NORTEL NETWORKS

Enterprise Edge Installation and Maintenance Guide

North American Regulations

Safety

Enterprise Edge equipment meets all applicable requirements of both the CSA C22.2 No. 950-95 and UL-1950 Edition 3.

Risk of shock.
Ensure the computer is unplugged from the power socket and that any telephone or network cables are unplugged before opening the computer.

Read and follow installation instructions carefully.

Only qualified persons should service the system.
The installation and service of this hardware is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or other persons.

Electrical shock hazards from the telecommunication network and AC mains are possible with this equipment. To minimize risk to service personnel and users, the Enterprise Edge system must be connected to an outlet with a third-wire ground.

Service personnel must be alert to the possibility of high leakage currents becoming available on metal system surfaces during power line fault events near network lines. These leakage currents normally safely flow to Protective Earth ground via the power cord. Therefore, it is mandatory that connection to an earthed outlet is performed first and removed last when cabling to the unit. Specifically, operations requiring the unit to be powered down must have the network connections (central office lines) removed first.

Radio-frequency interference

Equipment generates RF energy.
This equipment generates, uses, and can radiate radio-frequency energy. If not installed and used in accordance with the installation manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of the FCC Rules and with ICES.003, CLASS A Canadian EMI Requirements. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his or her own expense, will be required to take whatever measures may be required to correct the interference.

Telecommunication registration

Enterprise Edge equipment meets all applicable requirements of both Industry Canada CS-03 and US Federal Commission FCC Par t68 and has been registered under files Industry Canada 332-5980 A and FCC AB6CAN-20705-KF-E (key system), AB6CAN-20706-MF-E (hybrid system), and AB6CAN-23740-PF-E (PBX system). Connection of the Enterprise Edge telephone system to the nationwide telecommunications network is made through a standard network interface jack that you can order from your local telecommunications company. This type of customer-provided equipment cannot be used on party lines or coin lines.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

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

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

Hearing-aid compatibility

Enterprise Edge telephones are hearing-aid compatible, as defined in Section 68.316 of Part 68 FCC Rules.

Electromagnetic compatibility

Enterprise Edge equipment meets all FCC Part 15, Class A radiated and conducted emissions requirements.

Enterprise Edge does not exceed the Class A limits for radiated and conducted emissions from digital apparatus as set out in the Radio Interference Regulations of Industry Canada.

Telephone company registration

It is usually not necessary to call the telecommunications company with information on the equipment before connecting the Enterprise Edge system to the telephone network. If the telecommunications company requires this information, provide the following:

- telephone number(s) to which the system will be connected

- FCC registration number (on label affixed to Enterprise Edge)

- universal service order code (USOC)

- service order code (SOC)

- facility interface code (FIC)

Use of a music source

In accordance with U.S. Copyright Law, a license may be required from the American Society of Composers, Authors and Publishers, or similar organization if Radio or TV broadcasts are transmitted through the Music On Hold or Background Music features of this telecommunication system.

Nortel Networks hereby disclaims any liability arising out of the failure to obtain such a license.

Rights of the telecommunications company

If the Enterprise Edge system is causing harm to the telephone network, the telecommunications company may discontinue service temporarily. If possible, the telecommunications company will notify you in advance. If advance notice is not practical, the user will be notified as soon as possible. The user will be given the opportunity to correct the situation and informed of the right to file a complaint to the FCC.

The telecommunications company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of the system. If this happens, the telecommunications company will give you advance notice in order for you to make any necessary modifications to maintain uninterrupted service.

Repairs

In the event of equipment malfunction, all repairs to certified equipment will be performed by an authorized supplier.

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How to use this guide 1

Introduction

The Enterprise Edge Installation and Maintenance Guide provides technical information and procedures required by a technician to install the Enterprise Edge system and perform different replacement and upgrade tasks. Use this guide during and after an initial installation.

To use this guide, you must:

- be a Nortel Networks installer with Enterprise Edge certification
- know basic Nortel Networks terminology

Organization of this guide

The Enterprise Edge Installation and Maintenance Guide has seven sections that cover:

Enterprise Edge system components — This section provides an overview and functional description of Enterprise Edge hardware components.

Installing the Enterprise Edge system — This section provides the steps necessary to install an Enterprise Edge system.

Enterprise Edge software — This section describes the software applications available on the Enterprise Edge system.

Enterprise Edge server hardware upgrades and replacements — This section provides the steps necessary for upgrading or replacing different components of the Enterprise Edge system.

Enterprise Edge telephony hardware upgrades and replacements — This section provides the steps necessary for upgrading or replacing the telephony components of the Enterprise Edge system.

Enterprise Edge data networking hardware upgrades and replacements — This section provides the steps necessary for upgrading or replacing the data networking components of the Enterprise Edge system.

Troubleshooting and Maintenance — This section provides procedures for finding and solving problems on the Enterprise Edge system.

Symbols used in this guide

This guide uses symbols to draw your attention to important information. The following symbols appear in this guide:

⚠️ *Caution Symbol*
Alerts you to conditions where you can damage the equipment.

⚠️ *Danger Symbol*
Alerts you to conditions where you can receive an injury.

⚡ *Electrical Shock Hazard Symbol*
Alerts you to conditions where you can get an electrical shock.

✋ *Warning Symbol*
Alerts you to conditions where you can cause the system to fail or work improperly.

Tip Symbol
Alerts you to additional information that can help you perform a task.

Note: A Note alerts you to important information.

Alerts you to ground yourself before performing the maintenance procedure.

Alerts you to remove the Enterprise Edge server power cord from the AC outlet before performing the maintenance procedure.

Section I - Enterprise Edge system components

- Components of the Enterprise Edge server
- Telephony Hardware Description
- Data Hardware Description

Components of the Enterprise Edge server 2

The Enterprise Edge system includes software and hardware components that provide normal telephony technology, voice messaging, IP telephony and data networking.

Note: Some of the components described in this document are not available in all areas. Consult with your Nortel Networks Enterprise Edge dealer for information about the availability of components.

Hardware components

The main component of the Enterprise Edge system is the Enterprise Edge server. The Enterprise Edge server controls all tasks such as call processing, voice messaging and data routing. The Enterprise Edge server also contains the telephony and data networking components.

Figure 1 Enterprise Edge server
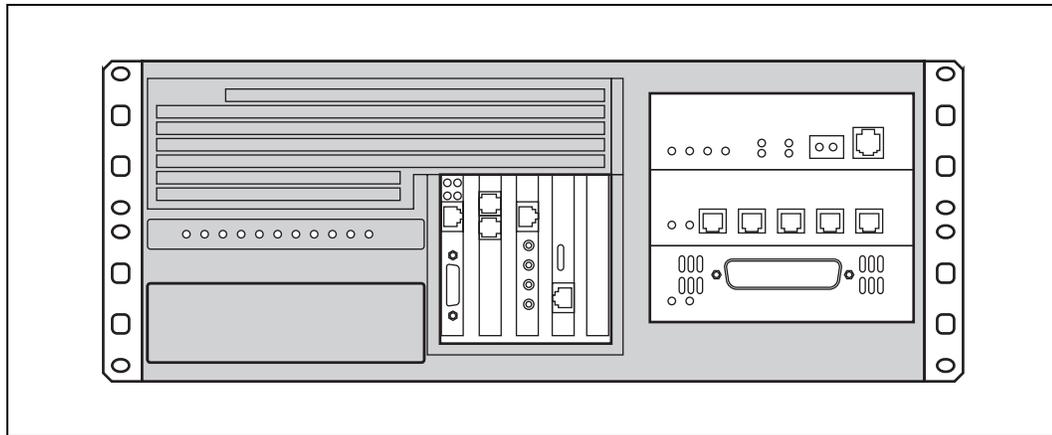
Enterprise Edge server components

The Enterprise Edge server is the main computing device. It includes:

• Intel® Celeron™ 366 MHz

• 128 MB SDRAM

• 4.3 GB disk space

• 4 PCI slots

• 3 media bays

Intel is a registered trademark and Celeron is a trademark of Intel Corporation.

Enterprise Edge telephony components

The telephony components perform call processing. These components also connect the Enterprise Edge server to the Public Switched Telephone Network (PSTN) lines and the Enterprise Edge telephones.

MSC

The Media Services Card (MSC) is a PCI standard card which performs call processing and media processing of the voice channels.

EE-CTM

The CLID Trunk Media Bay Module (EE-CTM) connects four analog CLID PSTN lines to the Enterprise Edge system.

EE-DTM

The Digital Trunk Media Bay Module (EE-DTM) connects a standard digital PSTN T1 or PRI line to the Enterprise Edge system.

EE-ASM 8

The Analog Station Media Bay Module (EE-ASM 8) connects eight analog telephones to the Enterprise Edge system. It also connects analog telephony equipment, such as a fax machine.

EE-DSM 16

The 16-port Digital Station Media Bay Module (EE-DSM 16) connects up to 16 Enterprise Edge digital telephones to the Enterprise Edge system.

EE-DSM 32

The 32-port Digital Station Media Bay Module (EE-DSM 32) connects up to 32 Enterprise Edge digital telephones to the Enterprise Edge system.

Telephones and adapters

Telephones and adapters connect to the media bay modules installed in the Enterprise Edge system. Enterprise Edge supports the following telephones and adapters:

- M7100 telephone

- M7208 telephone

- M7310 telephone

- M7324 telephone

- M7410 telephone

- Analog Terminal Adapter 2

For a detailed description of the hardware components, refer to Telephony Hardware Description on page 31.

Enterprise Edge data networking components

The data networking components connect the Enterprise Edge server to the local area network (LAN) and the wide area network (WAN).

Modem card

The modem card is a V.90 modem. The Enterprise Edge server uses the modem to send and receive data using the public telephone system.

LAN interface card

The LAN interface card is a 10/100 Base T Ethernet network interface card. The Enterprise Edge server use the LAN interface card to connect to the local area network.

WAN interface card

The WAN interface card is a network interface card that connects the Enterprise Edge server to the wide area network. It has a T1 interface port and a sync port.

Figure 2 shows the location of the hardware components in the Enterprise Edge server. Nortel Networks recommends you know the location of the different components before working with the system.

Figure 2 Enterprise Edge server interior components

Figure 2 shows the location of the hardware components in the Enterprise Edge server. Nortel Networks recommends you know the location of the different components before working with the system.

Figure 2 Enterprise Edge server interior components
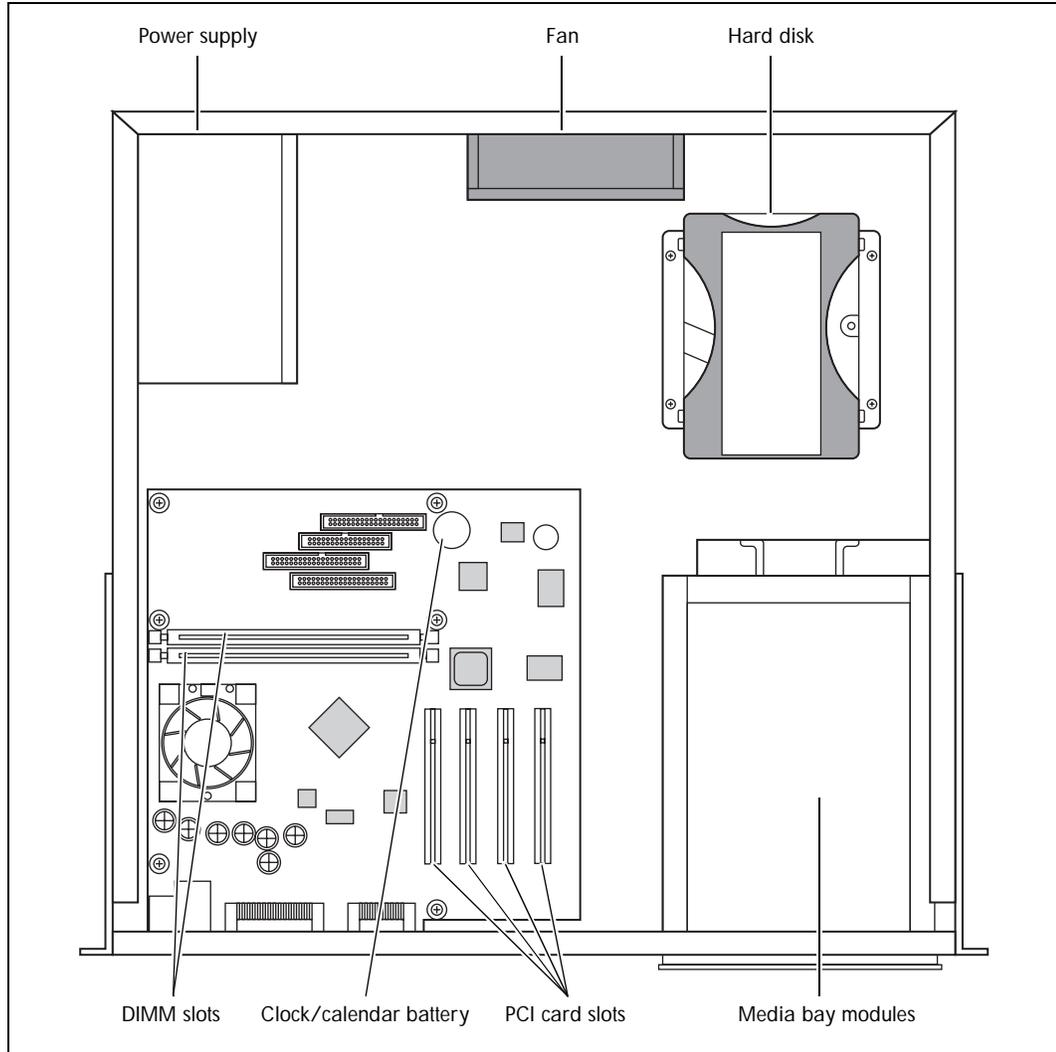
Connection Ports

External devices, such as a laptop computer or printer, connect to the Enterprise Edge server through the connection ports. Figure 3 shows the location of the different connection ports.

Figure 3 Enterprise Edge server external points of connection
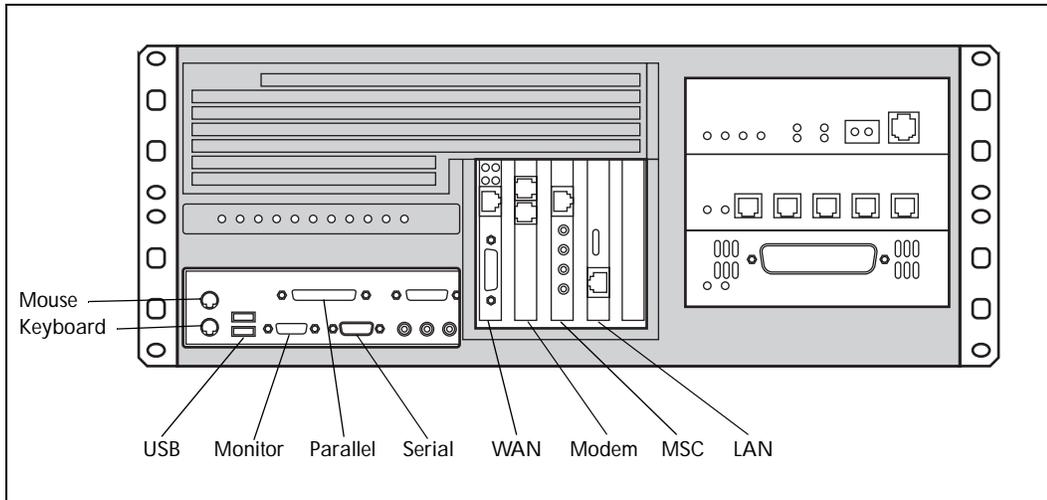
Serial

The Enterprise Edge server is equipped with one serial port that supports asynchronous serial data communication. The port has a male DB-9 connector and supports all standard baud rates (9600 default). You use the serial port to connect serial devices, such as a laptop computer.

Table 1 Serial port connections

	Pin	Signal
	1	Data Carrier Detect (DCD)
	2	Serial data in (RX)
	3	Serial data out (TX)
	4	Data Terminal Ready (DTR)
	5	Ground
	6	Data Set Ready (DSR)
	7	Request to Send (RTS)
	8	Clear to Send (CTS)
	9	Ring Indicator (RI)

Parallel

The Enterprise Edge server is equipped with one parallel printer that features a female DB-25 connector. This version of Enterprise Edge does not support the parallel port.

Table 2 Parallel port connections
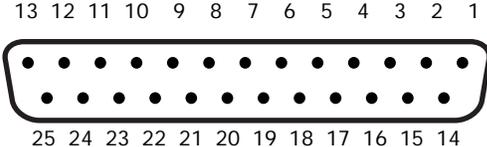
Pin	Signal
1	STROBE
2	Parallel Data 0 (PD0)
3	Parallel Data 1 (PD1)
4	Parallel Data 2 (PD2)
5	Parallel Data 3 (PD3)
6	Parallel Data 4 (PD4)
7	Parallel Data 5 (PD5)
8	Parallel Data 6 (PD6)
9	Parallel Data 7 (PD7)
10	Acknowledge (ACK)
11	BUSY
12	PERROR
13	SELECT
14	AUDOFD
15	FAULT
16	INIT
17	SLCTIN
18	GND
19	GND
20	GND
21	GND
22	GND
23	GND
24	GND
25	GND

13 12 11 10 9 8 7 6 5 4 3 2 1

25 24 23 22 21 20 19 18 17 16 15 14

Keyboard and mouse

The Enterprise Edge server is equipped with one keyboard port and one mouse port. This version of Enterprise Edge does not support the keyboard or mouse.

Table 3 Keyboard and mouse port connections
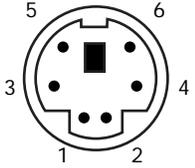
	Pin	Signal
	1	Data
	2	Not connected
	3	Ground
	4	+5 Volts
	5	Clock
	6	Not connected

Monitor

The Enterprise Edge server is equipped with one monitor port. This version of Enterprise Edge does not support the monitor port.

Table 4 Monitor port connections
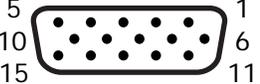
	Pin	Signal
	1	Red
	2	Green
	3	Blue
	4	Not connected
	5	Ground
	6	Ground
	7	Ground
	8	Ground
	9	Fused VCC
	10	Ground
	11	Not connected
	12	DDC_SDA
	13	Horizontal SYNC
	14	Vertical SYNC
	15	DDC_SCL

USB Universal Serial Bus

The Enterprise Edge server is equipped with two USB ports. This version of Enterprise Edge does not support the USB port.

Enterprise Edge server LEDs

There are 10 LEDs on the front of the Enterprise Edge server. Table 5 describes the use of each of the LEDs.

Table 5 Enterprise Edge server LEDs

LED Label	Description
Power	The Power LED lights when the Enterprise Edge server has power.
Disk	The Disk LED lights when the Enterprise Edge server accesses the hard drive.
Status	The Status LED lights when the Enterprise Edge system is operating correctly.
1	This LED is not used in this version of Enterprise Edge.
2	This LED is not used in this version of Enterprise Edge.
3	This LED is not used in this version of Enterprise Edge.
4	This LED is not used in this version of Enterprise Edge.
5	This LED is not used in this version of Enterprise Edge.
6	This LED is not used in this version of Enterprise Edge.
7	This LED is not used in this version of Enterprise Edge.

Software components

The Enterprise Edge system provides a number of software applications. Some of these applications work immediately after you install the Enterprise Edge system. To use other applications, you must enable the application using software key codes. A software keycode is a password number provided to the installer. The Enterprise Edge applications available are:

- Enterprise Edge Integrated Solution software
- Enterprise Edge Voice Messaging
- Enterprise Edge Call Center
- Enterprise Edge VoIP Gateway
- Enterprise Edge TSP
- Enterprise Edge Personal Call Manager
- Enterprise Edge Call Detail Recording
- Enterprise Edge Attendant Console
- Enterprise Edge Integrated QoS Routing

For more information about the software application packaging, refer to Software applications on page 119.

