Installation Guide for Cisco Unified Videoconferencing 5100 Series MCU Release 7.1

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CHAPTER 1

Cisco Unified Videoconferencing 5100 Series MCU Functionality

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- About Cisco Unified Videoconferencing 5100 Series MCU Architecture, page 1-6
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About the Cisco Unified Videoconferencing 5100 Series MCU

The Cisco Unified Videoconferencing 5100 Series MCU enables multimedia, multiparty collaboration in applications such as group conferencing, distance learning, training and video telephony. The Cisco Unified Videoconferencing 5100 Series MCU supports multimedia, multiparty communications in the board room, at the desktop, in the home, or on the road over wireless.

The Cisco Unified Videoconferencing 5100 Series MCU provides core IP-centric functionality, a wide range of layouts, powerful audio and video transcoding, support of web-initiated data collaboration, and software upgradeable technology. The system can be fully customized according to the needs of the administrator.

Main Features

Table 1-1 lists the main features provided by the Cisco Unified Videoconferencing 5100 Series MCU for effective audio and videoconferencing and a satisfying user experience.

Table 1-1 Summary of Cisco Unified Videoconferencing 5100 Series MCU Features

Feature	Description
Superior video processing	Video and audio processing is carried out per user rather than per conference. Each user connects using unique, optimized audio and video settings to enjoy the best audio and video quality supported by their endpoint and network, without affecting the other participants in a conference.
Seamless interoperability	The Cisco Unified Videoconferencing 5100 Series MCU is built on the strong foundation of the Cisco H.323 and SIP software, ensuring full compliance and unmatched interoperability with IP and ISDN networks. The Cisco Unified Videoconferencing 5100 Series MCU enables H.323, SIP and SCCP devices to participate in the same conference session. When used with the Cisco Unified Videoconferencing 3545 Gateway, the MCU also enables ISDN and V.35 wireless devices to participate in the same conference session.
SVC error resiliency	The Cisco Unified Videoconferencing 5100 Series MCU supports SVC error resiliency for unmanaged networks using Temporal Scalability and Forward Error Correction (FEC).
Intuitive web-based management and control	Both the Cisco Unified Videoconferencing 5100 Series MCU system and actual conference sessions are managed, configured, and dynamically modified through an intuitive, web-based interface that offers easy, high-level conference control and administrative flexibility for an enhanced user experience.
Unlimited number of conferences	The number of supported conferences is limited only by the number of ports provided by your license.

Feature	Description
In-meeting indicators	A range of messages and icons are displayed on the endpoint monitor during conferences when certain operations occur, including when a participant joins or leaves a conference, an audio-only participant speaks, and a participant's personal video layout changes.
Personal layouts per participant	Fully customizable personal video layouts for each conference participant.
Single LAN connection	Only a single Ethernet connection is required for the entire Cisco Unified Videoconferencing 5100 Series MCU system.
Snapshot files for Customer Support	One-click creation of a file of bundled logs and configuration files which you can send to Cisco Customer Support for debugging.
Supported protocols	• H.323 version 5.5.1 • SIP RFC 3261 for the Session Initiation Protocol • SCCP • H.243 for conference control • RFC 2833 for in-band DTMF with SIP • H.281 for far end camera control (FECC) • H.235 for IP-based media encryption • H.239 for standard simultaneous transmission of live video and presentation sharing feeds. • SDP (RFC 3264, 2327) • H.320 (when using a Gateway) **Note** The MCU supports calls from H.323 and SIP endpoints in the same conference. Call signaling is handled on all ports regardless of the protocol type.
Audio transcoding codecs	• G.711 A/μ Law • G.722 • G.722.1 • Polycom® Siren14™/G.722.1 Annex C • G.729 A and B

