-inch rack. The chassis can accommodate a Cisco Cisco Unified Video conferencing 3545 module in each of its four slots. Each board receives power via the backplane.

There are four slots at the front and rear of the chassis. The front slots are used for the main device boards. The rear slots are used only by gateway Rear Transition Module (RTM) boards which allow a connection to the ISDN or serial network.

The chassis provides easy access for maintenance and board replacement.

Figure 1-1 Cisco Unified Videoconferencing 3545 Chassis Front View



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About the Rear Transition Module

The rear panel of the Cisco Unified Videoconferencing 3545 chassis contains four slots for the insertion of Rear Transition Module (RTM) boards that connect to the chassis backplane. The RTM provides a Circuit Switch Network connection.

Viewing System Indicators

You can view system-level monitoring information by monitoring the LED indicators on the front of the Cisco Unified Videoconferencing 3545 chassis. The LEDs are connected to the chassis System Information Card (SIC).



Note

You can also monitor chassis functions remotely via the web user interface of the MCU or gateway installed in the top slot of the Cisco Unified Videoconferencing 3545 chassis. If you install a Cisco Unified Videoconferencing 3545 EMP Enhanced Media Processor in the top slot of the Cisco Unified Videoconferencing 3545 chassis, monitoring via the web is not available.

System Power Indication

The POWER LED lights green to indicate that the power supply is operating normally. Red indicates that one of the power supply units is malfunctioning.

System Alarm Indication

The ALARM LED lights green to indicate that the system is functioning normally. Red indicates that a system failure has been detected.

System Fan Indication

The FAN LED lights green to indicate that the fans are operating properly. Red indicates a fan failure.

System Temperature Indication

The TEMP LED lights green to indicate that the temperature inside the chassis is within the acceptable range. Red indicates overheating when the temperature reaches and/or passes the upper threshold.

Flashing green and red indicates that the temperature is close to the upper threshold. If the temperature falls below the lower threshold, the LED remains green. The LED flashes green to indicate a sensor malfunction. The upper and lower threshold levels are configurable in the web user interface of the MCU and gateway.

Normal System Startup LED Indications

This section describes the normal LED indications that you should see when the system starts up.

At startup, the normal system monitor LED indications are as follows:

- The POWER LED indicator lights green and remains green.
- The ALARM, FAN and TEMP LED indicators flash twice, alternating between red and green. When the platform initialization is complete, the LED indicators remain green.

Cisco Unified Videoconferencing 3545 Chassis Power Supply

The rear panel of the Cisco Unified Videoconferencing 3545 chassis contains dual power supply units, each with a power switch, an AC mains power connector and a safety fuse. The two PSUs use current sharing to provide redundancy—if one PSU fails, the second PSU can handle the operational load of the chassis until the failed unit is replaced. The PSUs are located to the left of the chassis rear panel., as shown in .

Each power supply has one LED indicator—green to indicate normal operation, red to indicate a malfunction.

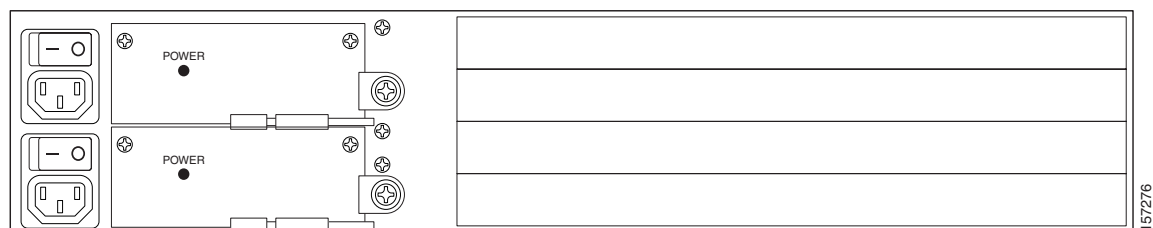
In normal operation, both PSUs display a lit green LED, and the front panel system monitoring POWER LED lights green.



Note

To enable PSU redundancy, connect both power inlets to a power source. If you connect only one power cable, the POWER LED on the chassis front panel and the LED indicator on the PSU not in use will both light red.