Enterprise Edge Integrated Solution software

Enterprise Edge Integrated Solution software supplies standard telephony operating features that provide integrated communications on desktops. This software also provides:

- Enterprise Edge Companion
- Programming, administration and maintenance

Enterprise Edge Companion

The Enterprise Edge Companion software provides wireless functionality without losing the advantages of the wireline system. With Enterprise Edge Companion, users can have one telephone number and receive all calls on both their desk telephone and their portable.

Programming, administration and maintenance

The Enterprise Edge Unified Manager software provides programming, administration and maintenance. Enterprise Edge Unified Manager provides a series of windows and menus that allow you to navigate through the different areas of the application and easily enter information and program the system.

Enterprise Edge Voice Messaging

Enterprise Edge Voice Messaging provides the following features:

- Voice messaging
- Enterprise Edge Auto Attendant
- Custom Call Routing (CCR)
- Enterprise Edge Message Networking
- Enterprise Edge Unified Messaging

Voice messaging

Enterprise Edge Voice Messaging records incoming messages and stores them in a mailbox for easy retrieval. Each Enterprise Edge telephone in your system can have a mailbox and a personal greeting.

Enterprise Edge Auto Attendant

Enterprise Edge Auto Attendant answers your business calls, 24 hours a day, with a Company Greeting. A voice prompt then provides callers a menu of options to direct their call by selecting a digit on the dialpad.

Custom Call Routing (CCR)

CCR replaces the Auto Attendant menu with a custom CCR Home Menu. This menu provides callers a wider range of call routing options and access to submenus and information messages. CCR allows you to determine the menu options and record the voice prompts that guide callers along call paths.

Enterprise Edge Message Networking

Enterprise Edge Message Networking includes General Networking parameters, Voice Profile for Internet Mail (VPIM) parameters, Audio Messaging Interchange Specification (AMIS) specific parameters and AMIS Site Administration. For more information about Message Networking, refer to the *Enterprise Edge Message Networking Set Up and Operation Guide*.

Enterprise Edge Unified Messaging

Enterprise Edge Unified Messaging consists of three features:

- **Enterprise Edge Unified Messaging** allows you to create and receive messages on your personal computer.

- **Enterprise Edge Personal Mailbox Manager** allows you to change mailbox features and functions such as mailbox initialization and target attendant, record greetings, and set up and maintain off-premise message notification.

- **Enterprise Edge Operator Manager** allows you to change the Operator password, change business status, enable or disable the system attendant and enable or disable the Call Answer feature.

Enterprise Edge Call Center

The Enterprise Edge Call Center is an Automatic Call Distribution (ACD) system designed to handle incoming calls. Enterprise Edge Call Center answers incoming calls and routes these calls to available agents. If there are no available agents, the callers hear ACD greetings.

Enterprise Edge VoIP Gateway

Enterprise Edge VoIP Gateway allows you to use IP telephony. VoIP Gateway converts the voice in a call into a packet format that can be sent over an intranet. With Enterprise Edge VoIP Gateway, you can make telephone calls over any intranet connected to the Enterprise Edge system.

Enterprise Edge TSP

Enterprise Edge TSP is the interface between the Enterprise Edge system and Microsoft® TAPI. This interface allows you to use TAPI applications on the Enterprise Edge system. For more information, refer to *Enterprise Edge TSP Server Configuration Guide*.

Microsoft is a registered trademark of Microsoft Corporation.

Enterprise Edge Personal Call Manager

Enterprise Edge Personal Call Manager is a TAPI application that provides First Party Call Control for your telephone. For more information, refer to *Enterprise Edge Personal Call Manager User Guide*.

Enterprise Edge Call Detail Recording

The Enterprise Edge Call Detail Recording software records call activity. When your company makes or receives a call, Enterprise Edge Call Detail Recording records the information about the call in Call Records.

Enterprise Edge Attendant Console

Enterprise Edge Attendant Console uses a graphical user interface to provide centralized call management.

Enterprise Edge Integrated QoS Routing

Enterprise Edge Integrated QoS Routing is a router that controls the interface between the Enterprise Edge system and the local area network, wide area network, and internet.

Telephony Hardware Description

<div style="text-align: right">3</div>

The main telephony hardware components of the Enterprise Edge system are the:

- Media Services Card
- Station media bay modules
- Trunk media bay modules
- Telephones and adapters

The Media Services Card, station media bay modules and trunk media bay modules are factory installed in the Enterprise Edge server. The telephones and adapters connect to the Media Services Card and the media bay modules.

Media Services Card

The Enterprise Edge Media Services Card (MSC) is a PCI standard card which performs call processing and media processing of the voice channels. The MSC has four media services processor expansion cards (MSPECs) installed, which provide DSP resource control. For more information on MSPECs, refer to Media services processor expansion cards (MSPECs) on page 34.

The MSC also provides the following functions.

- Connection between the MSC and the media bay modules
- Connection to optional equipment

Figure 4 Media Services Card
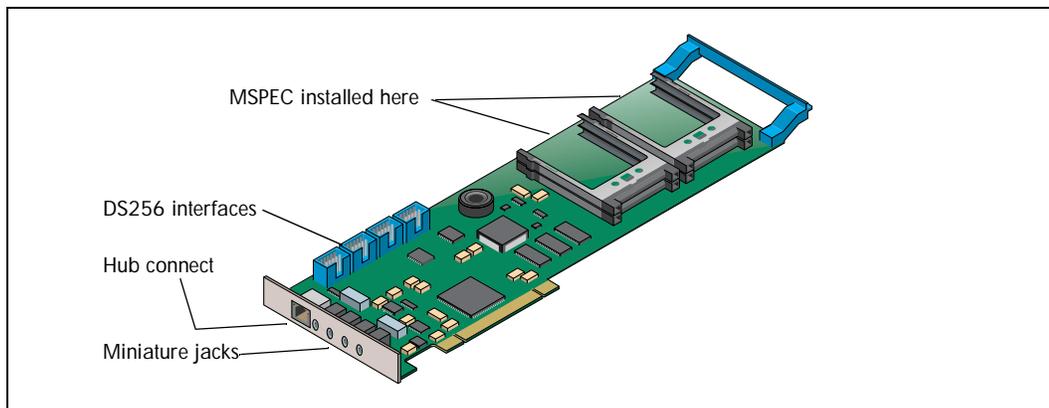
Connection between the MSC and the media bay modules

The MSC has four DS256 interfaces to connect to the media bay modules installed in the server. The DS256 connectors are 2 x 5 pin headers located along the top edge of the MSC. A 10-conductor ribbon cable connects the MSC to the media bay modules.

Connection to optional equipment

The MSC has four 3.5 mm (1/8 inch) miniature jacks, located on the faceplate. These jacks are standard miniature stereo (3-conductor) jacks. You use these miniature jacks to connect the following optional equipment:

- Music on hold input
- Page output
- Page relay
- Auxiliary ringer

Figure 5 MSC optional equipment miniature jacks
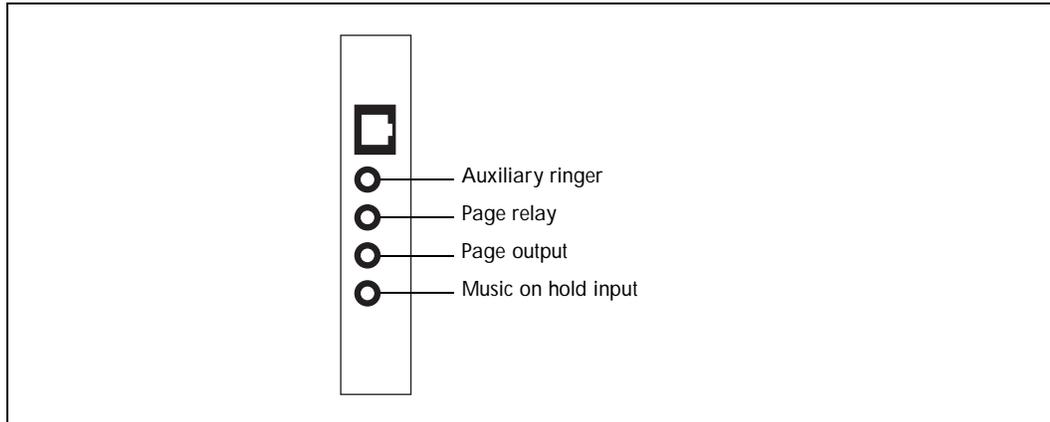
> **External equipment connected to these interfaces must be SELV.**
> All four interfaces are Safety Extra Low Voltage (SELV) and the external equipment connected to these interfaces must be SELV. If these interfaces are not SELV, you must use external line isolation units (LIU).

Music on hold input

The Enterprise Edge server uses the Music on hold input to connect an external music source that supplies a signal to held lines (music on hold) or telephone speakers (background music). The input source can be any available radio or music source approved for connection to the network. The following specifications apply to the Music on hold input:

- Nominal input impedance is 3.3 kilohms.

- Nominal sensitivity of this interface returned to digital encoded PCM is -22 dBm0 for a 0.25 V rms input signal.

- The input is limited so that the encoded analog content at the digital interface to the network will not exceed -12 dBm when averaged over any 3 second interval.

- The maximum non-clipped input level is 1 V rms.

- The interface is protected against ringing cross.

The music source connects to the tip and sleeve terminals of the miniature jack. The sleeve terminal of the jack connects to ground. You can use either a mono or stereo plug to connect the music source. However, the Music on hold input only accepts a mono input.

Page output

The Enterprise Edge server uses the page output to connect an internally generated voice paging signal to an external paging amplifier (customer supplied). This signal is transformer coupled and is floating with respect to earth ground. The signal has a nominal source impedance of 600 ohms. The output level is 0 dBm0 with reference to 600 ohms, for a PCM encoded signal at 0 dBM. There is no dc voltage across the page output terminals.

The page output uses the tip and ring terminals of the jack. The sleeve terminal of the jack connects to ground. You must use a stereo plug to connect the page signal output.

Page relay

When you use the page signal output jack to connect an external paging amplifier, you also use the page relay jack. The page relay jack connects a floating relay contact pair. The Enterprise Edge server uses this jack to control the external paging amplifier. The contact pair has a switch capacity of 50 mA (non-inductive) at 40 V (maximum). You must remove any inductive load on the output.

The sleeve of the jack connects to ground. The page relay contacts connect to the tip and ring terminals of the jack. You must use a stereo plug to connect the page relay.

Auxiliary ringer

The Enterprise Edge server uses the auxiliary ringer jack to control the cadence of an auxiliary ringer (customer supplied). You must use this output in a low current, low voltage application only. Do not use this output for switching the auxiliary ringer directly. The contact pair has a switch capacity of 50 mA (non-inductive) at 40 V (maximum). You must remove any inductive load on the output.

The sleeve of the jack connects to ground. The auxiliary ringer connects to the tip and ring terminals of the jack. You must use a stereo plug to connect the auxiliary ringer.

Media services processor expansion cards (MSPECs)

Each application uses DSP resources. The MSPECs control the DSP resources.

The MSC has four MSPECs installed. The MSPECs provide expansion capability for Enterprise Edge Voice Messaging and Enterprise Edge Unified Messaging.

Station media bay modules

Station media bay modules connect to telephones and analog telecommunication devices. The Enterprise Edge system includes the following station media bay modules:

- 16-port Digital Station Media Bay Module (EE-DSM 16)
- 32-port Digital Station Media Bay Module (EE-DSM 32)
- Analog Station Media Bay Module (EE-ASM 8)

16-port Digital Station Media Bay Module (EE-DSM 16)

The EE-DSM 16 connects up to 16 Enterprise Edge telephones to the Enterprise Edge server. Figure 6 shows a diagram of the EE-DSM 16.

Each EE-DSM 16 has two LEDs on the faceplate labelled as follows:

- Power (indicates operating status)
- Status (indicates hardware status)

For more information about the LED states, refer to Check that the power is on on page 60.

The EE-DSM 16 has one amphenol connector on the faceplate. For details on the EE-DSM 16 wiring, refer to Connect station media bay module wiring on page 67.

The back of the EE-DSM 16 has a DS256 connector that connects to the MSC using a 10-conductor ribbon cable. The back of the EE-DSM 16 also has a power connector that connects power to the module. A set of DIP switches define the extension numbers used by the EE-DSM 16.

For more information about setting DIP switches, refer to Preparing for an upgrade on page 163.

Figure 6 EE-DSM 16

32-port Digital Station Media Bay Module (EE-DSM 32)

The EE-DSM 32 connects up to 32 Enterprise Edge telephones to the Enterprise Edge server. Figure 7 shows a diagram of the EE-DSM 32.

Each EE-DSM 32 has two LEDs on the faceplate labelled as follows:

- Power (indicates working status)

- Status (indicates hardware status)

For more information about the LED states, refer to Check that the power is on on page 60.

The EE-DSM 32 has two amphenol connectors on the faceplate. For details on the EE-DSM 32 wiring, refer to Connect station media bay module wiring on page 67.

The back of the EE-DSM 32 has a DS256 connector that connects to the MCS using a 10-conductor ribbon cable. The back of the EE-DSM 32 also has a power connector that connects power to the module. A set of DIP switches define the extension numbers used by the EE-DSM 32.

For more information about setting DIP switches, refer to <u>Preparing for an upgrade</u> on page 163.

Figure 7 EE-DSM 32
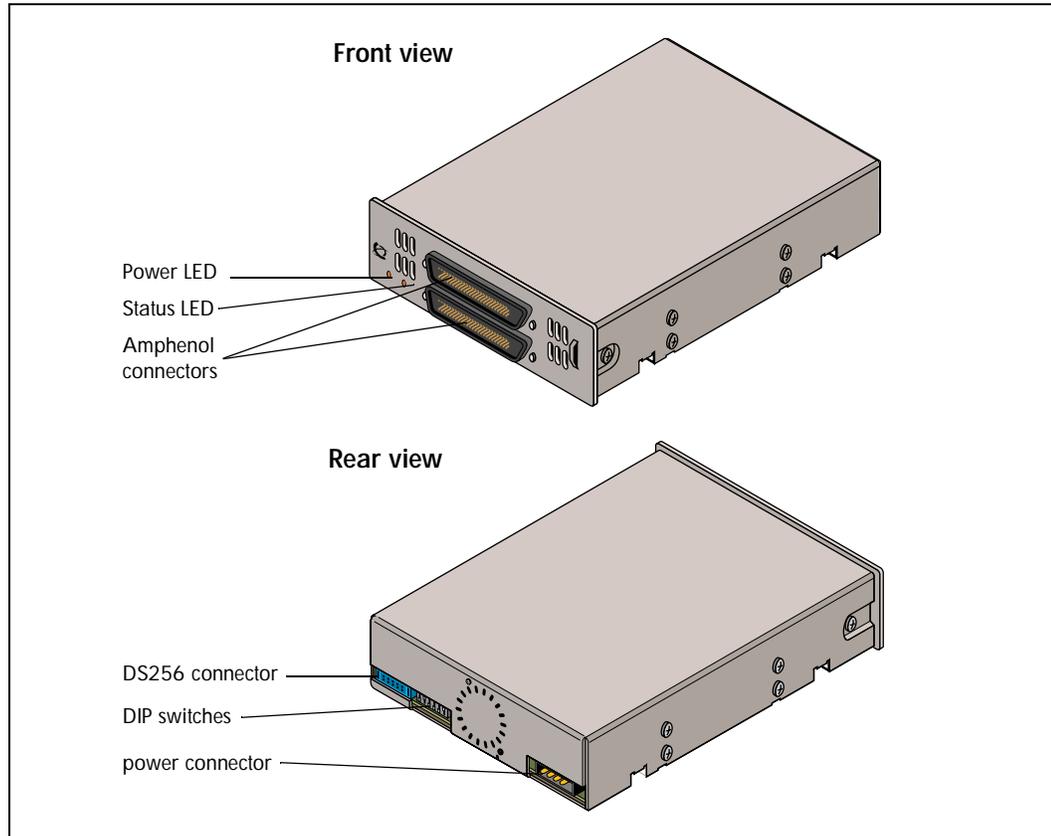
Analog Station Media Bay Module (EE-ASM 8)

The EE-ASM 8 connects up to eight analog telecommunication devices. These devices can be standard home telephones, cordless telephones, FAX machines, answering machines or modems. The maximum speed for a modem connection is 28.8 kbit/s. Figure 8 shows a diagram of the EE-ASM 8.

The EE-ASM 8 has two LEDs on the faceplate labelled as follows:

- Power (indicates working status)

- Status (indicates hardware status)

For more information about the LED states, refer to <u>Check that the power is on</u> on page 60.

The EE-ASM 8 has one amphenol connector on the faceplate. For details on the EE-ASM 8 wiring, refer to <u>Connect station media bay module wiring</u> on page 67.

The back of the EE-ASM 8 has a DS256 connector that connects to the MSC using a 10-conductor ribbon cable. The back of the EE-ASM 8 also has a power connector that connects power to the module. A set of DIP switches define the extension numbers used by the EE-ASM 8.

For more information about setting DIP switches, refer to <u>Preparing for an upgrade</u> on page 163.

Figure 8 EE-ASM 8

Front view

Power LED
Status LED
Amphenol connector

Rear view

DS256 connector
DIP switches
power connector
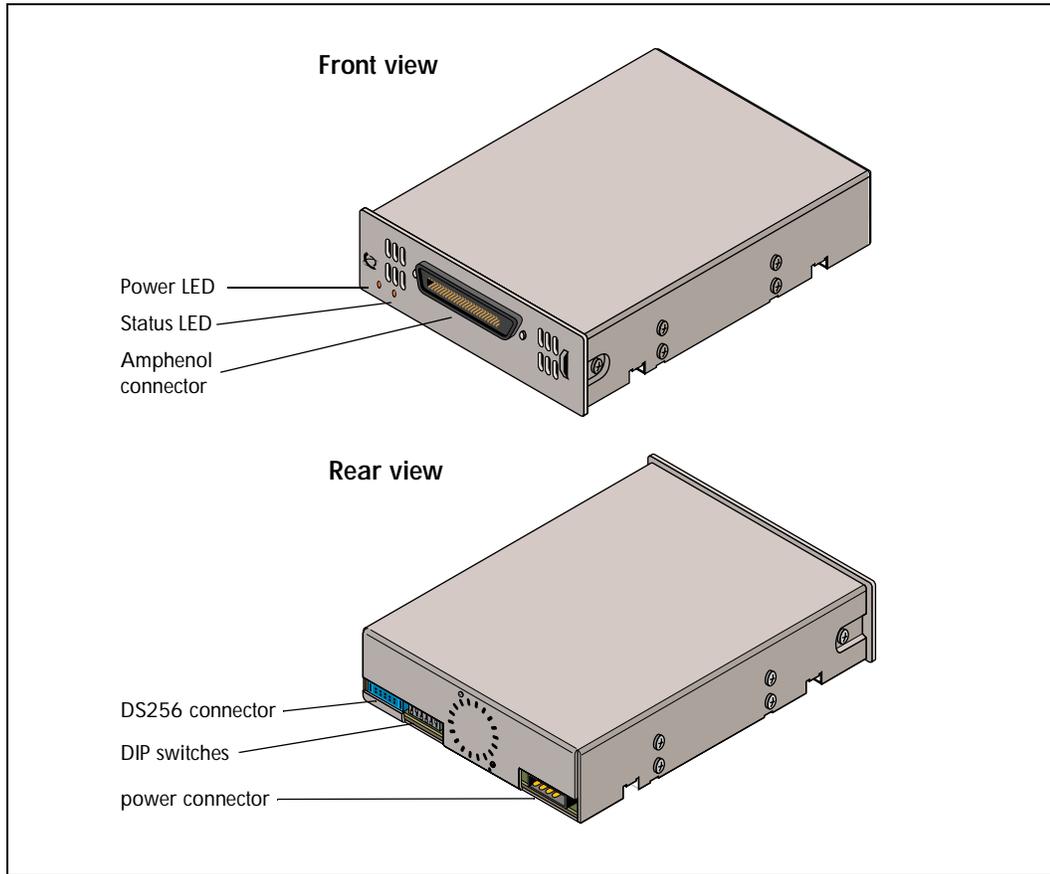
Trunk media bay modules

Trunk media bay modules connect telecommunications trunks to the Enterprise Edge system. The following types of trunk media bay modules are available:

- Digital Trunk Media Bay Module (EE-DTM)
- Caller ID Trunk Media Bay Module (EE-CTM)

Digital Trunk Media Bay Module (EE-DTM)

The EE-DTM (or Digital Trunk Interface) is a trunk module that connects a standard digital PSTN T1 or PRI line to the Enterprise Edge system. With an EE-DTM you can add up to 24 digital telephone lines to the Enterprise Edge system. Figure 9 shows a diagram of the EE-DTM.