Feature	Description
Unmatched video quality	The MCU delivers exceptionally high quality video and audio processing, using latest industry standards and upgradeable DSP chip software. The MCU achieves the best video quality by supporting the following video capabilities: • SVC error resiliency • High definition and standard definition participants in the same conference. • A choice of 22 layouts • H.263 and H.264 in the same conference • Resolutions from QCIF to 1080p in the same conference • A choice of 20 layouts • Up to 12Mbps on each stream without affecting capacity • Resolutions from CIF to 1080p in the same conference • VGA, SVGA, XGA (supported for presentation channel only)
Security and privacy	• Administrator and operator password protection for accessing the MCU web interface. • Optional PIN protection for joining a conference and web access. • Additional PIN protection for conference Moderator Control. • The MCU uses H.235-based encryption to achieve secure communication with endpoints that support this standard.
In-conference control using DTMF or H.243	During a conference, participants may use their endpoint remote control or keypad to perform actions such as mute, volume control, changing video layouts and inviting participants. Users interact with the MCU via DTMF signaling or the on-screen GUI of H.243-compliant endpoints. These options are presenting in the in-meeting menu displayed on top of the video layout.

Feature	Description
Optional no self see	The no self-see (NSS) option is enabled by default, but can be disabled with an advanced command. This feature enables more effective use of the video screen.
Interactive Voice Response (IVR) messages	The MCU includes pre-recorded greetings to conference participants and announcements as each new participant joins the conference. You can record messages to provide custom greetings and announcements.
HD switching	The MCU supports the switching of HD resolutions 720p and 1080p at up to 12 Mbps at the capacity of up to 120 calls. Switching is available for H264 and H261 codecs.

Call Capacity

The Cisco Unified Videoconferencing 5100 Series MCU provides a flat capacity of 10 ports (for the 5110 unit) and 15 ports (for the 5115 unit), regardless of the call bit rate or resolution. Each video call consumes a single port.

High Definition calls can connect at up to 1080p at 30fps.

Enhanced Definition calls can connect at up to 4CIF/352p at 30fps.

In some cases, the frame rate of calls using 4CIF might drop, but not to less than 15fps.

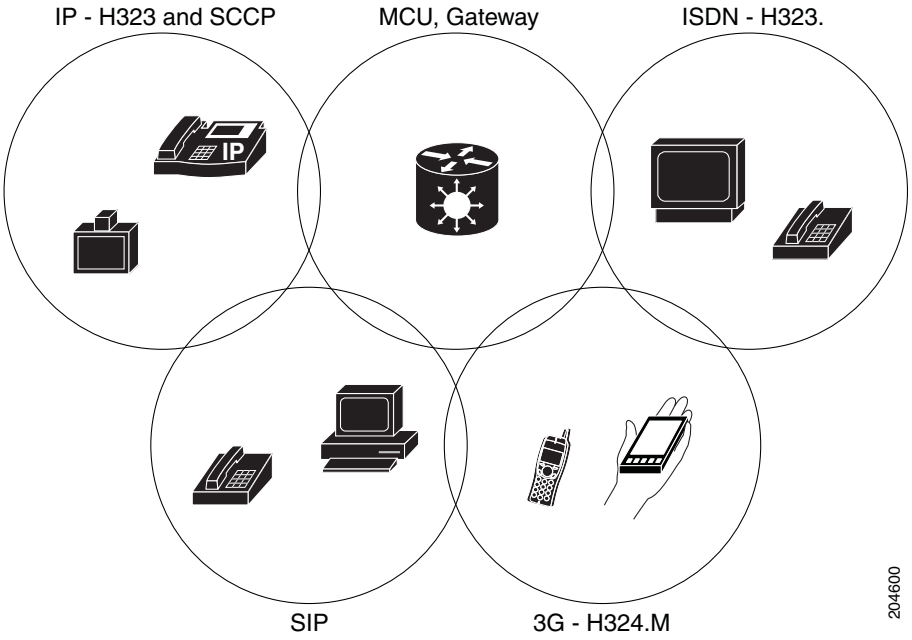
The MCU provides the following call capacity:

	5110 Chassis	5115 Chassis
Form Factor	1U	1U
High definition continuous presence ports (up to 1080p at 30fps)	10	15
High definition video switching ports	40	60
Enhanced definition (352p) continuous presence ports (up to 325p or 4CIF — with licence option)	40	60

About Cisco Unified Videoconferencing 5100 Series MCU Architecture

The Cisco Unified Videoconferencing 5100 Series MCU enables both voice-only and video conference calls for H.323, SIP, H.320, SCCP and regular PSTN network phones. H.323 and SIP devices can connect to a conference directly through the Cisco Unified Videoconferencing 5100 Series MCU. Other devices such as phones and video conferencing terminals (H.320) can connect to a conference via a gateway, such as the Cisco Unified Videoconferencing 3500 Gateway.