Figure 1-2 Cisco Unified Videoconferencing 3545 Chassis Power Supply



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Replacing a Power Supply Unit

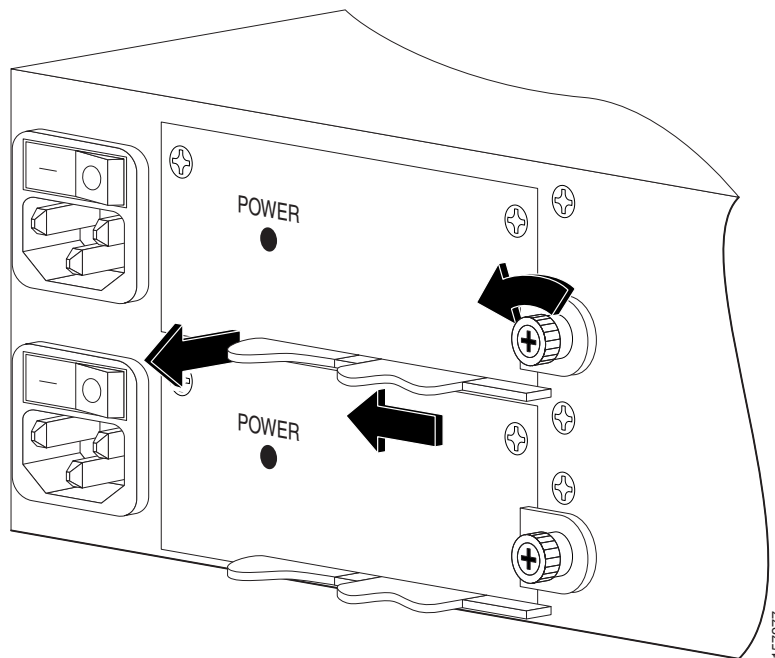
You can remove and replace each power supply unit, even while in operation (Hot Swap). The platform can continue to operate with a single PSU until the second PSU is replaced.

A lever is provided on each PSU to assist in the removal of each unit.

Procedure

-
- Step 1** On the chassis rear panel, loosen the screw of the PSU you want to remove, as shown in .
- Step 2** Firmly grip the handle of the PSU you want to remove. Use your other hand to brace against the chassis and provide leverage.

Figure 1-3 Preparing to Remove a Power Supply Unit



- Step 3** Pull out the PSU slowly, as shown in .



CHAPTER 2

Cisco Unified Videoconferencing 3545 System Device Overview

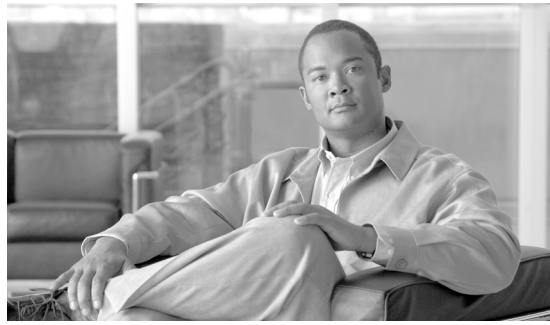
This section introduces the products that the Cisco Unified Videoconferencing 3545 System offers.

About Chassis-based Devices

[Table 2-1](#) briefly describes chassis-based devices.

Table 2-1 *Chassis-based Devices*

Device	Description
Cisco Unified Videoconferencing 3545 MCU	A Multipoint Conferencing Unit that provides advanced functionality for multipoint voice and videoconferencing over IP. Responsible for signaling and audio. When working alone, supports audio conferencing of 96 audio ports. Can be mixed and matched with up to four EMP cards to create a 96 flat port video bridge. The Cisco Unified Videoconferencing 3545 MCU card has no video capabilities.
Cisco Unified Videoconferencing 3545 EMP	A video processing card dedicated to the Cisco Unified Videoconferencing 3545 MCU that can support 24 flat capacity video ports.
Cisco Unified Videoconferencing 3545 PRI Gateway	Holds two PRI interfaces per blade for translation between H.320 and H.323 allowing PSTN endpoints to communicate with H.323 LAN endpoints.
Cisco Unified Videoconferencing 3545 Serial Gateway	Holds four serial interfaces per blade for translation between H.323 and serial protocols.