The EE-DTM has a number of status LEDs. For information about these LEDs, refer to EE-DTM LED functions on page 39.

The front faceplate of the EE-DTM has a RJ48C connector that connects the EE-DTM to the service provider's connection point. The front faceplate also has a set of Loopback connectors you use to run loopback tests. For details on loopback tests, refer to the *Enterprise Edge Programming Operations Guide*.

The back of the EE-DTM has a DS256 connector that connects to the MSC using a 10-conductor ribbon cable. The back of the EE-DTM also has a power connector that connects power to the module. A set of DIP switches define the line numbers used by the EE-DTM.

For more information about setting DIP switches, refer to Preparing for an upgrade on page 163.

Figure 9 EE-DTM
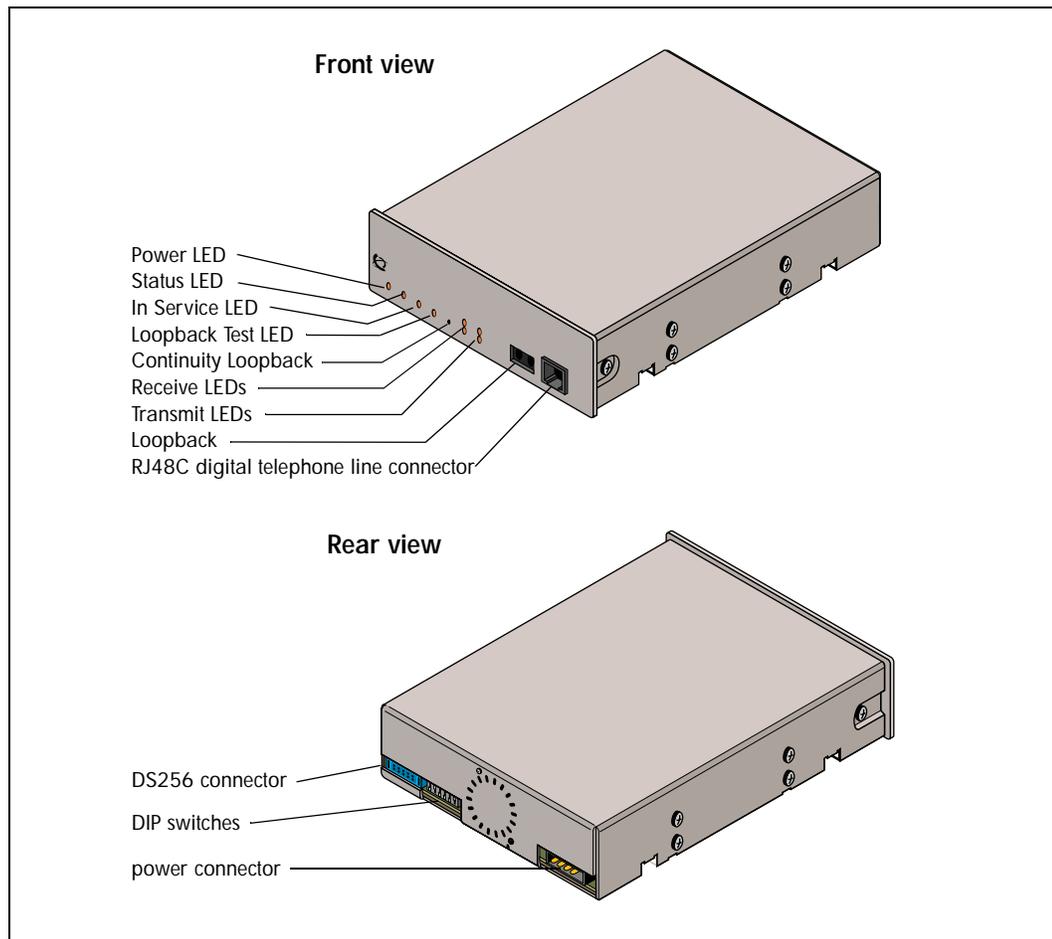
EE-DTM LED functions

The EE-DTM LED functions are:

- Power: A steady green LED on indicates that the DTM is receiving +5 Volts.

- Status: A steady green LED on indicates there is data communication between the EE-DTM and the MSC card.

- In Service LED

- Loopback

- Receive Alarm

- Receive Error

- Transmit Alarm

- Transmit Error

All LEDs flashing continuously indicates that the EE-DTM is initializing. For more information about the LED states, refer to Check that the power is on on page 60.

Caller ID Trunk Media Bay Module (EE-CTM)

The EE-CTM connects up to four analog CLID PSTN lines to the Enterprise Edge server. The auxiliary port permits the connection of a 33.6+ kbit/s modem, FAX machine or single line analog telephone to line 1. When the auxiliary device is using line 1, the Enterprise Edge server does not allow other Enterprise Edge telephones to use line 1. When you connect a single line analog telephone to the auxiliary port, you can use it as an emergency telephone. Figure 10 shows a diagram of the EE-CTM.

Each EE-CTM has two LEDs on the faceplate labelled as follows:

- Power (indicates working status)

- Status (indicates hardware status)

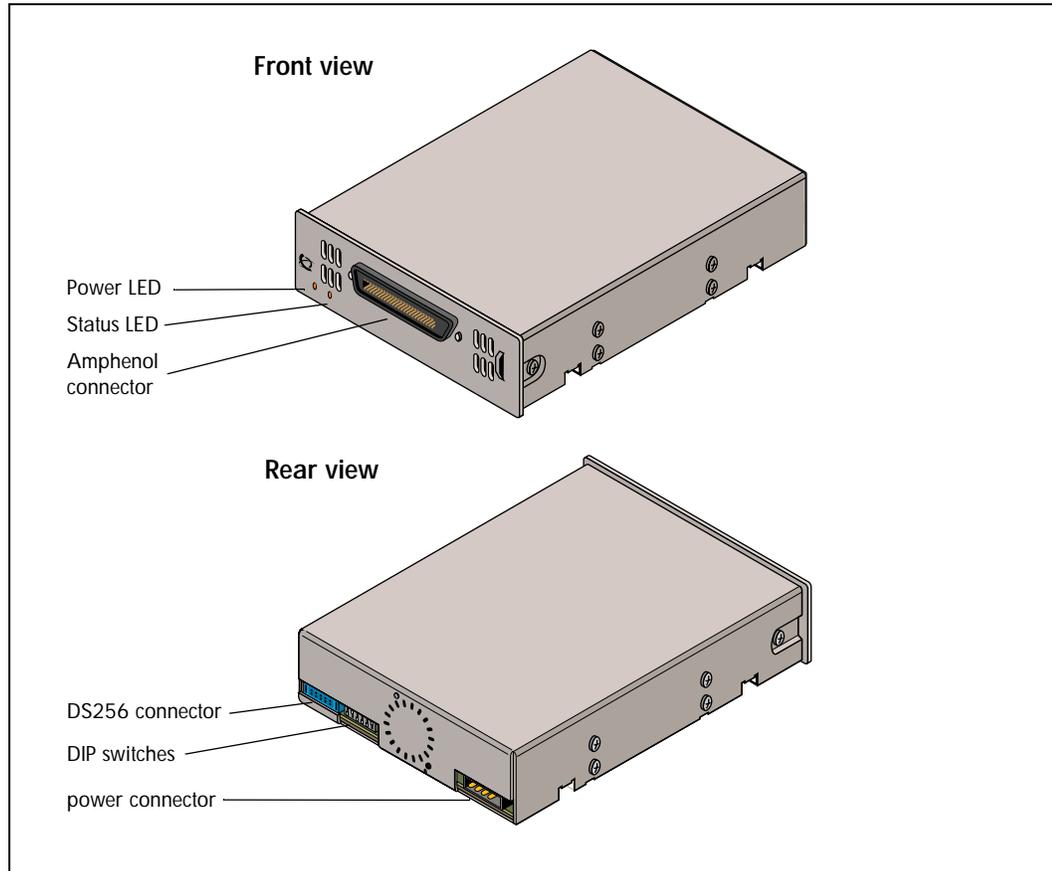For more information about the LED states, refer to Check that the power is on on page 60.

The back of the EE-CTM has a DS256 connector that connects to the MSC using a 10-conductor ribbon cable. The back of the EE-CTM also has a power connector that connects power to the module. A set of DIP switches define the line numbers used by the EE-CTM.

For more information about setting DIP switches, refer to Preparing for an upgrade on page 163.

Figure 10 EE-CTM

Front view

Power LED
Status LED
Line 1
Aux
Line 2
Line 3
Line 4

Rear view

DS256 connector

DIP switches

power connector
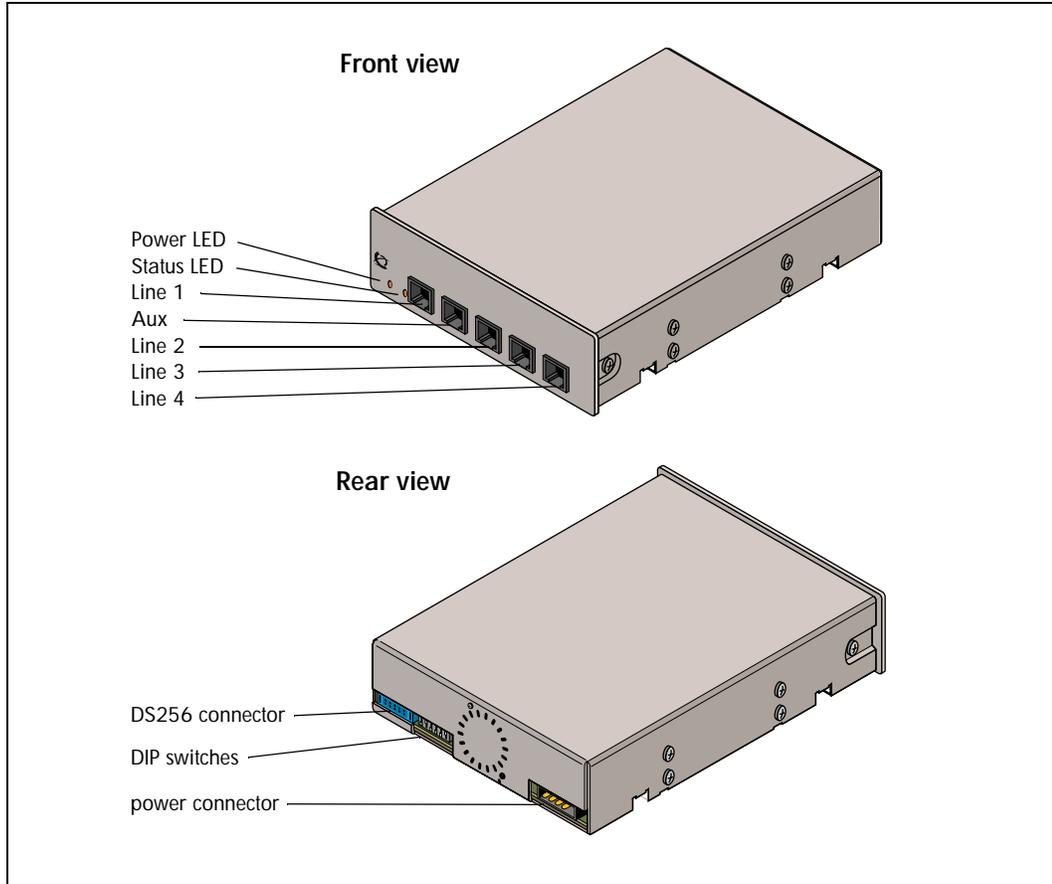
Telephones and adapters

The following telephones and adapters are available with the Enterprise Edge system.

- [M7100](#)
- [M7208](#)
- [M7310](#)
- [M7324](#)
- [M7410](#)
- [Enterprise Edge central answering position (CAP)](#)
- [Enterprise Edge Analog Terminal Adapter 2 (ATA 2)](#)
- [Enterprise Edge Companion](#)

M7100

The Enterprise Edge M7100 provides basic telephone coverage. It has a single line display and one memory button without an indicator.

M7208

The Enterprise Edge M7208 telephone has a single line display and eight memory buttons with indicators.

M7310

The Enterprise Edge M7310 telephone has a two line display with three display buttons, 10 memory buttons with indicators and 12 double memory buttons without indicators. With the 12 double memory buttons, you can access up to 24 additional features or autodial numbers.

M7324

The Enterprise Edge M7324 telephone has a two line display with three display buttons and 24 memory buttons with indicators. With the 24 memory buttons you can access any combination of lines, features and autodial numbers. You can attach two CAP modules to the M7324. Additional CAP modules give you call coverage for many lines and provide space for additional features.

M7410

The Enterprise Edge M7410 telephone is a cordless telephone with the same features as the M7310.

Enterprise Edge central answering position (CAP)

The CAP is a module you connect to an M7324 telephone that provides 48 additional memory buttons. These memory buttons add additional features or autodial numbers or show a busy or idle status for up to 48 more telephones. You can connect up to two CAP modules to any M7324 telephone. You need one Station Auxiliary Power Supply (SAPS) for every M7324 telephone that has CAP modules.

Enterprise Edge Station Auxiliary Power Supply (SAPS)

The SAPS extends the loop length between a telephone or terminal and the Enterprise Edge server from 1,000 to 2,600 feet. You must use a dedicated cable to connect the two locations.

The SAPS is also provides power for the Enterprise Edge central answering position (CAP) module.

Enterprise Edge Analog Terminal Adapter 2 (ATA 2)

The Enterprise Edge ATA 2 converts digital signals to analog signals to allow communication with analog devices such as FAX machines, modems and answering machines. The ATA 2 supports a maximum transmission rate of 28.8 Kbit/s. With a single line telephone, the ATA 2 supports Off-Premises Extension (OPX) or a long loop configuration. For more information, refer to *Enterprise Edge Analog Terminal Adapter 2 Installation Guide*.

Enterprise Edge Companion

The hardware components which provide mobility functionality are:

- Companion Base Station
- C3050 Portable Handset
- Remote Power Interconnect (RPI) Unit

Companion Base Station

The Companion base station transmits and receives signals between the Enterprise Edge server and portable handsets. Install the base stations on walls or ceilings. Each base station provides radio coverage for a maximum of 32 cells.

C3050 Portable Handset

The C3050 CT2 Plus portable handset is available in Canada only. The Etiquette C3050 portable handset is available in the USA only. You can assign the C3050 Portable Handset a separate telephone number or the same telephone number as the person's desktop telephone. It supports basic features such as call forward, call transfer, conferencing and visual message waiting indication.

Remote Power Interconnect (RPI) Unit

The RPI provides remote power for Base Station support. There are two types of RPIs: RPI-8 that supports up to eight Base Stations and RPI-16 that supports up to 16 Base Stations.

Data Hardware Description

4

The main data hardware components of the Enterprise Edge system are the:

- Modem card
- LAN card
- WAN card

The modem card, LAN card and WAN card are factory installed in the Enterprise Edge server.

Modem card

The modem card is a V.90 interface modem. This modem connects the Enterprise Edge server to the public switched telephone network. You can use this connection to manage the Enterprise Edge system from a different location. You also use this card as a dial in backup for the Enterprise Edge Integrated QoS Routing.

LAN card

The LAN card connects the Enterprise Edge server to the Local Area Network (LAN). This card is a 10/100 Base T Ethernet Network Interface Card.

WAN card

The WAN card connects the Enterprise Edge server to the Wide Area Network (WAN). This card connects to a T1 PSTN line and supports two integrated T1 DSU/CSUs.

Section II - How to install the Enterprise Edge system

- Installation Overview
- How to install the Enterprise Edge server
- Start the Enterprise Edge server
- Install the telephony hardware
- Install Enterprise Edge Companion Wireless
- Install the Data Networking Hardware

Installation Overview

<div style="text-align: right; font-size: 2em">5</div>

To install the Enterprise Edge server, you must:

Install the Enterprise Edge server

The Enterprise Edge server is the main computing device in the Enterprise Edge system. It also contains the telephony and data networking components. For instructions on how to install the Enterprise Edge server, refer to How to install the Enterprise Edge server on page 51.

Install the Enterprise Edge telephony components

The telephony components of the Enterprise Edge system provide call processing functions and connection to the public telephone system. For instructions on how to install the telephony components, refer to Install the telephony hardware on page 63.

Install the Enterprise Edge data networking components

The data networking components of the Enterprise Edge system provide network connection to your local area network (LAN) and your wide area network (WAN). For instructions on how to install the data networking components, refer to Install the Data Networking Hardware on page 109.

Install the Enterprise Edge software

The Enterprise Edge software provides features such as call processing, voice messaging and data routing. For instruction on how to install the software, refer to Enterprise Edge Software on page 119.

How to install the Enterprise Edge server 6

Introduction

This section describes how to install the Enterprise Edge system and prepare it for operation.

Before you start

Before you start the installation, ensure that you:

- read this guide and understand the installation process
- check that all conditions are met in the checklists

Preparation checklist

Identify the required resources (number and type of trunks and number and type of telephones).

Check that your Enterprise Edge server has the minimum requirements. Refer to <u>Enterprise Edge server configurations</u> on page 53.

Check that you have all the equipment and supplies you need to install the system.

Determine the location for the Enterprise Edge server, telephones, and other equipment based on spacing and electrical requirements. For more information about spacing and electrical requirements, refer to the documentation shipped with your hardware.

Order the required trunks from the central office.

Packaging Checklist

Make sure the package you received contains the following items:

Enterprise Edge server

Enterprise Edge server rack mounting bracket

rubber feet

AC power cord

Environment Checklist

The installation area must be:

at least 4 m (approximately 13 feet) from equipment such as photocopiers, electrical motors and other equipment that can produce electromagnetic, radio frequency and electrostatic interference

within 1.5 m (approximately 5 feet) of a three wire grounded electrical outlet

clean, free of traffic and excess dust, dry and well ventilated

temperature between 0°C and 35°C (32°F and 95°F)

between 20% and 80% non-condensing relative humidity

available space in an equipment rack or on a table that is capable of supporting the Enterprise Edge server

a minimum of 46 cm (approximately 18 inches) from the floor

Note: The distance from the floor to the installation area must be enough to prevent water damage.

Electrical requirements

non-switched, unobstructed outlet within 1.5 m (5 ft) of the Enterprise Edge server.

dedicated 110 V - 120 V ac nominal, 50/60 Hz, 15 A minimum service with a third wire safety ground. The third wire safety ground provides shock protection and avoids electromagnetic interference.