Figure 1-1 Supported Devices and Protocols



The Cisco Unified Videoconferencing 5100 Series MCU supports devices that can send and receive video streams, as well as those that cannot send but only receive video streams. This means that terminals without a video camera or video capturing capabilities can participate in a conference as voice-only participants while benefiting from seeing the other participants.

About Cisco Unified Videoconferencing 5100 Series MCU Topologies

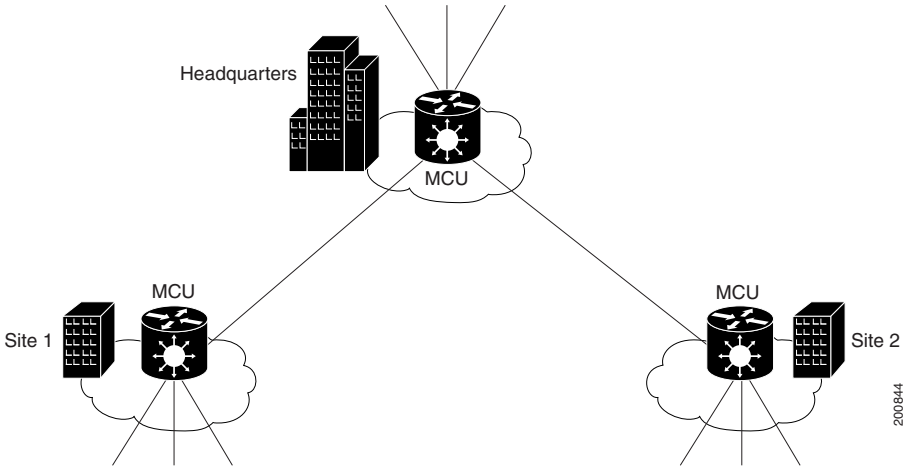
The Cisco Unified Videoconferencing 5100 Series MCU can work in a centralized or cascaded topology. This section describes these two options.

- Centralized Topology, page 1-7
- Cascaded Conferences, page 1-7

Centralized Topology

In a centralized topology, the MCU performs media processing for all connected terminals, regardless of their location. The MCU can handle multiple conferences simultaneously.