CHAPTER 3

Cable Connections and Pin-outs

This section describes the following topics:

- [Unit RS-232 9-Pin Serial Port, page 3-1](#)
- [9-Pin Serial Port Terminal Cable, page 3-2](#)
- [RJ-45 8-Pin IP Network Port, page 3-2](#)
- [RJ-45 Serial Port Adapter Cable, page 3-2](#)
- [Circuit Switch Network Port, page 3-3](#)

Unit RS-232 9-Pin Serial Port

[Table 3-1](#) describes the Cisco Unified Videoconferencing 3545 chassis RS-232 9-pin D-type serial port pin-out configuration.

Table 3-1 *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 3-2 describes the pin-to-pin configuration of the RS-232 terminal cable provided with the Cisco Unified Videoconferencing 3545 chassis.

Table 3-2 *RS-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 3-3 describes the pin-out configuration of the RJ-45 IP network port.

Table 3-3 *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	

RJ-45 Serial Port Adapter Cable

Table 3-4 describes the pin-to-pin configuration of the RJ-45 to DB-9 adapter cable used to connect a PC terminal to the RJ-45 serial port. This cable is provided with the Cisco Unified Videoconferencing 3545 chassis.

Table 3-4 *Pin-to-Pin Configuration of the RJ-45 to DB-9 Adapter Cable*

RJ-45 (Male)	DB-9 (Female)	Function
1	NC	
2	NC	
3	3	TXD
4	NC	
5	5	GND

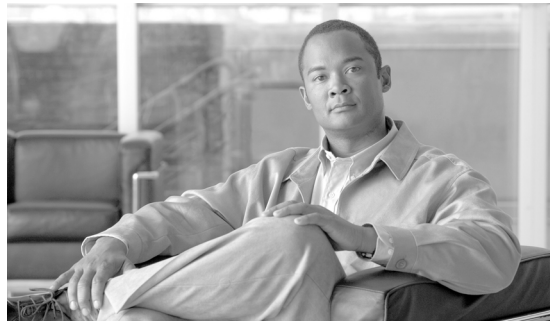
6	2	RXD
7	NC	
8	NC	

Circuit Switch Network Port

Table 3-5 describes the circuit switch network port RJ-45 connector pin-out configuration.

Table 3-5 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



CHAPTER 4

Technical Specifications

This section provides technical specifications for the Cisco Unified Videoconferencing 3545 chassis.

Technical Specifications Table

Table 4-1 Cisco Unified Videoconferencing 3545 Chassis Technical Specifications

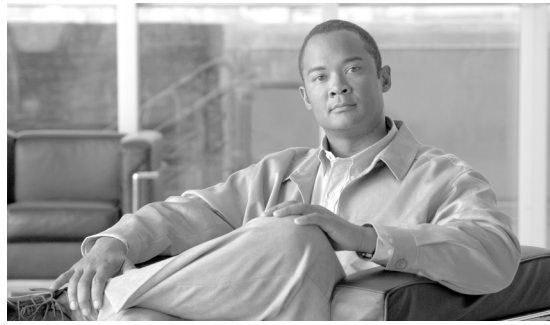
Chassis Dimensions	<ul style="list-style-type: none">• Height: 2U (3.5 inches or 88.9 mm)• Width: 17.25 inches (438.15 mm)• Depth: 10 inches (254 mm)• Weight: 8 kg (17.64 lbs) empty, 11 kg (24.25 lbs) full—may vary according to configuration
Element Board Dimensions	<ul style="list-style-type: none">• Width: 9.19 inches (233.35 mm)• Depth: 6.3 inches (160 mm)
RTM Board Dimensions	<ul style="list-style-type: none">• Width: 9.19 inches (233.35 mm)• Depth: 3.15 inches (80 mm)
System Monitoring LED Indicators	<ul style="list-style-type: none">• POWER• ALARM• FAN• TEMP

Table 4-1 Cisco Unified Videoconferencing 3545 Chassis Technical Specifications (continued)