> *Risk of electric shock.*
> The safety of this product requires connection to an outlet with a third wire ground. Use only with a three wire power cord and outlet.

> *Check ground connections.*
> Ensure that the electrical ground connections of the power utility, telephone lines and internal metal water pipe system, if present, are connected together. If these ground connection are not connected together, contact the appropriate electrical inspection authority. Do not try to make the connections yourself.

The Enterprise Edge server power cord is 1.5 m (5 ft) long. You can connect the server to a power bar with a maximum length of 2 meters (6.5 ft), including power bar. You must use a power bar approved by an appropriate National Test Body, with a third wire ground. Do not use an extension cord between the server and the power bar, or between the power bar and the electrical outlet.

Internal wiring requirements

Digital loop

one, two or three twisted-pair cable(s) per telephone

dc loop resistance of less than 64 Ω

cable length (0.5 mm or 24 AWG) less than 300 m (975 ft)

use of a station auxiliary power supply (SAPS) for loops 300 m (975 ft) to 1200 m (3900 ft). The SAPS must be a Class 2 power source that is approved by an appropriate National Test Body.

no bridge taps

Analog loop

maximum dc loop resistance of 208 Ω

maximum cable length (0.5 mm or 24 AWG) of 1220 m (4000 ft)

Enterprise Edge server configurations

Table 6 and Table 7 show the Enterprise Edge server configurations available. You can identify your configuration by the number and type of media bay modules installed.

Table 6 Enterprise Edge server configuration available in North America

	Configurations								
	8 x 16 2 LAN	8 x 16 WAN	8 x 32 2 LAN	8 x 32 WAN	28 x 32 2 LAN	28 x 32 WAN	24 x 64 2 LAN	24 x 64 WAN	48 x 32 2 LAN
Modem card	1	1	1	1	1	1	1	1	1
LAN card	2	1	2	1	2	1	2	1	2
WAN card		1		1		1		1	
EE-CTM	2	2	2	2	1	1			
EE-DTM					1	1	1	1	2
EE-ASM 8									
EE-DSM 16	1	1							
EE-DSM 32			1	1	1	1	2	2	1
Maximum number of telephones	16	16	32	32	32	32	64	64	32
Maximum number of analog trunks	8	8	8	8	4	4			
Maximum number of digital trunks					24	24	24	24	48

Table 7 Enterprise Edge server configurations available outside of North America

	Configurations								
	8 x 16 LAN	8 x 16 WAN	16 x 32 LAN	16 x 32 WAN	38 x 32 LAN	38 x 32 WAN	30 x 64 LAN	30 x 64 WAN	60 x 32 LAN
LAN card	2	2	2	2	2	2	2	2	2
WAN card		1		1		1		1	
EE-BRIM S/T	1	1	2	2	1	1			
EE-DTM					1	1	1	1	2
EE-DSM 16	1	1							
EE-DSM 32			1	1	1	1	2	2	1
Maximum number of telephones	16	16	32	32	32	32	64	64	32
Maximum number of analog trunks	8	8	16	16	8	8			
Maximum number of digital trunks					30	30	30	30	60

System equipment and supplies

Use the following checklists to check that you have all the required equipment.

Basic hardware

Enterprise Edge server

Enterprise Edge telephones

M7100

M7208

M7310

M7324

M7410

Optional equipment

station auxiliary power supply (SAPS)

central answering position (CAP) module

Enterprise Edge Analog Terminal Adapter 2 (ATA 2)

uninterruptible power supply (UPS)

analog emergency telephone

Enterprise Edge Companion equipment

Enterprise Edge C3050 CT2 Plus (Canada only)
Base Station kit

Handsets (C3050)

Battery packs (NiCad 450 hours)

Battery packs (NiCad 600 hours)

Enterprise Edge C3050 Etiquette (USA only)
Base Station kit

Handsets (C3050)

Battery packs (NiCad 450 hours)

Battery packs (NiCad 600 hours)

High capacity battery charger

Other Companion equipment
Holster

Holster clip

Headset

Headset - "over the head"

Equipment for installing the Enterprise Edge system

For the installation, you need the following equipment:

rack mounting bracket

four rubber feet

Phillips screwdriver #2

flat blade screwdriver

pliers

antistatic grounding strap

connecting tool

surge protector (recommended)

Cables

25-pair cable with amphenol connectors

Install the Enterprise Edge server in a rack

The Enterprise Edge server installs in a standard 19" equipment rack. You can install the Enterprise Edge server in the same rack as your other networking and telecommunications equipment.

> ⚠ *CAUTION*
> When installing the Enterprise Edge server in a rack, do not stack units directly on top of one another in the rack. Secure each unit to the rack with the appropriate mounting brackets. Mounting brackets cannot support multiple units.

> ⚠ *CAUTION*
> Refer to Environment Checklist for acceptable environmental conditions before selecting a location for the Enterprise Edge server.

Attach the rack mounting bracket to the Enterprise Edge server

1. Place the Enterprise Edge server on a table.

2. Align the screw holes between the Enterprise Edge server and the right rack mounting bracket.

3. Fasten the bracket to the Enterprise Edge server using four screws.

4. Align the screw holes between the Enterprise Edge server and the left rack mounting bracket.

5. Fasten the bracket to the Enterprise Edge server using four screws.

> ⚠ *Caution*
> Only use the screws that came with the rack mounting bracket. **Do not replace screws**. Other screws can damage the Enterprise Edge server.

Figure 11 Attach the rack mounting bracket to the Enterprise Edge server
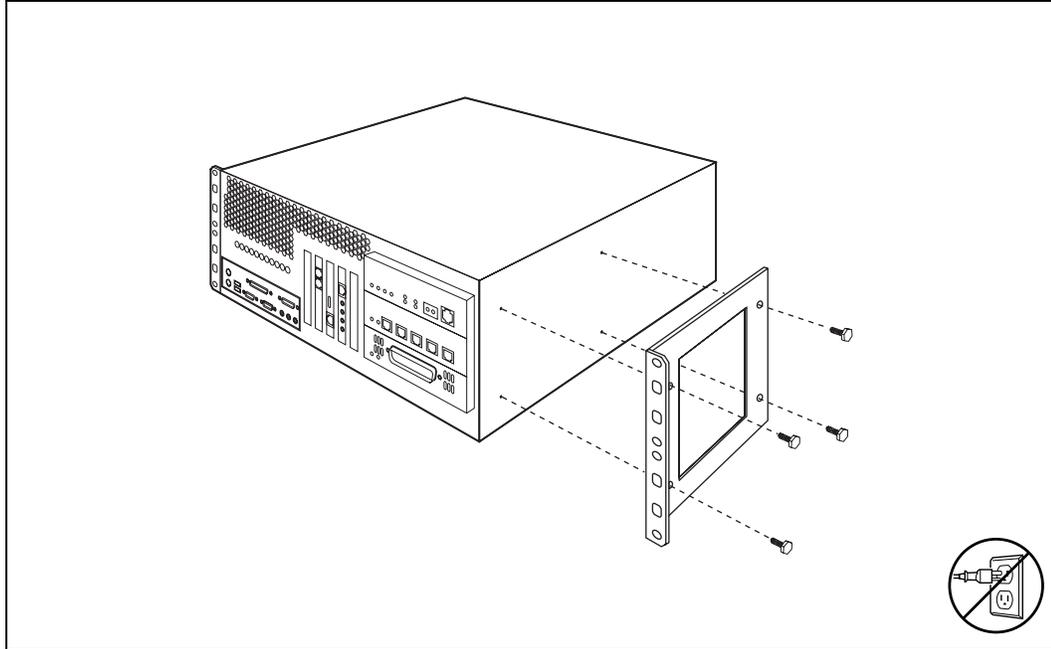
Install the Enterprise Edge server in the rack

1. Determine the location in the rack you want to install the Enterprise Edge server.

2. Position the Enterprise Edge server in the rack.

3. Align the holes in the rack mounting bracket with the holes in the rails.

4. Fasten the rack mounting brackets to the rack using four screws (not supplied).

Figure 12 Fasten the Enterprise Edge server to the rack
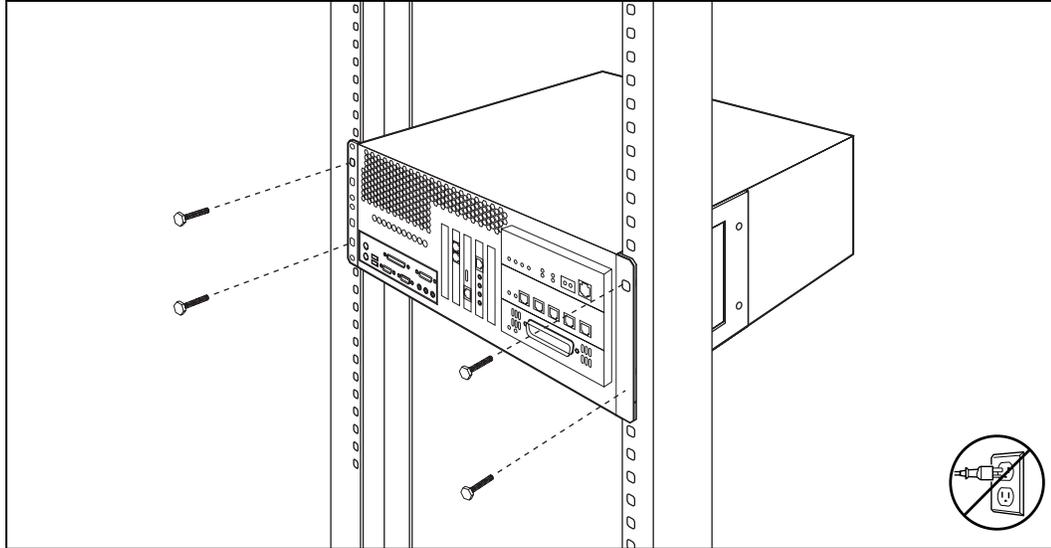
Install the Enterprise Edge server on a table or shelf

You can install the Enterprise Edge server on any surface that can support the weight of the unit.

> ⚠️ *CAUTION*
> Refer to Environment Checklist for acceptable environmental conditions before selecting a location for the Enterprise Edge server.

To install the Enterprise Edge server on a table or shelf:

1. Attach a rubber foot to the four corners on the bottom of the Enterprise Edge server.

2. Position the Enterprise Edge server on the table or shelf. Make sure you leave enough space around the unit for ventilation and access to the cables.

Start the Enterprise Edge server

7

To start the Enterprise Edge server:

1. Make sure the power supply is set to the voltage available at your electrical outlet.

> ⚠ **CAUTION**
> This unit is set at the factory to use 1 15volts AC. Failure to change the power supply voltage setting when using 230 volts AC will damage the unit beyond repair. For information about changing the power supply voltage, refer to <u>Change the power supply voltage</u> on page 61.

2. Check all wiring before turning the system power on. Do not connect central office line cables to the Enterprise Edge system until after turning the system power on.

3. Connect the Enterprise Edge server power cord to an electrical outlet that is a non-switchable, third wire ground AC outlet.

   If you are using a power bar, plug the power cords into the power bar and connect the power bar to the AC outlet.

> ⚠ ***Do not fasten power supply cords.***
> Do not fasten the Enterprise Edge server power supply cord to any building surface, including the backboard.

Check that the power is on

After you connect power to the Enterprise Edge server, the LEDs on the faceplate of the modules light. Telephones and lines can take 5 minutes to initialize.

There are two LEDs on the faceplate:

- Power (indicates working status)

- Status (indicates hardware status)

Table 8 LED states

Power	Status	Details
Off	Off	No power applied to the module or failure of module power converter
On	Off	Field Programmable Gate Array (FPGA) not downloaded which indicates that the MSC has not started correctly.)
On	Blinking	Operation problem exists • no DS256 link detected • DS256 frame alignment lost • Bandwidth not allocated • Module is in maintenance state Note: DS256 is the bus that connects the media bay modules to the MSC.
Blinking	Blinking	Hardware problem • partial failure of power converter • thermal overload • fan failure
On	On	Module is ready to operate

> *Tips*
> During system initialization, the system performs diagnostics on the hardware configuration size and installation.
>
> If the power fails, your system data is retained.

Change the power supply voltage

The power supply on the Enterprise Edge server is set at the factory to operate at 115 volts. If you plan to use 115 volts to power the Enterprise Edge server, do not change the voltage switch. If you plan to use 230 volts, you **must** change the power supply voltage setting before connecting power to the Enterprise Edge server.

To change the power supply setting:

1. Shutdown the Enterprise Edge server. For more information, refer to Shutdown the Enterprise Edge server on page 127.

2. Remove the Enterprise Edge server power cord from the AC outlet.

3. Slide the power supply switch, installed on the back of the power supply, so that the required voltage label appears (115 or 230).

4. Plug the power cord into the AC socket.

Figure 13 Change the power supply voltage
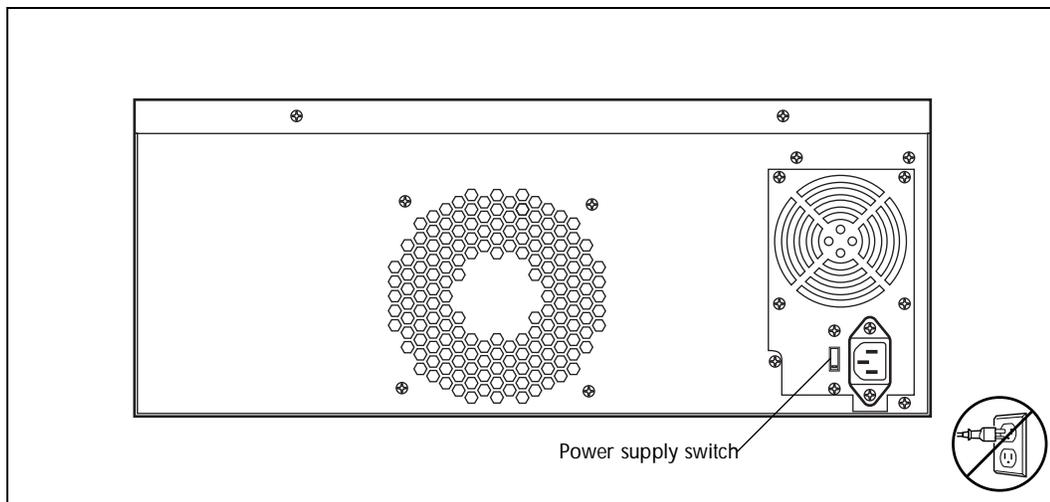
Power supply switch

CAUTION

This unit is set at the factory to use 115 volts AC. Failure to change the power supply voltage setting when using 230 volts AC will damage the unit beyond repair.

Install the telephony hardware

8

Only qualified persons should service the system.
The installation and service of this unit is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or other persons.

Electrical shock hazards from the telecommunication network and ac mains are possible with this equipment. To minimize risk to service personnel and users, the Enterprise Edge system must be connected to an outlet with a third wire ground. In addition, all unused slots should have filler faceplates installed and the cover must be in place at the completion of any servicing.

Service personnel must be alert to the possibility of high leakage currents becoming available on metal system surfaces during power line fault events near network lines. These leakage currents normally safely flow to Protective Earth ground via the power cord. Therefore, it is mandatory that connection to an earthed outlet is performed first and removed last when cabling to the unit. Specifically, operations requiring the unit to be powered down must have the network connections (central office lines) removed first.

Task overview

When installing the Enterprise Edge system, perform the following tasks:

- Connect the wiring
- Install the telephones
- Install the Enterprise Edge Analog Terminal Adapter 2
- Install other optional equipment

Note: Read and follow the safety warning below.

Risk of shock.

Ensure the Enterprise Edge server is unplugged from the power socket and that any telephone or network cables are unplugged before opening the Enterprise Edge server.

Do not connect the tele-adapt ports of the EE-DSM 16 or EE-DSM 32 to the Public Switched Telephone Network (PSTN). Only approved digital telephones or peripherals can be connected to the EE-DSM 16 or EE-DSM 32.

Do not connect any telephones to telephone wiring that runs outside of the building.

The Enterprise Edge media bay modules have been Safety approved for installation into PC servers. It is the responsibility of the installer and user to ensure that installation of the Enterprise Edge hardware does not compromise existing Safety approvals.

Do not connect the EE-DSM 16, EE-DSM 32 or EE-ASM 8 ports to any cables that run outside a building.

Read and follow the installation instructions carefully.

Wiring overview

Figure 14 shows the wiring required to connect the trunk and station modules to digital or analog station sets.

Figure 14 Wiring overview
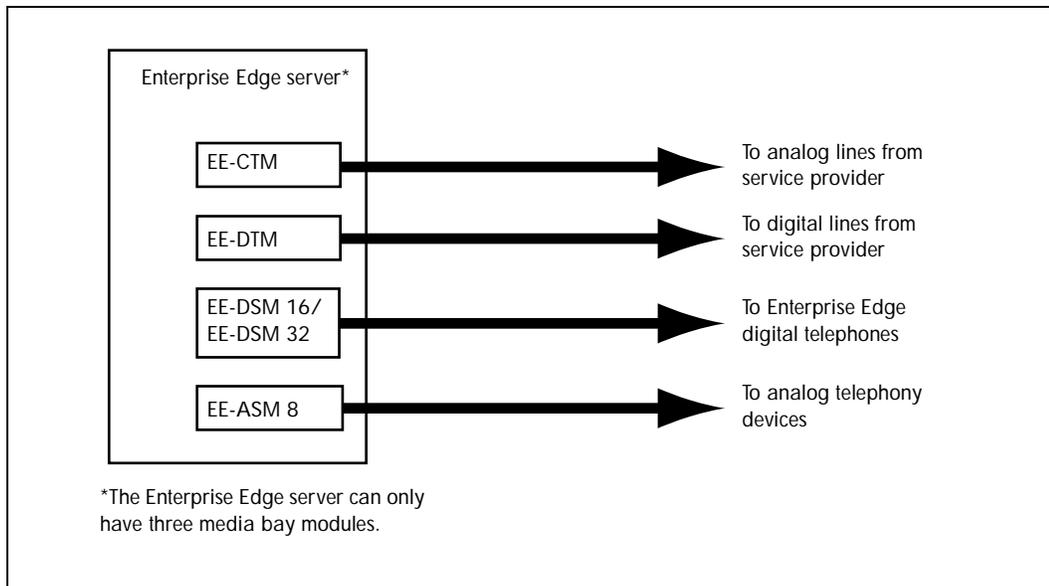
Connect the wiring

This section describes how to wire the trunk and station media bay modules to the network. For the purposes of this section, the following guidelines apply:

- Each telephone uses a single pair of wires to connect to the Enterprise Edge server.

- All descriptions and installations use BIX standards.

When wiring the media bay modules to the network, there are two major tasks you must perform:

- Connect trunk media bay module wiring

- Connect station media bay module wiring

For an overview of the complete process, refer to the diagram Wiring overview on page 64.

Connect trunk media bay module wiring

The wire the EE-DTM and EE-CTM modules to the network using the following procedures:

- Connect EE-DTM wiring
- Connect EE-CTM wiring

Connect EE-DTM wiring

Connect the cable to the RJ-48C connector on the front of the EE-DTM module and the service provider's connection point. Figure 15 shows a connection between an EE-DTM module and the service provider. This diagram includes a BIX block connection.