Figure 1-2 Centralized Topology



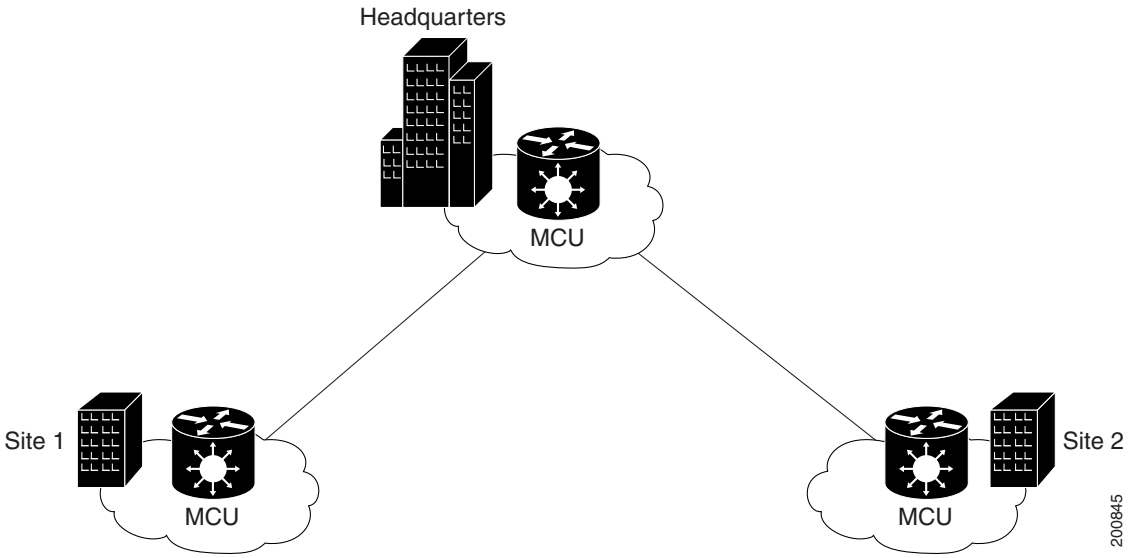
Cascaded Conferences

The MCU allows you to combine two or more conferences resulting in a larger conference with many more participants. This is called cascading. Cascading creates a distributed environment that helps reduce the drain on network resources. In addition, the processing resources required by the MCU are distributed between participating MCUs. Costly phone or ISDN line usage can be further reduced with the mediation of a gateway.

Cascading occurs when one conference with “x” number of participants invites another conference with “y” number of participants. The two conferences effectively become one large conference. The bandwidth required across a cascaded conference link is only that of one audio/video stream between the two conferences. This is significantly less than the accumulated bandwidth of all the participants. Each separate MCU participating in a conference retains control of its individual conference resources and participants.

The cascaded conference in Figure 1-3 on page 1-8 minimizes the use of network bandwidth while distributing processing among the participating MCUs.

Figure 1-3 Cascaded Conference



CHAPTER 2

Rack Mounting the Cisco Unified Videoconferencing 5100 Series MCU

This section describes how to mount a Cisco Unified Videoconferencing 5100 Series MCU onto a 19-inch rack.Before you can rack-mount a MCU chassis, you need to install brackets that form a shelf on which to place it. The brackets and screws are supplied in the Cisco Unified Videoconferencing 5100 Series MCU Rack Mounting Kit. Once you have installed the brackets, you can then mount the Cisco Unified Videoconferencing 5100 Series MCU chassis.

Note The MCU chassis is heavy. Do not attempt to lift it by yourself. Have someone assist you.

This document covers both how to install the brackets and how to rack-mount the MCU chassis.

- What to Consider Before Installing the Brackets, page 2-1
- Mount Kit Description, page 2-2
- Installing the Brackets, page 2-2
- How to Rack Mount the MCU, page 2-3

What to Consider Before Installing the Brackets

When planning your rack installation, consider the following guidelines:

- Install the MCU in an open rack whenever possible. If installation in an enclosed rack is unavoidable, ensure that the rack has adequate ventilation.
- Avoid placing the MCU in an overly congested rack or directly next to another equipment rack. Otherwise, the heated exhaust air from other equipment can enter the inlet air vents and cause the MCU to overheat.
- The height of the chassis is 1.73 inches (44mm).
- Maintain a minimum clearance of 3 inches (7.62 cm) on the left and right of the chassis for the cooling air inlet and exhaust vents.
- Allow sufficient clearance around the rack for maintenance. If the rack is mobile, you can push it back near a wall or cabinet for normal operation and pull it out when necessary for maintenance (installing or moving port adapters, connecting cables, or replacing or upgrading components). Otherwise, allow 19 inches (48.3 cm) of clearance to remove MCU Field Replaceable Units.

Mount Kit Description

The Cisco Unified Videoconferencing 5100 Series MCU Rack Mounting Kit contains brackets and screws as shown in Figure 2-1. The contents are listed in Table 2-1.