Board LED Indicators	
Front panel	<ul style="list-style-type: none"> • ETHERNET: <ul style="list-style-type: none"> – Link – Connection Speed • GK Reg • CPU High (MCU only) • CD (gateways only) • ALARM • ACT • MC (EMP only)
Rear panel (Cisco Unified Videoconferencing 3545 PRI Gateway)	<ul style="list-style-type: none"> • PRI 1 or 2: <ul style="list-style-type: none"> – ACT – D-Ch – ALRM
Rear panel (Cisco Unified Videoconferencing 3545 Serial Gateway)	<ul style="list-style-type: none"> • PORT 1 to 4: <ul style="list-style-type: none"> – ACT – ALARM
Push Buttons	<ul style="list-style-type: none"> • RST (front panel)
Communication Interfaces	
Front panel	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 2 x ISDN E1/T1 PRI port: <ul style="list-style-type: none"> – T1 mode <p>Channels: 23B + 1D Clock rate: 1.544 Mbps Framing: F4, F12, ESF no CRC, ESF, F72 Encoding: NRZ, AMI-B7, B8ZS Line impedance: 100Ω</p> <ul style="list-style-type: none"> – E1 mode <p>Channels: 30B + 1D Clock rate: 2.048 Mbps Framing: Double framing, CRC4, Extended CRC4 Encoding: NRZ, CMI, AMI, HDB3 Line impedance: 120Ω</p>

Table 4-1 Cisco Unified Videoconferencing 3545 Chassis Technical Specifications (continued)

Rear panel (Cisco Unified Videoconferencing 3545 Serial Gateway)	<ul style="list-style-type: none"> • 4 x serial ports
Chipset	<ul style="list-style-type: none"> • PowerPC MPC7410 32-bit RISC microprocessor running at 500MHz. • MPC8260 communication processor running at 300/200MHz.
Operating System	<ul style="list-style-type: none"> • RTOS, VxWorks 5.4
Memory	<ul style="list-style-type: none"> • 32 MB on-board flash memory for field upgrades • 2 MB L-2 Cache at 250MHz • 128 MB SDRAM
Failsafe	<ul style="list-style-type: none"> • Watchdog timer built in
Power supply	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 2 fan units • Brushless 12V DC motor • Locked rotor detection • Polarity protection • Auto-restart capability



CHAPTER 5

Safety

This section describes the following topics:

- [Electrical Safety, page 5-1](#)
- [ESD Procedures, page 5-2](#)

Electrical Safety

To avoid an electric shock or damage to the Cisco Unified Videoconferencing 3545 chassis, 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 chassis 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

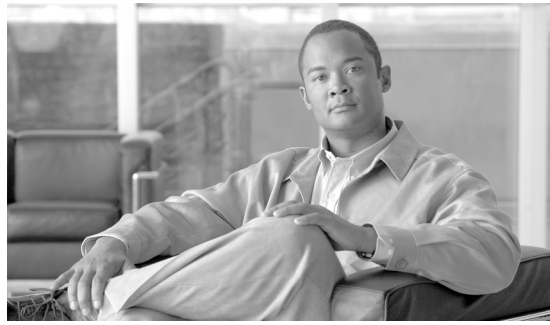
The power cable of the Cisco Unified Videoconferencing 3545 chassis should only be connected to a power outlet that has a protective earth contact. Do not use an extension cord that does not have a protective conductor (ground). The Cisco Unified Videoconferencing 3545 chassis can become dangerous if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

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.

ESD Procedures

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



CHAPTER 6

Compliance and Certifications

This section describes the following topics:

- [Safety Compliance, page 6-1](#)
- [EMC, page 6-1](#)
- [Telecom, page 6-2](#)

Safety Compliance

This section lists the safety standards supported by the Cisco Unified Videoconferencing 3545 System.

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

EMC

This section lists the EMC compliance for the Cisco Unified Videoconferencing 3545 System.

- 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

- 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.

- 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.



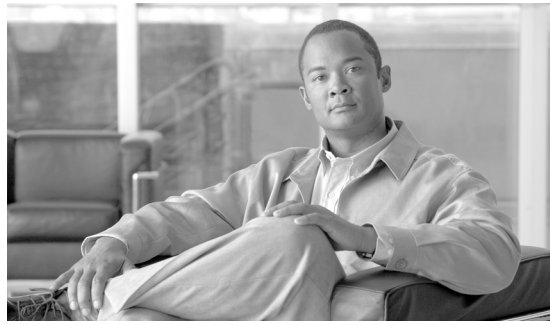
Warning

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.

Environment

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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