Figure 15 Connect wiring to an EE-DTM
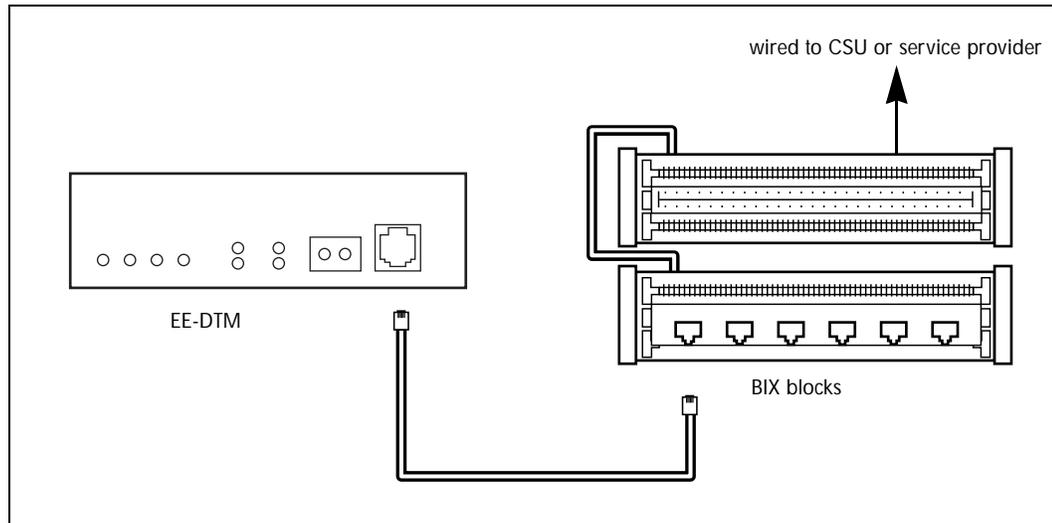
Note: If you are using the service provider's CSU, you must disable the Enterprise Edge server's internal CSU using Enterprise Edge Unified Manager. For more information, refer to the *Enterprise Edge Programming Operations Guide*.

Connect EE-CTM wiring

Connect the cable to the RJ-11 connector on the front of the EE-CTM and the service provider's connection point. Figure 16 shows a connection between a EE-CTM module and the service provider. This connection includes a BIX block connection.

Figure 16 Connect wiring to an EE-CTM
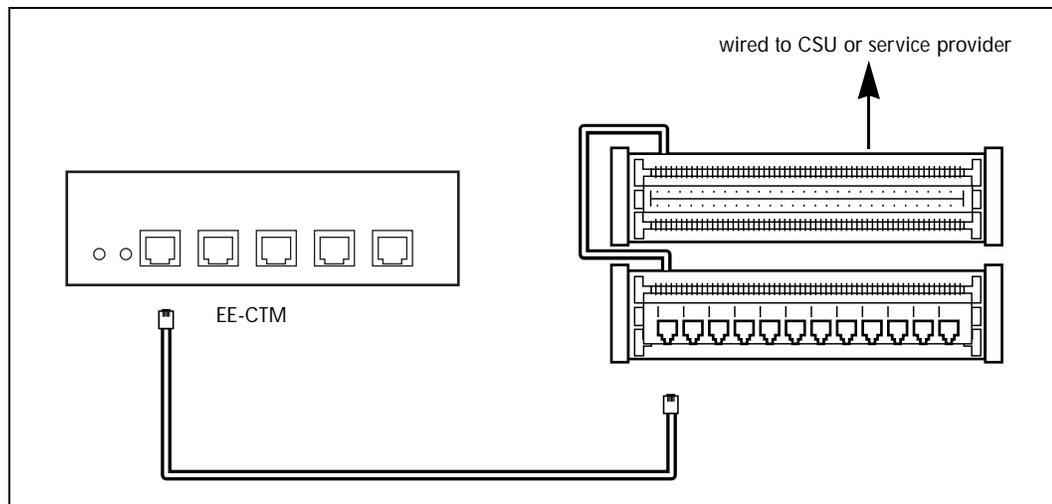
Connect station media bay module wiring

To connect the wiring for the EE-DSM 16, EE-DSM 32 or EE-ASM 8 media bay modules:

1. Plug the amphenol connector into the EE-DSM 16, EE-DSM 32 and EE-ASM 8 station interface.

2. Wire the 25 pair cable to the cross connect array.

3. Connect another 25 pair cable between the telephones cross connect array and the station interface cross connect array. The cross connection allows connections between telephones and the station interfaces.

   For an overview of BIX wiring conventions, refer to <u>Appendix A: BIX overview</u> on page 243.

   Note: If you are connecting an EE-DSM 16 or EE-DSM 32, use the <u>Wiring chart for Digital Station Media Bay Modules</u> on page 69. This diagram shows how to connect the ports you connected in step 2 to the station sets you connected in step 3.

   If you are connecting an EE-ASM 8, use the <u>Wiring chart for Analog Station Media Bay Module (EE-ASM 8)</u> on page 71. This diagram show how to connect the ports you connected in step 2 to the station sets you connected in step 3.

Figure 17 Cross connections for an EE-DSM 16 or EE-ASM 8
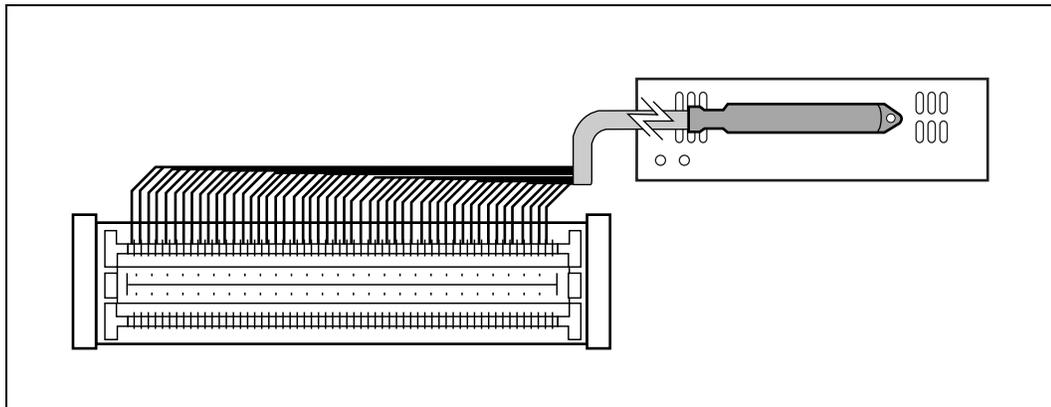
Figure 18 Cross connections for a EE-DSM 32
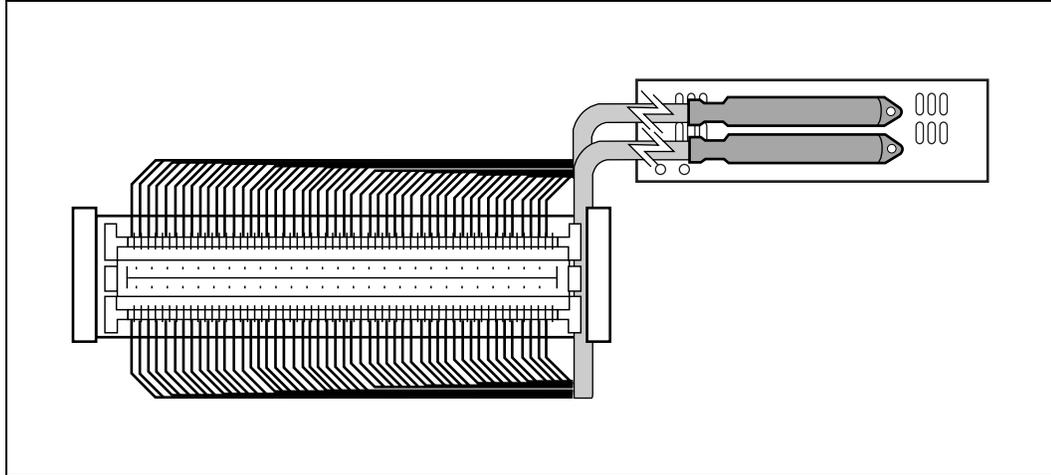
4. Attach the station set cables to the connecting blocks.

5. Install the telephones.

   For information about installing telephones, refer to <u>Install the telephones</u> on page 72.

Wiring chart for Digital Station Media Bay Modules

This wiring chart applies to both the EE-DSM 16 and the EE-DSM 32. Wire the two amphenol connectors on the EE-DSM 32 the same way.

Pin	Wire color	Port	Service	Telephones SM
26	White-Blue	X01	T	1
1	Blue-White	X01	R	1
27	White-Orange	X02	T	2
2	Orange-White	X02	R	2
28	White-Green	X03	T	3
3	Green-White	X03	R	3
29	White-Brown	X04	T	4
4	Brown-White	X04	R	4
30	White-Slate	X05	T	5
5	Slate-White	X05	R	5
31	Red-Blue	X06	T	6
6	Blue-Red	X06	R	6
32	Red-Orange	X07	T	7
7	Orange-Red	X07	R	7
33	Red-Green	X08	T	8
8	Green-Red	X08	R	8
34	Red-Brown	X09	T	9
9	Brown-Red	X09	R	9
35	Red-Slate	X10	T	10
10	Slate-Red	X10	R	10
36	Black-Blue	X11	T	11
11	Blue-Black	X11	R	11
37	Black-Orange	X12	T	12
12	Orange-Black	X12	R	12
38	Black-Green	X13	T	13
13	Green-Black	X13	R	13
39	Black-Brown	X14	T	14
14	Brown-Black	X14	R	14
40	Black-Slate	X15	T	15
15	Slate-Black	X15	R	15
41	Yellow-Blue	X16	T	16
16	Blue-Yellow	X16	R	16
42	Yellow-Orange	----	----	no connection
17	Orange-Yellow	----	----	no connection
43	Yellow-Green	----	----	no connection
18	Green-Yellow	----	----	no connection
44	Yellow-Brown	----	----	no connection
19	Brown-Yellow	----	----	no connection
45	Yellow-Slate	----	----	no connection
20	Slate-Yellow	----	----	no connection
46	Violet-Blue	----	----	no connection
21	Blue-Violet	----	----	no connection
47	Violet-Orange	----	----	no connection
22	Orange-Violet	----	----	no connection
48	Violet-Green	----	----	no connection
23	Green-Violet	----	----	no connection
49	Violet-Brown	----	----	no connection
24	Brown-Violet	----	----	no connection
50	Violet-Slate	----	----	no connection
25	Slate-Violet	----	----	no connection

Connection between EE-DSM 16 and EE-DSM 32 modules and telephones

Table 9 lists the connections between the wire pairs and the module sets.

Table 9 Connectors on both the EE-DSM 16 and EE-DSM 32

Connector on both EE-DSM 16 and EE-DSM 32		Connector on EE-DSM 32 only	
Pair	Module set number	Pair	Module set number
1, 26	1	1, 26	17
2, 27	2	2, 27	18
3, 28	3	3, 28	19
4, 29	4	4, 29	20
5, 30	5	5, 30	21
6, 31	6	6, 31	22
7, 32	7	7, 32	23
8, 33	8	8, 33	24
9, 34	9	9, 34	25
10, 35	10	10, 35	26
11, 36	11	11, 36	27
12, 37	12	12, 37	28
13, 38	13	13, 38	29
14, 39	14	14, 39	30
15, 40	15	15, 40	31
16, 41	16	16, 41	32

Wiring chart for Analog Station Media Bay Module (EE-ASM 8)

Pin	Wire color	Port	Service	Telephones SM
26	White-Blue	X01	T	1
1	Blue-White	X01	R	1
27	White-Orange	X02	T	2
2	Orange-White	X02	R	2
28	White-Green	X03	T	3
3	Green-White	X03	R	3
29	White-Brown	X04	T	4
4	Brown-White	X04	R	4
30	White-Slate	X05	T	5
5	Slate-White	X05	R	5
31	Red-Blue	X06	T	6
6	Blue-Red	X06	R	6
32	Red-Orange	X07	T	7
7	Orange-Red	X07	R	7
33	Red-Green	X08	T	8
8	Green-Red	X08	R	8
34	Red-Brown			no connection
9	Brown-Red			no connection
35	Red-Slate			no connection
10	Slate-Red			no connection
36	Black-Blue			no connection
11	Blue-Black			no connection
37	Black-Orange			no connection
12	Orange-Black			no connection
38	Black-Green			no connection
13	Green-Black			no connection
39	Black-Brown			no connection
14	Brown-Black			no connection
40	Black-Slate			no connection
15	Slate-Black			no connection
41	Yellow-Blue			no connection
16	Blue-Yellow			no connection
42	Yellow-Orange			no connection
17	Orange-Yellow			no connection
43	Yellow-Green			no connection
18	Green-Yellow			no connection
44	Yellow-Brown			no connection
19	Brown-Yellow			no connection
45	Yellow-Slate			no connection
20	Slate-Yellow			no connection
46	Violet-Blue			no connection
21	Blue-Violet			no connection
47	Violet-Orange			no connection
22	Orange-Violet			no connection
48	Violet-Green			no connection
23	Green-Violet			no connection
49	Violet-Brown			no connection
24	Brown-Violet			no connection
50	Violet-Slate			no connection
25	Slate-Violet			no connection

Install the telephones

Use the following procedures when installing the Enterprise Edge system telephones.

- Install digital and analog telephones

- Install Companion wireless sets

- Install the emergency telephone

- Install the Enterprise Edge central answering position (CAP)

- Install the Enterprise Edge Analog Terminal Adapter 2

Install digital and analog telephones

For installation procedures for digital and analog telephones, refer to instruction cards that came with the telephones.

> ⚠ ***Do not use telephones as off-premises extensions (OPX)***
> For OPX applications, use the Enterprise Edge Analog Terminal Adapter and a single-line telephone.

Install Companion wireless sets

On the Enterprise Edge servers with one EE-DTM and two EE-DSM 32, install the base stations on the center EE-DSM 32. The center module is the EE-DSM 32 between the EE-DTM and the second EE-DSM 32.

Use the following basic steps to install your Companion wireless set.

1. Install the remote power interconnect.

2. Install the Base Stations.

3. Install the portable telephones.

4. Install the external antennas and lightning surge protectors.

5. Power up the system.

For more information about installing Companion wireless sets, refer to the *Enterprise Edge Programming Operations Guide*.

Install the emergency telephone

You can use the emergency telephone to make calls when there is no power to the Enterprise Edge server.

To install an emergency telephone on the Enterprise Edge server, connect a single line analog telephone to the auxiliary port on the EE-CTM. When you make a call from the emergency telephone, the auxiliary port uses the telephone line connected to the Line 1 port of the EE-CTM.

Tip
You can connect an emergency telephone to every EE-CTM you have installed on your Enterprise Edge system.

Use the following steps to install the emergency telephone.

1. Connect a single line analog telephone (500/2500) to the auxiliary port on the EE-CTM.

2. Connect an analog PSTN line to the Line 1 port of the EE-CTM.

3. Lift the emergency telephone receiver and listen for dial tone.

Install the Enterprise Edge central answering position (CAP)

The CAP is a module connected to an M7324 telephone that provides 48 additional memory buttons. For installation procedures for the CAP, refer to the installation documents that came with the CAP.

Install the Enterprise Edge Analog Terminal Adapter 2

The Enterprise Edge Analog Terminal Adapter 2 (Enterprise Edge ATA 2) connects a standard analog voice device or data communication device to the Enterprise Edge server. Examples of analog voice devices are single-line telephones or answering machines. Examples of data communication devices are modems and fax machines. The Enterprise Edge ATA 2 provides on or off-premise service.

Before Installation

Check the following environment requirements for Enterprise Edge ATA 2:

Line voltage (110 V)	92 – 127 V ac
Line voltage (220 V)	180 – 264 V ac
Temperature	0 – 50°C (32 – 122°F)
Relative humidity	5% – 95% non-condensing
Bridge taps	not allowed between the Enterprise Edge server loading coils and Enterprise Edge ATA 2

Package check list

Make sure the package contains:

- the Enterprise Edge ATA 2
- a paper, wall mount template
- one line cord
- an ac power supply adapter
- the documentation package

Requirements for operating other devices

For analog or data communication devices:

Ringing signal: Frequency Voltage	20 Hz ± 1 Hz 80 V rms ± 10%
Ringer equivalence number	3
Battery feed voltage	- 48 V dc ± 10%
Loop current	20 mA minimum
FIC code	OL13ABC
Enterprise Edge ATA 2 to Enterprise Edge server loop resistance (cable only)	135 ohms maximum (for example: 800 m of 0.5 mm wire or 2,600 ft of 24 AWG wire)
Analog loop resistance on terminal side for voice applications (cable only)	1,300 ohms maximum (for example: 4,600 m of 0.4 mm wire or 15,000 ft of 26 AWG wire)
Analog loop resistance on terminal for data applications (cable only)	200 ohms maximum (for example: 730 m of 0.4 mm wire side or 2,400 ft of 26 AWG wire)

Analog transmission parameters

Input impedance at tip and ring	600 ohms
Return loss	> 20 dB for 200 to 3,400 Hz (when Network terminated with 600 ohms)
Insertion loss on an internal call	Enterprise Edge ATA 2 to Enterprise Edge server loss 3.0 dB ± 0.5 dB
Insertion loss on an external call	Enterprise Edge ATA 2 to Enterprise Edge server loss 2.2 dB ± 1.0 dB
	Enterprise Edge server to Enterprise Edge ATA 2 loss 0.5 dB ± 1.0 dB

The maximum loss for Enterprise Edge ATA 2 to Central Office (CO) configuration, shown in , must not exceed 10 dB.
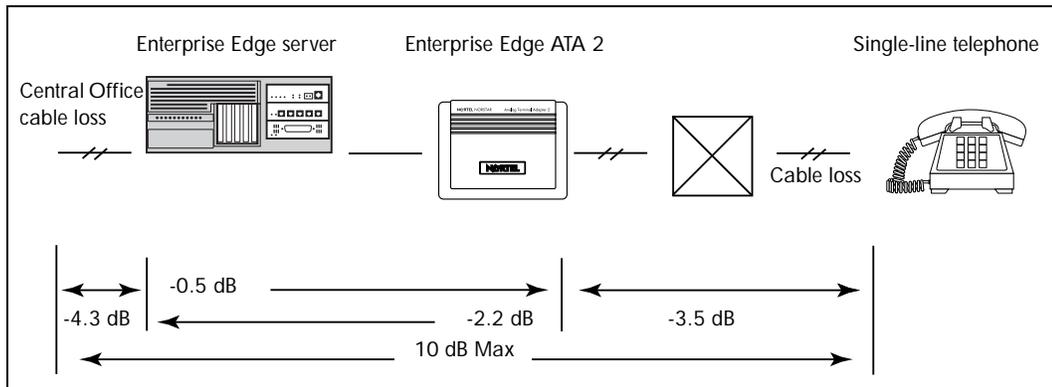
Figure 19 Insertion Loss from the CO to the Single Line Telephone
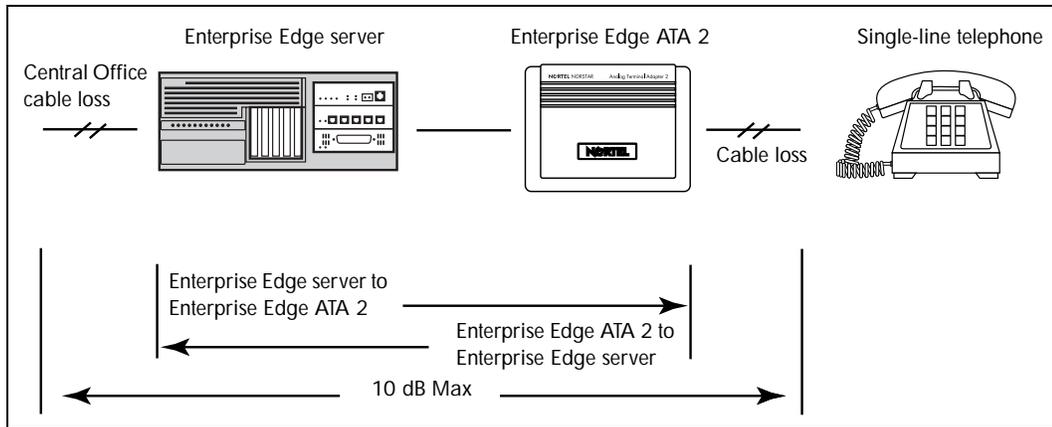
Longitudinal balance to ground	50 dB 60 to 4,000 Hz With IEEE 455-1976 test
Overload level	3 dB

Figure 20 shows a standard end to end loss plan of an OPX configuration when using a voice frequency (VF) repeater.