Figure 2-1 Cisco Unified Videoconferencing 5100 Series MCU Rack Mounting

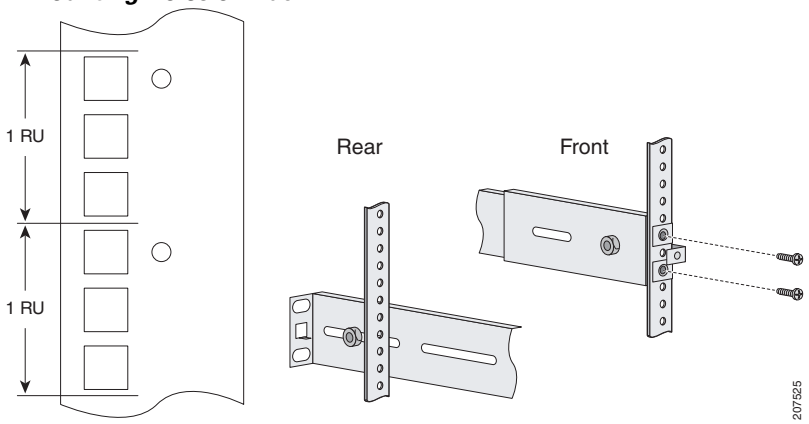
Table 2-1 Rack-Mount Kit

Item	Quantity	Part Description
1	1	Right Mounting Bracket
2	1	Left Mounting Bracket
3	4	Hexagon socket cap screw M6x10 (Din 7984)

Installing the Brackets

You must install the side rails into a rack with square or round holes:

Figure 2-2 Mounting Holes on Rack



Note If you mount the side rails in holes that are not vertically aligned from side to side, you can damage the unit.

Procedure

Step 1 On the left and right uprights, determine the vertical position in the rack where the unit will be installed.

Step 2 The unit is 1U. Measure the distance between mounting holes an place the cage nuts accordingly.

Step 3 Ensure the port adapter latch is in the locked position and the screw is tightened.

Step 4 Ensure the rack breaks are locked or the rack is stabilized.

How to Rack Mount the MCU

- Safety Guidelines, page 2-3
- Chassis Lifting Guidelines, page 2-4
- Rack Mounting the Cisco Unified Videoconferencing 5100 Series MCU, page 2-4
- Attaching the System Ground, page 2-5

Safety Guidelines

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

Follow these basic guidelines when working with any electrical equipment:

- Before beginning any procedures requiring access to the chassis interior, locate the emergency power-off switch for the room in which you are working.
- Disconnect all power and external cables before moving a chassis.
- Do not work alone when potentially hazardous conditions exist.
- Never assume that power has been disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.
- To prevent the MCU from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 113°F (45°C).

Chassis Lifting Guidelines

A fully configured Cisco Unified Videoconferencing 5100 Series MCU chassis weighs approximately 28.7lbs. (13kg.). The chassis is not intended to be moved frequently. Before you install the MCU, ensure that your site is properly prepared, so you can avoid having to move the chassis later to accommodate for power sources and network connections.

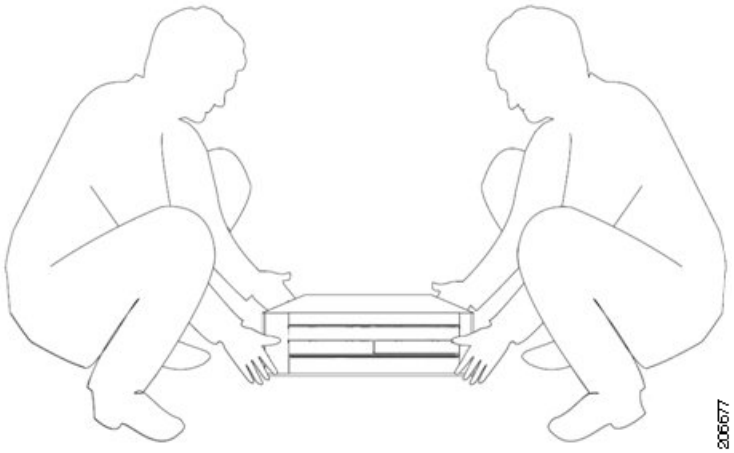
Whenever you lift the chassis or any heavy object, follow these guidelines:

- Always disconnect all external cables before lifting or moving the chassis.
- Do not attempt to lift the chassis by yourself; have someone assist you.
- Ensure that your footing is solid, and balance the weight of the object between your feet.
- Lift the chassis slowly; never move suddenly or twist your body as you lift.
- Keep your back straight and lift with your legs, not your back. If you must bend down to lift the chassis, bend at the knees, not at the waist, to reduce the strain on your lower back muscles.

Lift the chassis from the bottom. Grasp the underside of the chassis exterior with both hands.

Figure 2-3 shows how to lift the Cisco Unified Videoconferencing 5100 Series MCU chassis.

Figure 2-3 How to lift the Cisco Unified Videoconferencing 5100 Series MCU



Rack Mounting the Cisco Unified Videoconferencing 5100 Series MCU

After you have installed the brackets to form a shelf, you can now mount the Cisco Unified Videoconferencing 5100 Series MCU chassis. Before mounting the chassis, read the "Safety Guidelines" section on page 2-3 and the "Chassis Lifting Guidelines" section on page 2-4.

To rack mount the Cisco Unified Videoconferencing 5100 Series MCU chassis, you need:

- Installed brackets in the location on the rack in which to mount the chassis, as explained in the "Installing the Brackets" section on page 2-2.
- A Cisco Unified Videoconferencing 5100 Series MCU chassis.
- Two people: This is not a one-person task.

Figure 2-4 Cisco Unified Videoconferencing 5100 Series MCU chassis

Note If you mount the chassis in holes that are not vertically aligned from side to side, you can damage the unit.

Procedure

Step 1 Lift the Cisco Unified Videoconferencing 5100 Series MCU chassis according to the instructions in the "Chassis Lifting Guidelines" section on page 2-4

Step 2 Ensure the front of the chassis faces front and place the chassis on the shelf brackets.

Step 3 Locate one person at the front of the rack and one at the rear.

Step 4 Position the chassis so that the "L" brackets are inserted into the chassis mounting brackets.

Step 5 While one person supports the weight of the chassis, the other person must adjust the "L" brackets to fit tightly into the chassis brackets.

Step 6 Slide the chassis toward the front of the rack until the front of the chassis mounting brackets contact the rear of the center posts.

Step 7 Using the rack screws, attach the front of the mounting brackets to the front of the center posts.

Step 8 Tighten all screws.

Attaching the System Ground

Before connecting power or turning ON power to the MCU, it strongly recommend that you provide an adequate chassis ground (earth) connection for the chassis.

You must use size AWG 18 (1 mm2) or larger wire, and an appropriate user-supplied ring terminal.

Note This equipment must be grounded. 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. Connect the AC power receptacle to the AC power source with the provided power cable.

CHAPTER 3

Installing the Cisco Unified Videoconferencing 5100 Series MCU

- Cisco Unified Videoconferencing 5100 Series MCU Chassis Main Features, page 3-1
- Front and Rear Views of the Cisco Unified Videoconferencing 5100 Series MCU Chassis, page 3-2
- Cisco Unified Videoconferencing 5100 Series MCU Configuration, page 3-2
- Accessing the MCU Interface, page 3-6

Cisco Unified Videoconferencing 5100 Series MCU Chassis Main Features

The Cisco Unified Videoconferencing 5100 Series MCU chassis is a 1U chassis that contains one Cisco Unified Videoconferencing 5100 Series MCU.

Table 3-1 Main Features of the Cisco Unified Videoconferencing 5100 Series MCU Chassis

Grounding and electrostatic discharge	• The chassis includes an external GND 4mm stud as per the TUV requirement). • The chassis includes 4mm banana jacks for a 4.5mm plug or a standard 0.166" plug, as per the PICMG 3.0 specification.
Cooling	The chassis supports a single failed fan in the fan tray.
Power supply	• Default AC power supply as the default choice. • Universal 90-264 VAC power ports. AC power entry includes regular IEC320-C14 filtered AC inlet and double pole switch located in the rear. • Thermal shutdown if the unit heats up beyond its limits.