Figure 20 Standard End-to-End Loss for OPX Application

Insertion Loss Measurement

Measure the total insertion loss between the CO and voice messaging device by using standard dial up test lines with a transmission test set. For example, Hewlett-Packard 4935A Transmission Test Set.

For CO to Analog Device Measurement

To measure the insertion loss from the CO to the voice messaging device:

1. Establish a connection to the 1 mW, 1 kHz, CO service line with a single-line telephone attached to the Enterprise Edge ATA 2

2. Make sure the analog port terminates correctly in 600ohms by:

    • replacing the single-line telephone with the test set

    • using RECEIVE/600 OHM/HOLD mode on the test set

3. Make sure the test set connects in parallel to the service line before removing the single-line telephone or the line drops.

4. Remove the single-line telephone.

5. Measure the 1 kHz tone at the far end of the analog port. (That is where the analog loop ends and where the voice messaging device connects.)

Note: The tone must be greater than - 10 dB (for example: - 9 dB is acceptable).

For Analog Device to CO Measurement

To measure the insertion loss from the voice messaging device to the CO:

1. Establish a connection to a silent termination on the CO service line with a single-line telephone attached to the Enterprise Edge ATA 2.

2. Make sure the analog port terminates correctly in 600ohms by:

    • replacing the single-line telephone with the test set

    • using TRANSMIT/600 OHM/HOLD mode on the test set

3. Make sure the test set connects in parallel to the service line before removing the single-line telephone or the line drops.

4. Remove the single-line telephone.

5. Introduce a 1 kHz tone into the analog line at - 10 dBm, and measure the level at the CO exchange.

    Note: The difference in levels is the transmit loss and must be less than 10 dB (for example: 9 dB is acceptable).

Connect the Enterprise Edge ATA 2

To connect the Enterprise Edge ATA 2:

1. Connect one end of a line cord to the RJ-11 terminal jack. Connect the other end to your telephone, modem or FAX.

2. Connect one end of a line cord to the RJ-11 line jack. Connect the other end to an available station port on the Enterprise Edge system.

3. For a 110 V or 220 V system, plug the DIN connector of the power supply cord into the power supply connector receptacle. Plug the adapter into a standard AC outlet.

> ⚠ This unit must be powered from a Class 2 power source that is UL and CSA Listed.

If your Enterprise Edge ATA 2 does not have a plug connected to the power cord, connect the appropriate plug as follows:

*   brown lead to the active wire
*   blue lead to the neutral wire
*   green and yellow lead to the ground wire.
    Note: Connect **all three** wires.

Allow 1-1/2 minutes start up time.

Note: Maximum transmission loss from an Enterprise Edge ATA 2 analog terminal to the CO must be 10 dB or less at 1 kHz. Condition the line when the loss exceeds this limit.

Figure 21 Enterprise Edge ATA 2 top view

Line Jack   Terminal Jack   Power supply connector receptacle
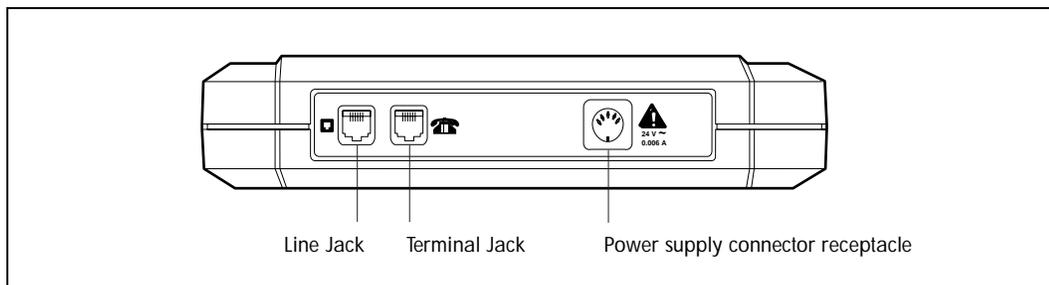
Install the Enterprise Edge ATA 2

Connect the Enterprise Edge ATA 2 before installing. To install an Enterprise Edge ATA 2 on a wall:

1. When using 0.5 mm wire (24 AWG), select a location within 800 m (2,600 ft) of the Enterprise Edge server.

2. Allow 12.5 cm (5 in) clearance for the line jack, terminal jack and power supply connector.

3. Screw two 4 mm (#8) screws into the wall, 130 mm (5 1/4 in) apart, leaving 6 mm (1/4 in) of the two screws showing.

4. Align the slots at the back of the Enterprise Edge ATA 2 unit over the screws. Push the unit against the wall. The line jack, terminal jack and power supply connector must be at the top of the Enterprise Edge ATA 2.

Figure 22 Enterprise Edge ATA 2 back view

Mounting keyhole slots
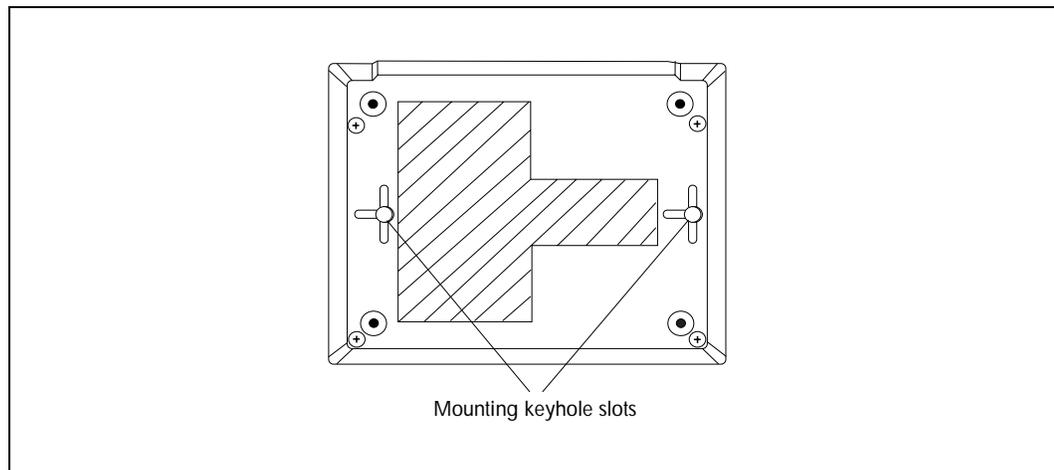
Figure 23 Single line telephone installation overview

Enterprise Edge ATA 2 power cord

Single-line telephone

Central Office

Enterprise Edge server

Enterprise Edge ATA 2

Line loop resistance: 135 ohms maximum

Terminal loop resistance: 1300 ohms maximum
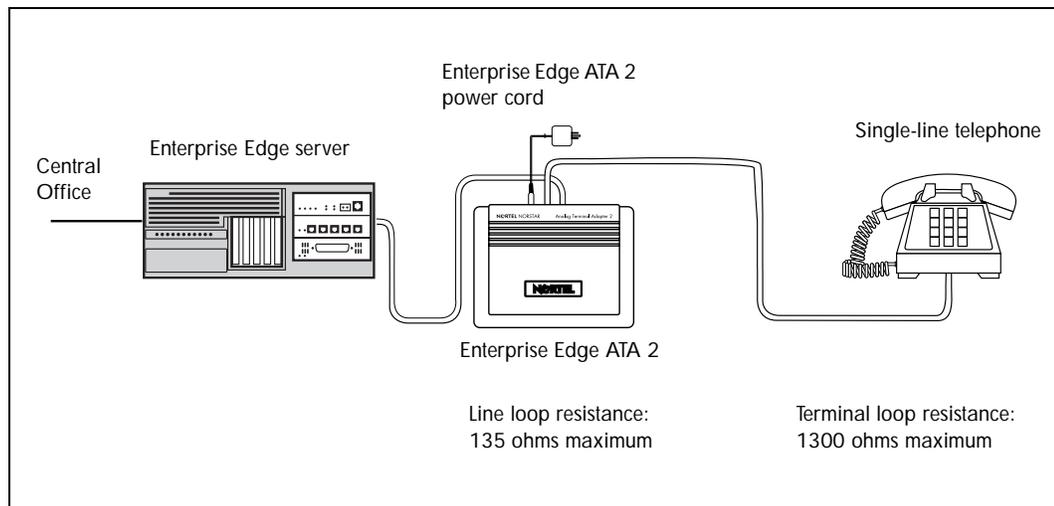
Determine the Enterprise Edge ATA 2 extension number

You must determine the extension number for every Enterprise Edge ATA 2 before
you can perform administration.

1. Connect a single-line telephone to the Enterprise Edge ATA 2.

2. Lift the handset.

3. If you do not hear dial tone press ⌷Link⌷ ⌷9⌷ to access an intercom line.

Note: If you are using a telephone without a ⌷Link⌷ button, refer to the
Enterprise Edge ATA 2 User Guide for details.

4. Dial the extension number of an Enterprise Edge telephone with a display. If
   you hear a busy signal, repeat steps 3 and 4 using a different extension
   number.

5. When the telephone rings, the display shows: Set <nn> calling.

6. The number that appears on the display is the Enterprise Edge ATA 2
   extension number. Record the extension number.

Note: The Automatic Set Relocation feature applies to Enterprise Edge ATA 2.

Configuration requirements for Enterprise Edge ATA 2

Configure the Enterprise Edge ATA 2 using Enterprise Edge Unified Manager. For
information about using Enterprise Edge Unified Manager, refer to the *Enterprise
Edge Programming Operations Guide*.

1. Open the Enterprise Edge Unified Manager.

2. Assign the following to the Enterprise Edge ATA 2:

- assign one external line to the telephone
- set ringing for this line ON or OFF as required
- assign one intercom line
- assign Held Line Reminder as ON
- disable Full Handsfree
- disable Handsfree Answerback
- disable Paging Reception

3. Assign an external line, an intercom line or a line pool as the Prime Line for the Enterprise Edge ATA 2.

   Note: Direct access to a CO line for modems, fax machines and credit card verification machines is possible using the Hotline feature. For direct access to a CO line, program an external line as the Hotline. Enter a pause to replace the telephone number for the Hotline (Feature 78).

4. Exit the Enterprise Edge Unified Manager.

5. Set Enterprise Edge ATA 2 to Tones ON for use with an analog voice device or Tones OFF for use with a data communication device. For details, refer to the *Enterprise Edge ATA 2 User Guide*. (The default is Tones OFF.)

Test Enterprise Edge ATA 2

Confirm that the Enterprise Edge ATA 2 is operating by connecting a single-line telephone to the Enterprise Edge ATA 2. Make an internal call and an external call using the telephone connected to the Enterprise Edge ATA 2. Next, call the Enterprise Edge ATA 2 from an Enterprise Edge telephone. Refer to the *Enterprise Edge ATA 2 User Guide* for details.

Enterprise Edge ATA 2 data communication

The Enterprise Edge ATA 2 connects a standard analog data device, such as a FAX or modem, to the Enterprise Edge server. This section shows the additional steps required to install Enterprise Edge ATA 2 for data communication.

Data Transmission Requirements

When using the Enterprise Edge ATA 2 for data transmission, the analog loop resistance must not exceed 200 ohms. (for example: 730 m. of 0.4 mm wire or 2,400 ft of 26 AWG wire.)

The external line assigned to the Enterprise Edge ATA 2 must follow the transmission network requirements described in the data communication device specifications.

Transmission rates (baud) over 1,200 bps require a modulation design compatible with the telephone line bandwidth. Use a conditioned external line to prevent data corruption during transmission.

Note: Maximum loss from the Enterprise Edge ATA 2 analog terminal to the CO must be 10 dB or less at 1 kHz. If the loss exceeds this limit, condition the line. This loss ensures correct data transmission for different types of data terminals.

FAX and Modem Transmission Compatibility

The Enterprise Edge ATA 2 is compatible with all commercial FAX and modem protocols. When connected to an Enterprise Edge ATA 2, the Enterprise Edge server supports data transmission rates up to and including 28.8 kbit/s.

Note: Nortel Networks cannot guarantee the maximum data transmission rate because the maximum rate is subject to the quality of the end-to-end channel.

Install a Data Communication Device

1. Connect a single-line telephone to the Enterprise Edge ATA 2 unit.

2. Check that the Enterprise Edge ATA 2 is in the Tones OFF mode, lift the handset and enter �framed[Link] �8framed[1] framed[8] .

   Note: framed[Link] appears as framed[Recall] on some telephones.

3. Make sure the terminal loop resistance is less than or equal to 200 ohms.

   Note: If necessary, install the Enterprise Edge ATA 2 near to the data communication device to maintain a maximum loop resistance of less than 200 ohms. When using 0.4 mm wire (26 AWG), the Enterprise Edge ATA 2 must be within 800 m. (2,600 ft) of the Enterprise Edge server.

4. Disconnect the single-line telephone from the Enterprise Edge ATA 2.

5. Plug the data communication device into Enterprise Edge ATA 2.

Figure 24 Data communication device installation overview
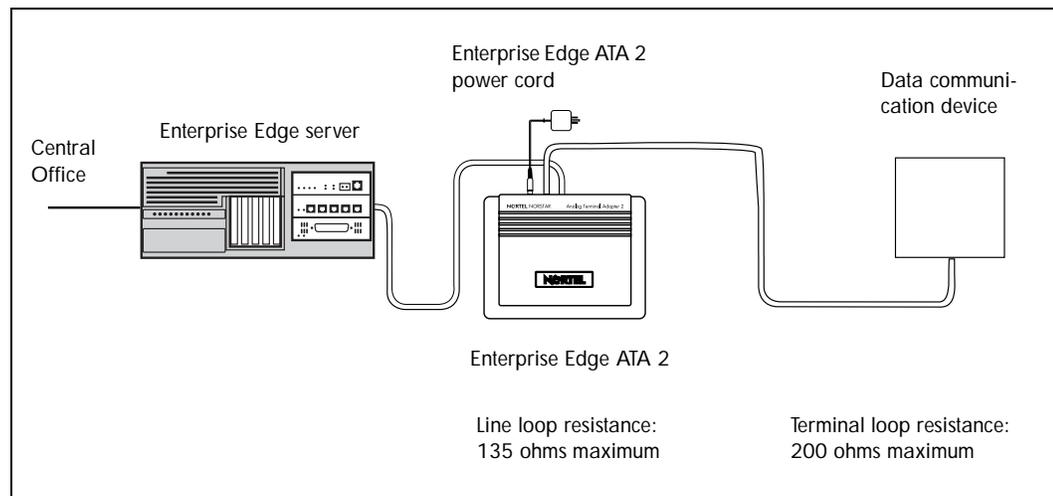
Install other optional equipment

Auxiliary ringer (customer supplied)

To connect an auxiliary ringer.

1. Use the manufacturer's installation instructions to install the auxiliary ringer.

2. Connect the ringer generator miniature jack to the auxiliary ringer output on the MSC. Figure 25 shows the location of the Auxiliary ringer output.
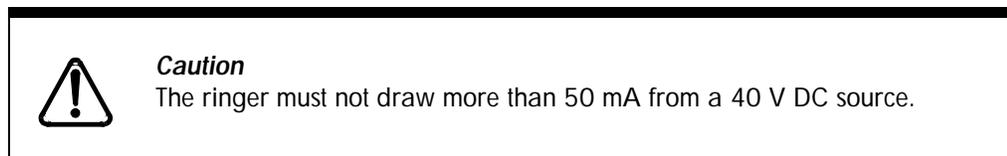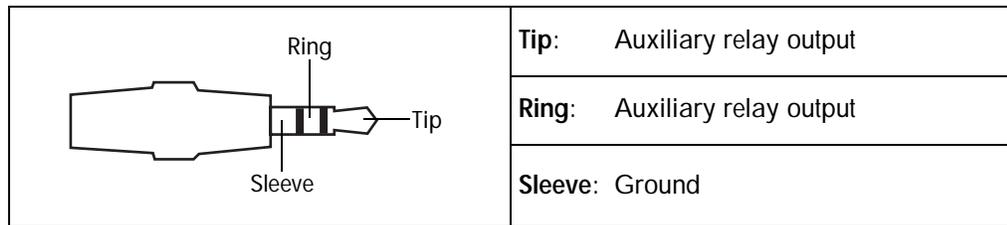
Ring Tip Sleeve	**Tip**: Auxiliary relay output
	Ring: Auxiliary relay output
	Sleeve: Ground

⚠ *Caution*
The ringer must not draw more than 50 mA from a 40 V DC source.
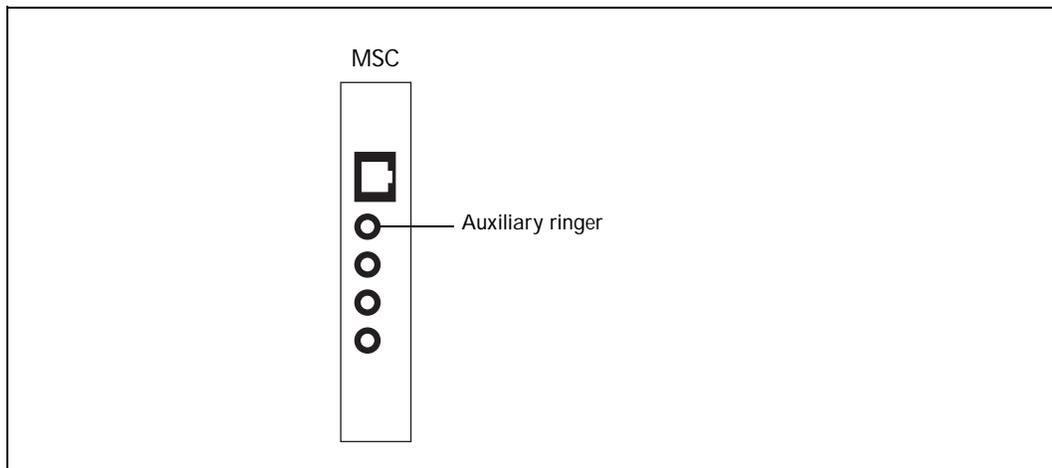
Figure 25 Auxiliary ringer output

MSC

Auxiliary ringer

Auxiliary ringer programming

You can activate the auxiliary ringer by setting auxiliary ring for specific external lines and Enterprise Edge telephones. Refer to the *Enterprise Edge Programming Operations Guide* for programming details.

External music source (customer supplied)

You can use any approved low power device, such as a radio with a high impedance earphone jack, as a music source. The recommended Enterprise Edge server input level is 0.25 V rms across an input impedance of 3300 Ω.

To connect an external music source:

1. Connect the miniature jack of music source output to the Music on hold input on the MSC. Figure 26 shows the location of the Music on hold input.

Ring — Tip — Sleeve (jack diagram)	**Tip**: Music signal
	Ring: No connection
	Sleeve: Ground
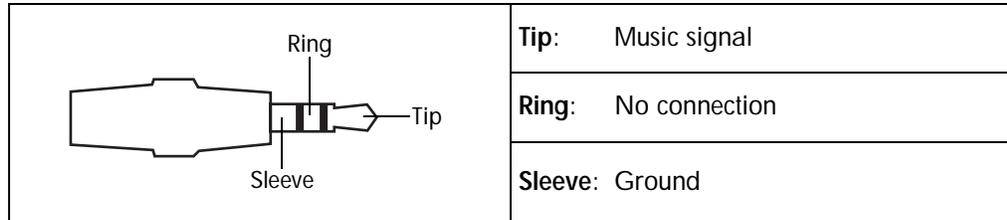
2. Adjust the volume of the music source to a good level by activating Background Music and adjusting the volume at the music source.

> *Tips*
> You can adjust the Background Music volume at every telephone.
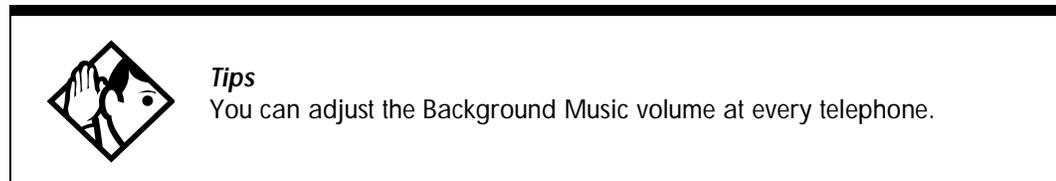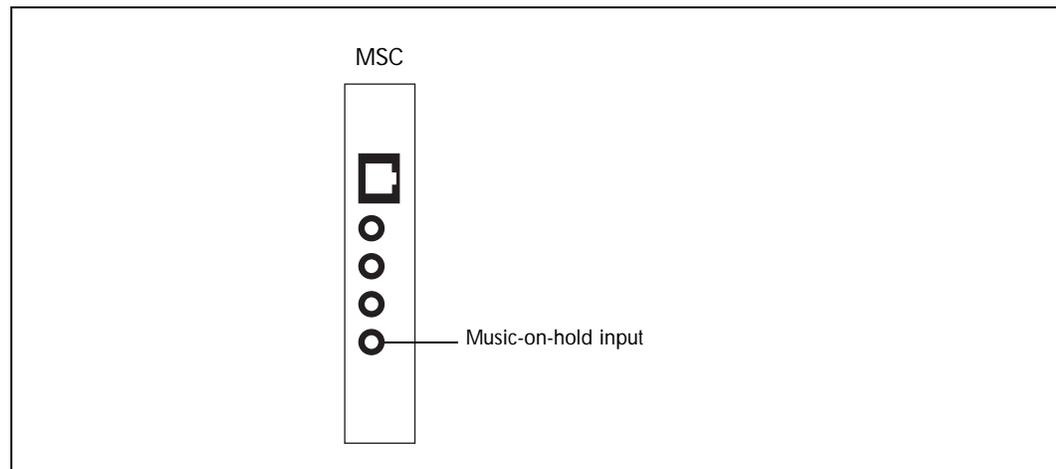
Figure 26 Music on hold input

MSC

Music-on-hold input

External music source programming

You must enable Music for callers on Hold and for Background Music through programming. Refer to the *Enterprise Edge Programming Operations Guide* for more details.

External paging system (customer supplied)

You can connect an external paging system to provide paging over external loudspeakers. The paging output from the MSC is 100 mV rms across an input impedance of 600 Ω.

To connect an external paging system:

1. Install the external paging system using the manufacturer's installation instructions.

2. Connect the paging system audio input to the Page output on the MSC. Figure 27 shows the location of the Page output.

Ring / Tip / Sleeve	**Tip**: Page signal
	Ring: Page signal
	Sleeve: Ground
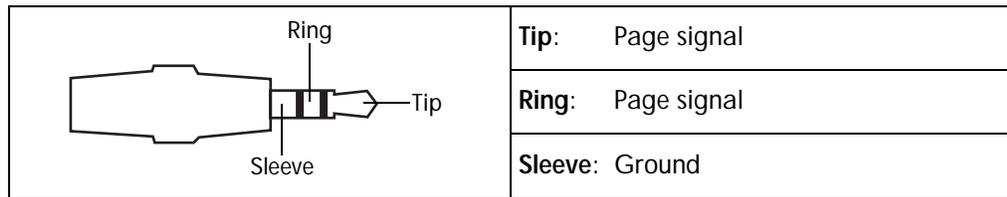
3. Connect the paging system relay to the Page relay output on the MSC. Figure 27 shows the location of the Page relay output.

Ring / Tip / Sleeve	**Tip**: Page relay output
	Ring: Page relay output
	Sleeve: Ground
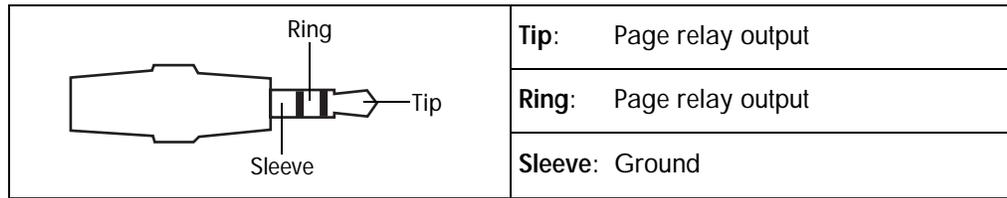
> *Tips*
>
> Enterprise Edge external paging does not support talk back paging equipment unless you use an external line port.
>
> The Enterprise Edge system provides paging over the telephone speakers, when there is no external paging equipment.

Figure 27 Page connectors

MSC

Page relay

Page output

Install Enterprise Edge Companion Wireless   9
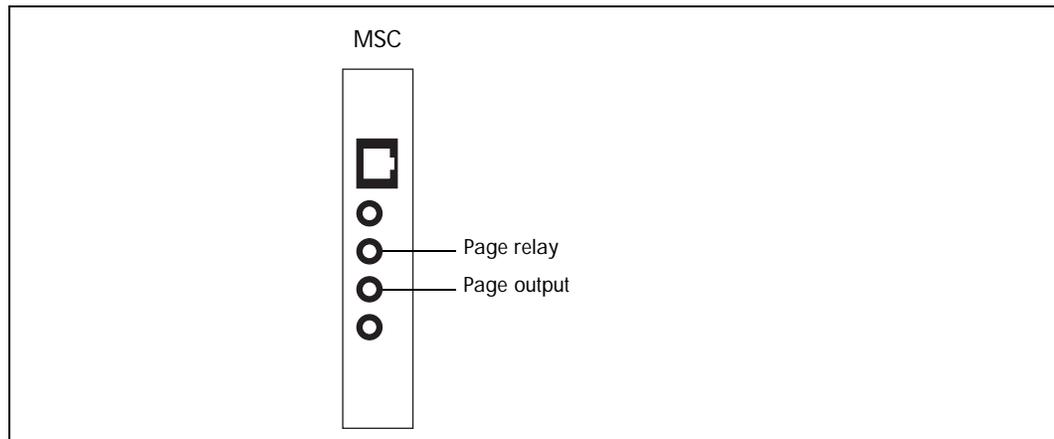
Enterprise Edge Companion Wireless

Note: Enterprise Edge Companion Wireless requires a software keycode for activation.

Your Companion portable telephone allows you to leave your desk without missing important telephone calls. You can carry it with you to make and receive calls on the Enterprise Edge system. The portable telephones can access most Enterprise Edge business features such as call forward, call transfer, conferencing, and voice messaging. Companion on Enterprise Edge has four main components:

Software - Enterprise Edge Companion Wireless software manages the telephone traffic between Companion Base Stations and portable telephones. Base Stations connect to Enterprise Edge in the same way that Enterprise Edge sets do. The Companion portable telephones you register on the system and do not require any ports on the system. You can connect up to 60 portable telephones and up to 32 Base Stations (32 cells) to the system.

Companion Base Stations - Position the Base Stations around the coverage area to send and receive calls between the portable telephones and Enterprise Edge. Base Stations use digital radio technology and support handoff and roaming within the coverage area. The coverage area can be up to 160,000 square meters (three million square feet) when using the maximum number of Base Stations.

Companion portable telephones - Enterprise Edge supports the following portable telephones: Companion 3020, Companion C3050 Etiquette, Companion C3050 CT2Plus, and Companion C3060.

The portable telephones used with your Enterprise Edge system are small, lightweight units with complete digital performance to provide clear voice quality. Companion portable telephones feature a three line, 16-character, alphanumeric display.

Administration and Maintenance Tools - Programming of the Companion system is easily and quickly done through the Enterprise Edge Unified Manager. You can assign portable telephones to the system, check Base Station parameters, and enable and disable registration through programming.

Companion Diagnostics Software allows you to run diagnostics on the wireless system. You run the diagnostics using a personal computer located at the customer site or in a remote location.

For more information about programming Companion and running diagnostics, see the *Enterprise Edge Programming Operations Guide*.

Install Companion

Use the following procedures when installing Companion telephone sets:

- Install remote power interconnect

- Install Base Stations

- Install portable telephones

- Install external antennas and lightning surge protectors

- Power up the system

Install remote power interconnect

The remote power interconnect unit (RPI) provides remote power for Base Station support. Figure 28 shows a diagram of the RPI.

> ⚠️ ***The RPI unit must have the DC backup power supplied by a UL listed UPS.***
> The UPS must have an output voltage rating of 44 to 52 V DC, with a maximum fault current limit of 6 A to protect the RPI's output wiring. If these requirements are not met, it is necessary to use class 1 wiring.
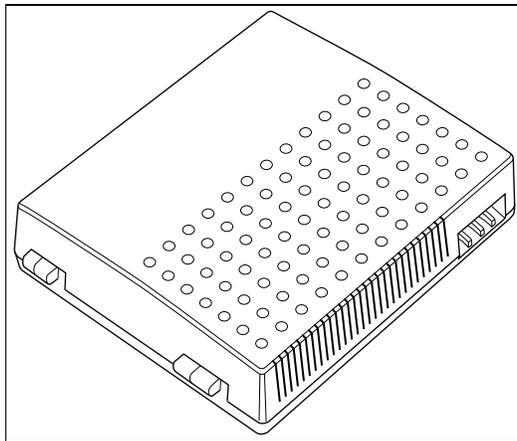
> ✋ ***You must install the RPI units inside a building.***
> The AC outlet powering the RPI must be installed near the equipment and must be easily accessible.
>
> The length of the RPI cord, from the outside surface of the unit to the plug, must be a minimum of 1.3 m (4 1/2 ft.) and a maximum of 4. 6m (15 ft.).

Figure 28 RPI unit

There are two versions of the RPI unit: the RPI-8 BIX UL, which supports up to eight Base Stations; and the RPI-16 BIX UL, which supports up to 16 Base Stations. Each RPI has a connection printed-circuit board and either one (RPI-8 BIX UL) or two (RPI-16 BIX UL) power supply units (PSUs). The maximum input power consumption of an RPI is 240 W. If you use a UPS 48 V dc backup source, the maximum input power requirement of the RPI is 140 W.

You can upgrade an RPI-8 BIX UL to an RPI-16 BIX UL by installing a second PSU to the RPI-8 BIX UL.

If you distribute the RPIs around the site, the number and type of RPIs depend on the where you place and how you power the Base Stations.

To determine how many Base Stations and how many PSUs you need for the number of Base Stations, use the following table:

Table 10 RPI Requirements

| Base Stations	RPI-16 and RPI-8 required	PSUs required
1–8	1 RPI-8	**1** PSU
9–16	1 RPI-16	**2** PSUs
17–24	1 RPI-16 and 1 RPI-8	**3** PSUs
25–32	2 RPI-16	**4** PSUs

Install the RPI using the following procedures:

- Install the RPI unit
- Wiring the RPI
- Connect the RPI

Install the RPI unit

1. Position the screw holes for the RPI using the dimensions shown in the following figure.

Figure 29 RPI mounting holes
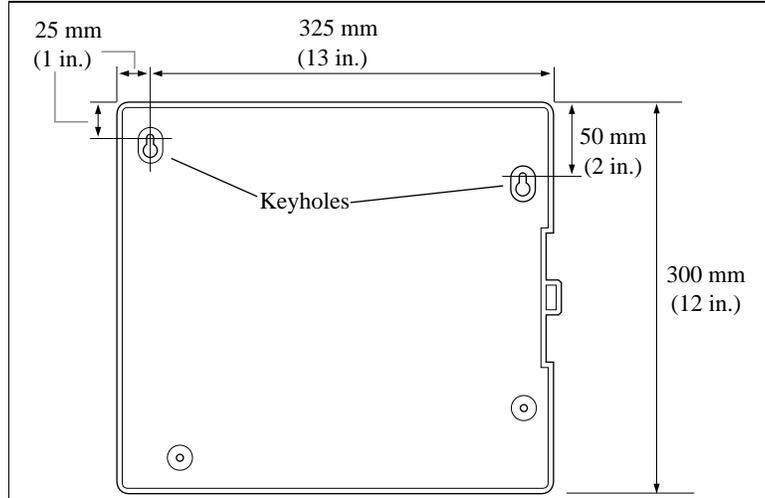
To provide acceptable ventilation and to prevent overheating, leave a clearance of at least 125 mm (5 in.) around the RPI.

If you are installing two RPIs, one above the other, leave a clearance of at least 300 mm (12 in.) between them to provide acceptable ventilation and to prevent overheating.

Install RPIs at least 3 0 0mm (1 2in.) from the ceiling.

2. Insert wall plugs in the holes.

3. Partially screw in two #10 50-mm (2-in.) screws for the holes.

4. Open the cover with a screwdriver by pushing in and then down to release the latch on the right side. You can remove the cover by lifting it up.

Figure 30 Opening the RPI cover
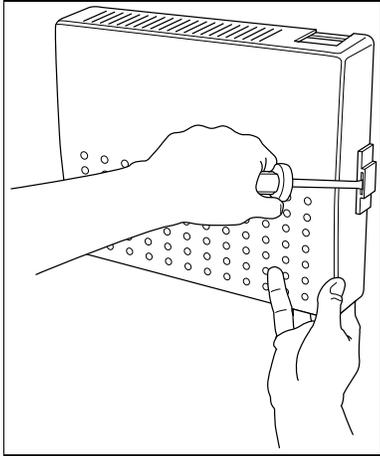
5. Hang the RPI on the two screws and tighten them.

6. Install the remaining two screws.

7. Feed the power cord through the bottom of the RPI and route it through the clip and around the strain relief support. Figure 31 shows how to route the power cord.

8. Route the power cord to the input power socket just to the left of PSU 1. Connect the plug to the socket.

    Note: Label the RPIs help find any future problems.

Figure 31 RPI components
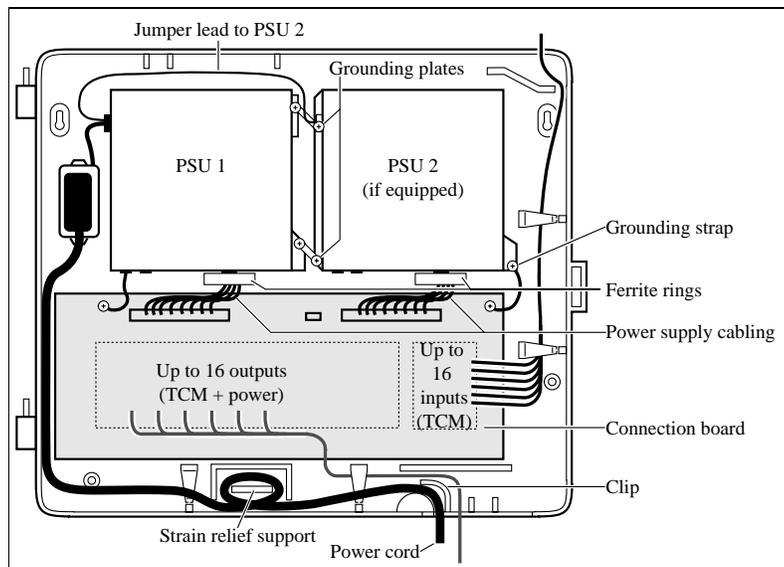
> ⚠ *Disconnect the RPI power cord.*
> Do not apply power to the RPI until its installation and wiring are complete.

The RPI-8, has grounding straps and plates fitted so you can upgrade it to an RPI-16 (see Figure 31).

Wiring the RPI

> ⚠ *Do not run unprotected power cables outside.*

The maximum two-way DC loop resistance for power pairs, including interconnections for each Base Station, is 75 ohms. You need one or two power pairs between the RPI and the Base Station. The number of power pairs depends on the wire size of the power pair and the distance between the Base Station and the RPI.

Maximum power cable distance (approximate)

The maximum cable distances allowed between the RPI and the Base Station depends on the size of wire you use.

Table 11 Cable distances

| Wire size	Single pair	Double pair
0.6 mm (22 AWG)	800 m (2,500 ft.)	1200 m (4,000 ft.)
0.5 mm (24 AWG)	500 m (1,500 ft.)	1000 m (3,000 ft.)

> ⚠ *When you use two power pairs, connect both power pairs with the same polarity.*

Connect the RPI

Connect the power pairs to the correct connectors. The following diagram shows the location of the input and output connectors on the RPI connector printed-circuit board.

Figure 32 RPI connector printed-circuit board
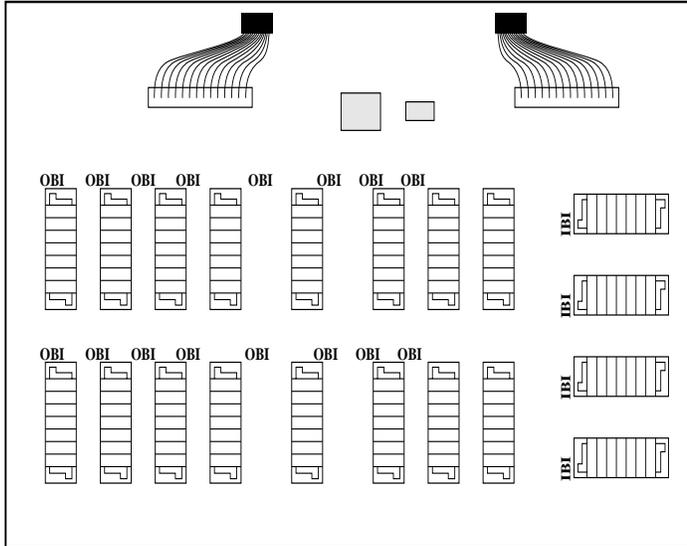
Output connections

Feed the output pairs in through the bottom of the RPI and route the pairs to the output connectors. Figure 33 shows how to route the output pairs. If you use one pair to power a Base Station, connect the power pair to -PWR(1) and +PWR(1). If you use two pairs to power a Base Station, connect one pair to -PWR(1) and +PWR(1), and the second pair to -PWR(2) and +PWR(2).

> ⚠️ *Ensure both pairs have the same polarity.*
> If you connect two power pairs with opposite polarities, you can damage the Base Station and RPI.

Figure 33 Output connector pinout
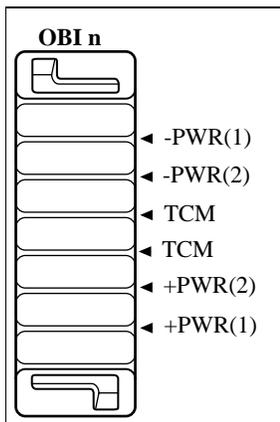
Input connections

Feed the TCM input pairs from the Enterprise Edge distribution frame through the top of the RPI and route the pairs to the input connectors (IBIX1 to IBIX4). Figure 34 shows how to route the input pairs. There can be fewer than 16 input pairs in any given RPI installation.