Front and Rear Views of the Cisco Unified Videoconferencing 5100 Series MCU Chassis

Figure 3-1 Chassis Front Panel

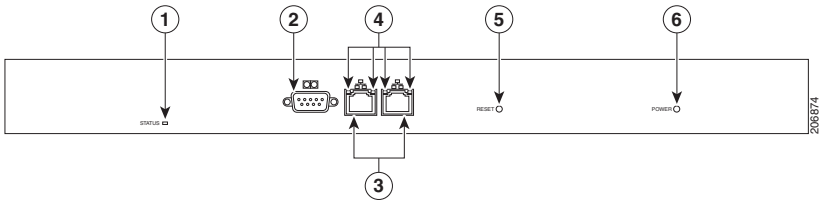


Table 3-2 Cisco Unified Videoconferencing 5100 Series MCU Panel Features

	Component	Description
1	STATUS LED	Lights green to indicate normal operation. Lights red to indicate that an error has occurred and that the Media Blade requires resetting.
2	Serial connector	A DB-9 connector that allows you to connect a PC terminal for local configuration, maintenance and debugging.
3	100/1000 BASE-T Ethernet connectors	RJ-45 connectors that provide the primary LAN connection for the IP network port.
4	Ethernet connector Link/Activity LEDs	The top part of each Ethernet connector contains two LED indicators. The right LED lights green when the local IP network link is active. The left LED lights green if the connection speed reaches 1000 Mbps, and lights orange if the connection speed reaches 100 Mbps.
5	RESET button	Allows you to reset the MCU manually.
6	Power LED	Lights green to indicate that the power is turned on.

Figure 3-2 Chassis Rear Panel

Cisco Unified Videoconferencing 5100 Series MCU Configuration

- Setting Ethernet Speed and Duplex Parameters, page 3-3
- Setting the IP Address, page 3-3
- Initial Configuration and Boot Phases, page 3-5
- Changing the Global User Name and Password, page 3-5
- Accessing the MCU Interface, page 3-6

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 5100 Series MCU to use.

Procedure

Step 1 Access the Cisco Unified Videoconferencing 5100 Series MCU through the serial port and start the terminal emulator session.

Note If the Cisco Unified Videoconferencing 5100 Series MCU 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 10 seconds.

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

The Advanced Configuration menu appears.

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

Step 5 Enter the appropriate number or letter at the prompt for one of these options:

- 1 - 100Mbps Half Duplex
- 2 - 100Mbps Full Duplex
- 3 - Auto Negotiation
- Other - Quit

Note We recommend that you select "3 - Auto Negotiation".

Step 6 Press **Enter**.

The network configuration Main menu appears.

Step 7 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.

Setting the IP Address

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

Before You Begin

Gather these items to assign an IP address to the MCU:

- Dedicated IP address for the MCU
- Dedicated subnet mask for the MCU

- IP address of the default router the MCU uses to communicate over the network
- PC with available serial port and terminal emulator software installed
- Serial cable

Procedure

Step 1 Connect the power cable.

Step 2 Start the terminal emulation application on the PC.

Step 3 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 4 Turn on the power to the MCU.

A log of the auto-boot events scrolls across the computer monitor.

Step 5 When the message "Press any key to start configuration" appears on the screen, press any key within 10 seconds.

The network configuration Main menu appears:

```
Main menu
N: Configure default network port values
P: Change the configuration software password
S: Configure network security level
T: Configure TFTP servers list
A: Advanced configuration menu
Q: Quit
```

Note If you do not press a key before the countdown ends, the device continues its initialization and you will need to reboot the device to return to the network configuration Main menu.

Step 6 Enter N at the prompt to configure default network port values and press **Enter**.

Step 7 Enter 2 to change the network configuration.

Step 8 Enter the IP address you want to assign to the MCU at the Enter IP address for default interface prompt and press **Enter**.

Note Do not use leading zeros in the IP address.

Step 9 Enter the subnet mask without leading zeros at the Enter IP Mask for default device prompt and then press **Enter**.

If you are not using a subnet mask, press **Enter**.

Step 10 Allow the unit to complete the reboot process. A new emulator session begins.

Step 11 Close the terminal emulator session.

Initial Configuration and Boot Phases

The first time you install the MCU, you assign an IP address to the MCU using a terminal cable connection to access the boot configuration menu.

Note You can perform serial port configuration of the Cisco Unified Videoconferencing 5100 Series MCU unit only at startup, if you choose to enter the configuration menu—within a minute—when indicated. Once the boot phase is complete, the only way you can access the configuration menu is by restarting the Cisco Unified Videoconferencing 5100 Series MCU unit.

Changing the Global User Name and Password

You can change the global user name and password that the MCU uses. You use this user name and password to access the configuration web page for the MCU. The user name and password are required for these tasks:

- Starting a Telnet session to monitor the MCU
- Upgrading the MCU software
- Uploading Interactive Voice Response (IVR) messages to the MCU configuration memory

The default global user name is *admin*. The default password is *password*.

Procedure

Step 1 Start a terminal emulator session as described in the Setting the IP Address, page 3-3.

Step 2 Enter **P** at the prompt.

Step 3 Enter the name that you want to use as the global user name at the **Enter User name** prompt, and press **Enter**.

Step 4 Enter the password that you want to use at the **Password** prompt, and press **Enter**.

The network configuration Main menu appears.

Step 5 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.

Accessing the MCU Interface

Procedure

Step 1 Launch your browser and enter the IP address or the name of the MCU.

Step 2 Enter the Administrator user name and password in the appropriate fields and select **Go**.

The default global user name is admin. The default password is password.

Note If you try to sign in as an Administrator and another Administrator is currently signed in, the MCU signs you in as a Read only user. The words “Read Only” appear at the top of the window and a pop-up displays the IP address of the Administrator already signed in. Read only users cannot edit MCU settings.

CHAPTER 4

Cable Connections and Pin-outs

- 9-Pin Serial Port Terminal Cable, page 4-1
- RJ-45 8-Pin IP Network Port, page 4-1

9-Pin Serial Port Terminal Cable

Table 4-1 describes the pin-to-pin configuration of the RS-232 terminal cable provided with the Cisco Unified Videoconferencing 5100 Series MCU.

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	

RJ-45 8-Pin IP Network Port

- 100 Mbps Ethernet, page 4-2
- 1 Gbps Ethernet, page 4-2

100 Mbps Ethernet

Table 4-2 describes the pin-out configuration of the 100 Mbps RJ-45 Ethernet connector.

Table 4-2 Pin-out Configuration of the 100 Mbps RJ-45 IP Ethernet Connector

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

1 Gbps Ethernet

Table 4-3 describes the pin-out configuration of the 1 Gbps RJ-45 Ethernet connector.

Table 4-3 Pin-out Configuration of the 1 Gbps RJ-45 IP Ethernet Connector

Pin	Name	Function	I/O
1	BI_DA+	Bi-directional pair A +	I/O
2	BI_DA-	Bi-directional pair A -	I/O
3	BI_DB+	Bi-directional pair B +	I/O
4	BI_DC+	Bi-directional pair C +	I/O
5	BI_DC-	Bi-directional pair C -	I/O
6	BI_DB-	Bi-directional pair B -	I/O
7	BI_DD+	Bi-directional pair D +	I/O
8	BI_DD-	Bi-directional pair D -	I/O

CHAPTER 5

Compliance and Certifications

This section provides certifications that have been approved for the Cisco Unified Videoconferencing 5100 Series platform.

- Safety Compliance, page 5-1
- EMC, page 5-1
- Environmental Compliance, page 5-2

Safety Compliance

This section lists the safety standards supported by the Cisco Unified Videoconferencing 5100 Series platform.

- IEC 60950-1 2nd Edition
- UL 60950-1 2nd Edition
- CAN/CSA C22.2 No. 60950-1 2nd Edition
- EN 60950-1 2nd Edition
- AS/NZS 60950-1 2nd Edition

EMC

This section lists the EMC compliance for the Cisco Unified Videoconferencing 5100 Series platform.

- FCC Part 15, Subpart B, Class A
- ICES-003
- EN 55022, Class A
- EN 55024
- EN 61000-3-2
- EN 61000-3-3
- AS/NZS 3548, Class A
- VCCI, Class A
- CISPR22, Class A

Note 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.

Note 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.

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