Figure 34 Input connector pinout
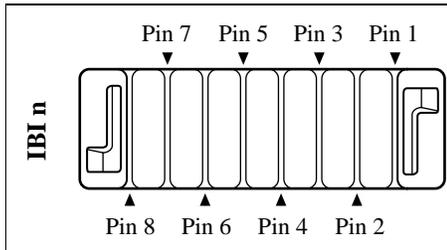
Table 12 Input wiring

Connector	Pin	Signal	Output connector
IBIX1	1, 2	TCM 1	OBIX1
	3, 4	TCM 2	OBIX2
	5, 6	TCM 3	OBIX3
	7, 8	TCM 4	OBIX4
IBIX2	1, 2	TCM 5	OBIX5
	3, 4	TCM 6	OBIX6
	5, 6	TCM 7	OBIX7
	7, 8	TCM 8	OBIX8
IBIX3	1, 2	TCM 9	OBIX9
	3, 4	TCM 10	OBIX10
	5, 6	TCM 11	OBIX11
	7, 8	TCM 12	OBIX12
IBIX4	1, 2	TCM 13	OBIX13
	3, 4	TCM 14	OBIX14
	5, 6	TCM 15	OBIX15
	7, 8	TCM 16	OBIX16

Table 13 RPI-8 BIX wiring chart

Pin	RPI Connector printed-circuit board	Label	Wire color
26		-PWR	White-Blue
1	OBIX1		Blue-White
27	BS1	TCM	White-Orange
2			Orange-White
28		+PWR	White-Green
3			Green-White
29		-PWR	White-Brown
4	OBIX2		Brown-White
30	BS2	TCM	White-Slate
5			Slate-White
31		+PWR	Red-Blue
6			Blue-Red
32		-PWR	Red-Orange
7	OBIX3		Orange-Red
33	BS3	TCM	Red-Green
8			Green-Red
34		+PWR	Red-Brown
9			Brown-Red
35		-PWR	Red-Slate
10	OBIX4		Slate-Red
36	BS4	TCM	Black-Blue
11			Blue-Black
37		+PWR	Black-Orange
12			Orange-Black
38		-PWR	Black-Green
13	OBIX5		Green-Black
39	BS5	TCM	Black-Brown
14			Brown-Black
40		+PWR	Black-Slate
15			Slate-Black
41		-PWR	Yellow-Blue
16	OBIX6		Blue-Yellow
42	BS6	TCM	Yellow-Orange
17			Orange-Yellow
43		+PWR	Yellow-Green
18			Green-Yellow
44		-PWR	Yellow-Brown
19	OBIX7		Brown-Yellow
45	BS7	TCM	Yellow-Slate
20			Slate-Yellow
46		+PWR	Violet-Blue
21			Blue-Violet
47		-PWR	Violet-Orange
22	OBIX8		Orange-Violet
48	BS8	TCM	Violet-Green
23			Green-Violet
49		+PWR	Violet-Brown
24			Brown-Violet

Table 14 RPI-16 BIX wiring chart

Pin	RPI Connector printed-circuit board	Label	Wire color
26	OBIX9 BS9	-PWR	White-Blue
1			Blue-White
27		TCM	White-Orange
2			Orange-White
28		+PWR	White-Green
3			Green-White
29	OBIX10 BS10	-PWR	White-Brown
4			Brown-White
30		TCM	White-Slate
5			Slate-White
31		+PWR	Red-Blue
6			Blue-Red
32	OBIX11 BS11	-PWR	Red-Orange
7			Orange-Red
33		TCM	Red-Green
8			Green-Red
34		+PWR	Red-Brown
9			Brown-Red
35	OBIX12 BS12	-PWR	Red-Slate
10			Slate-Red
36		TCM	Black-Blue
11			Blue-Black
37		+PWR	Black-Orange
12			Orange-Black
38	OBIX13 BS13	-PWR	Black-Green
13			Green-Black
39		TCM	Black-Brown
14			Brown-Black
40		+PWR	Black-Slate
15			Slate-Black
41	OBIX14 BS14	-PWR	Yellow-Blue
16			Blue-Yellow
42		TCM	Yellow-Orange
17			Orange-Yellow
43		+PWR	Yellow-Green
18			Green-Yellow
44	OBIX15 BS15	-PWR	Yellow-Brown
19			Brown-Yellow
45		TCM	Yellow-Slate
20			Slate-Yellow
46		+PWR	Violet-Blue
21			Blue-Violet
47	OBIX16 BS16	-PWR	Violet-Orange
22			Orange-Violet
48		TCM	Violet-Green
23			Green-Violet
49		+PWR	Violet-Brown
24			Brown-Violet
50			
25			

Install Base Stations

Before you install wireless equipment, ensure that a site planner has determined Base Station locations and recorded them in a provisioning record.

> ⚠ *You must install all Base Stations within 1230 m (4000 ft., TCM wiring length) of the Enterprise Edge system or Base Station Module.*
> To optimize seamless hand off, the difference in TCM wiring length between neighboring Base Stations must not exceed 300 m (1,000 ft.).

Before you install or move wireless equipment in the United States, check that you have approval from UTAM Inc.

The United States FCC has appointed UTAM Inc. as the body responsible for coordinating and verifying the installation or relocation of unlicensed, personal wireless communication devices. To comply with UTAM Inc., the system uses keys and credits to control user capacity and to ensure system location verification. You require these software keys and credits to activate Companion services. You purchase these credits at the time the you place the order.

Position a Base Station

Avoid installing Base Stations on large concrete or marble columns because these columns affect radio coverage. If possible, place the Base Station at least 1m (40 in.) from these types of columns. Do not install a Base Station with the antenna housings near metal objects. Be careful not to damage existing wiring or panels.

Do not position Base Stations in ducts, plenums, or hollow spaces used to transport environmental air except where the duct, plenum or hollow space is created by a suspended ceiling having lay-in panels. When you need more than one Base Station in one cell to meet traffic requirements, position the Base Stations at the same cell center. To place all Base Stations in the same cell center:

- for the USA a minimum of 54 in. and a maximum of 9 ft. 9 in. distance between the center of one Base Station to the center of another

- for Canada a minimum of 9 cm and a maximum of 1.5 m distance from edge to edge

> ✋ *Never install Base Stations in rows.*

Position Base Stations away from office areas or areas with high portable telephone traffic. Table 15 shows the minimum distance between office areas and Base Stations. Install the Base Station on the ceiling or high on walls helps to maintain these minimum distances.

Table 15 Minimum distance between office areas and Base Stations

Number of Base Stations in the cell	Minimum distance between office areas and Base Stations
1	1 m (40 in.)
2	1.4 m (56 in.)
3	1.8 m (72 in.)
4	2 m (80 in.)

Install a Base Station

Install Base Stations on a wall or on a ceiling. (When installing Base Stations on a wall, install the Base Station with their covers at the bottom, as shown in Figure 36). Allow for clearances around the Base Station as indicated in Table 16.

Table 16 Clearance for the Base Stations

Clearance conditions	Canada	USA
Clearance from all other objects	9 cm	3.5 in.
Vertical clearance from base station center to base station center	27 cm	54 in.
Horizontal clearance from base station center to base station center	41 cm	54 in.

To install a Base Station:

1. Fasten the bracket into position using two #8 38-mm (1-1/2 in.) screws.

2. Route the cable from the Enterprise Edge system through the top (or bottom) opening.

3. Wind any excess cable around the posts, then fasten it under the strain relief.

4. Connect the wires to the BIX connector on the bracket termination board as shown in Figure 35.

   The polarity of the TCM connections is not important. If you connect the two power pairs to the Base Station bracket termination board, you must connect the power pairs with the same polarity.

⚠ Ensure that the RPI is off before connecting power pairs to the Base Station.

Figure 35 Bracket termination board
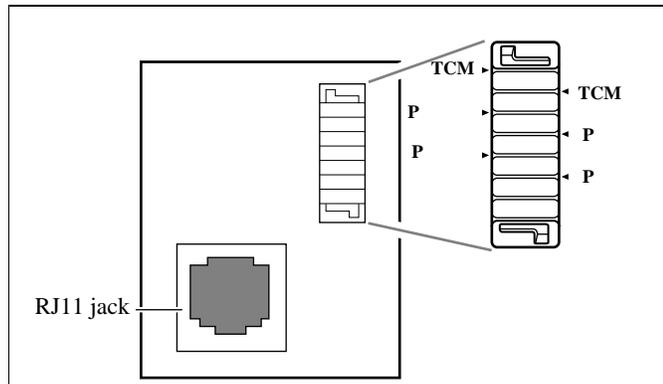
5. Install the Base Station on the bracket. Snap it into position.

6. Connect the power RJ-11 jumper lead to the RJ-11 jacks on the termination board and the Base Station.

7. For plug top power supplies only, connect the power supply connector to the Base Station power connector. Make sure the Base Station uses a class 2 plug top power source only.

> *If you insert the power supply connector in the wrong direction, you can damage the plug top power supply and the Base Stations.*
> Position the power supply connector in the correct direction and push it into place.

8. n the space provided on the label attached to the lower right corner of the mounting bracket, record the port number used.

   Include the marking information for all of the Base Stations on the completed installation floor plans.

9. Slide the cover on the bracket, using the guide to position it correctly. Snap it into place.

Figure 36 Slide the cover on bracket
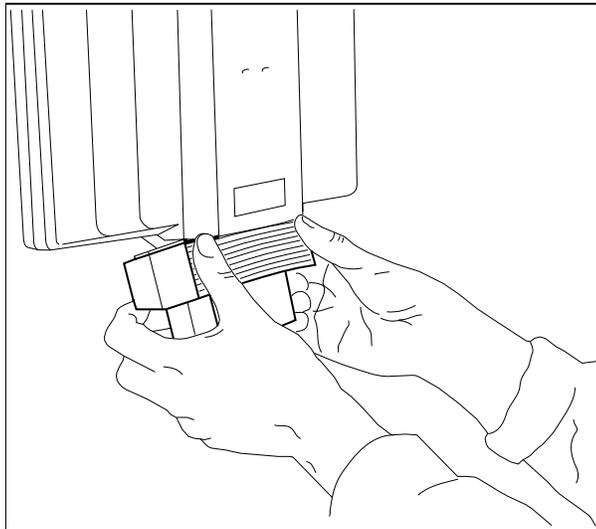
Install portable telephones

To use Companion portable telephones, you must first install radio Base Stations to transmit and receive radio signals to and from the portable telephones. See <u>Install Base Stations</u> on page 95.

You use a different method to install portable telephones than desktop telephones. There are no direct connections between the portable telephones and the system. Do the following:

- Install the batteries and battery charging units for each portable, using the instructions that come with the portable.

- Register every Companion portable for use with the system. Enter the software keys for Companion in the Enterprise Edge Unified Manager under
  .

Note: You must register a portable telephone before you can use it can. By default, Companion portable telephones are not assigned to the DNs. The range of portable extensions available for wireless registration is 061 to 118. For more information about registering and programming Companion portables, see the *Enterprise Edge Programming Operations Guide*.

Install external antennas and lightning surge protectors

When installing external antennas and lightning surge protectors:

- You must install the antenna vertically. (For more information, refer to the figure).

- Use #8, 12 mm to 50 mm ($^1/_2$-in. to 2 in.) screws to install the antenna bracket and lightning surge protector bracket to the wall.

- Always ensure that the antenna is clear of any adjacent obstruction or metal objects. If you use more than one external antenna at a cell center, separate the antennas at by least 1 m (40 in.) to avoid radio interference problems.

- When running the coaxial cable inside or outside, be careful not to damage the cable. Damage to the cable affects its performance. The minimum recommended bending radius is 200mm (8in .).

- The coaxial cable length must not exceed 10 m.

- Use RG-58AU coaxial cables to connect the antennas to the Base Stations.

- You can attach a proprietary extension cable between the lightning surge protector and the antenna or between the lightning surge protector and the Base Station. Make sure you keep the total cable length as short as possible and only use the recommended extension cable when necessary.

- You must install a lightning surge protector for each external antenna.

FCC requirements.
In the United States, the FCC requires that you connect only approved antennas to Companion Base Stations.

Do not install the outdoor antenna or the lightning surge protector during an electrical storm.
Always turn off the Base Station power before connecting the coaxial cable of an outdoor antenna.

Always install the lightning surge protector at the cable entry point into the building.

Connect the lightning surge protector to ground before connecting the coaxial cable.

Install procedures for outdoor antennas and lightning surge protectors for the United States of America

Figure 37 Installed antenna and lightning surge protectors (USA)
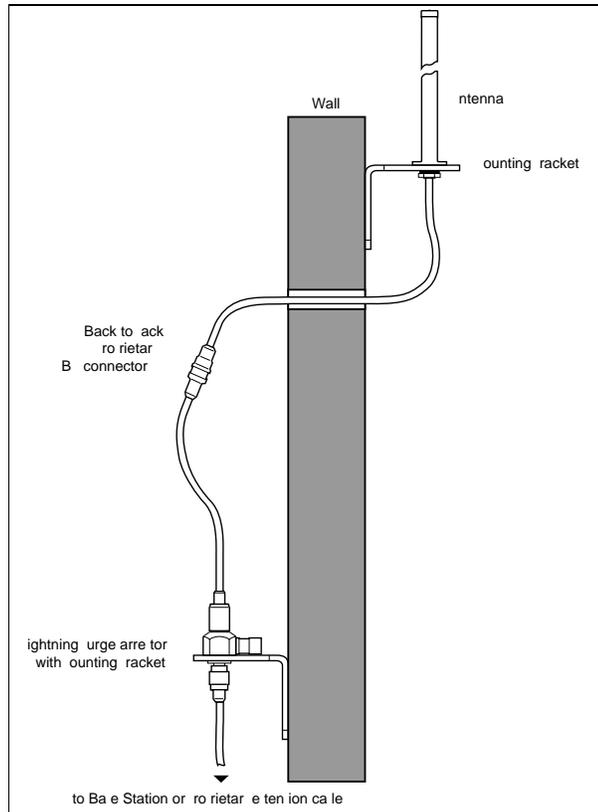
To ensure you use only recommended antennas:

- the outdoor antenna connectors on the Base Station are special proprietary BNC connectors

- antennas are supplied with cables attached and terminated with special proprietary BNC plugs to join with the connector on the Base Station

- cables are not supplied with outdoor antennas

Refer to the following procedures for more information:

- [Before you install an outdoor antenna (USA)](#)

- [Install a lightning surge protector (USA)](#)

Before you install an outdoor antenna (USA)

Before you install an outdoor antenna:

- Locate the antenna on the external wall of the building.

- Keep the outdoor antenna as close as possible to the Base Station connected to it (the Base Station must be inside). The recommended installing height is 13 to 16 ft. above ground.

- Always install a lightning surge protector between an outdoor antenna and a Base Station.

Install an outdoor antenna (USA)

To install an outdoor antenna, follow these steps:

1. Make a hole for the coaxial cable.

2. Install conduit for the antenna cable according to local building and wiring codes.

3. Screw the antenna bracket to the wall so that the antenna is vertical on the exterior wall of the building.

4. Loosen the nut on the antenna.

5. Slide the antenna into the slot of the bracket and tighten the nut.

6. Feed the coaxial cable through the wall to the lightning surge protector on the interior wall.

Figure 38 Antenna with antenna bracket (USA)
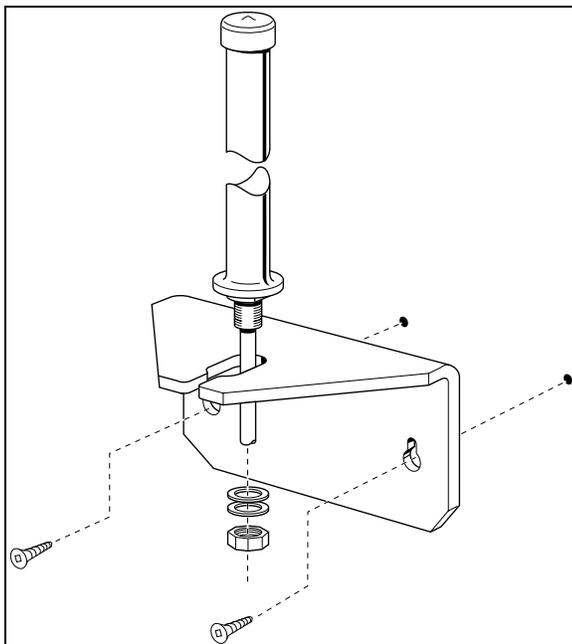
Install a lightning surge protector (USA)

Install the lightning surge protector to protect the Companion components from electrical surges.

To install a lightning surge protector, follow these steps:

1. Install the lightning surge protector on the interior wall as close as possible to the entry point of the coaxial cable from the outdoor antenna.

Figure 39 Lightning surge protector and bracket (USA)
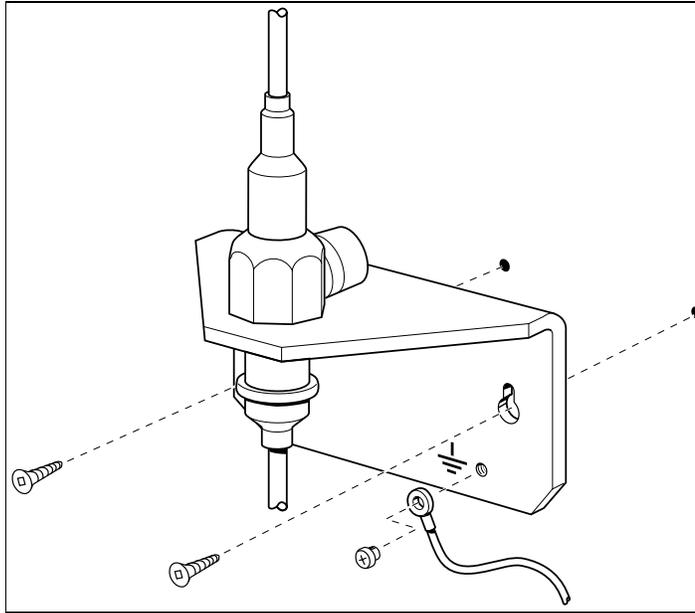
Before you connect the ground lead to the lightning surge protector, attach it to an approved ground.

> *Tip*
> The recommended wire gauge is 6 AWG. Connect the ground lead to the building ground. Do not connect to a ground rod or series of ground rods. If you cannot connect the ground lead to the building ground, connect it to the metal frame of the building. The connection must be no more than 6 to 10 ft.
>
> You can connect the ground lead to the 120 V ac conduit (which is connected to the building ground). However, using the ac conduit is not the preferred method of installation.
>
> The connector between the antenna and the lightning surge protector and between the lightning surge protector and the Base Station is a proprietary BNC connector. You must align the BNC connectors before you can make the connection.

2. Route and connect the coaxial cable from the outdoor antenna to the lightning surge protector.

3. Route and connect the coaxial cable from the lightning surge protector to the appropriate Base Station connector.

Install procedures for outdoor antenna and lightning surge protectors for Canada

There are three types of external antennas:

- indoor directional antenna
- indoor omnidirectional antenna
- outdoor omnidirectional antenna

There are separate installation procedures for each type. You must install a lightning surge protector for every outdoor antenna installed.

The following are requirements for installing outdoor antennas:

- If you are installing an outdoor antenna on a metal surface greater than 18 cm in diameter, position the antenna perpendicular to the surface.

- When running the coaxial cable inside or outside, be careful not to damage the cable. Damage to the cable affects its performance. The minimum recommended bending radius is 20 mm.

- Always ensure that the antenna is clear of any adjacent obstruction or metal objects. If you use more than one outdoor antenna at a cell center, separate the antennas at by least 0.5 m (40 in.) to avoid radio interference problems.

- Use RG-58/U coaxial cables to connect the antennas to the Base Stations.

> ⚠ *Only connect passive antennas to the Companion Base Stations.*
> The coaxial cable you use to connect the external antenna to a Companion Base Station must have an impedance of 50 ohms.

Install an indoor directional external antenna (Canada)

The indoor directional antenna comes with a back plate for installing. The recommended installing height on a wall is halfway between the floor and the ceiling.

For some applications (for example, a stairwell), you can install the antenna on the ceiling.

Figure 40 Indoor directional external antenna (Canada)
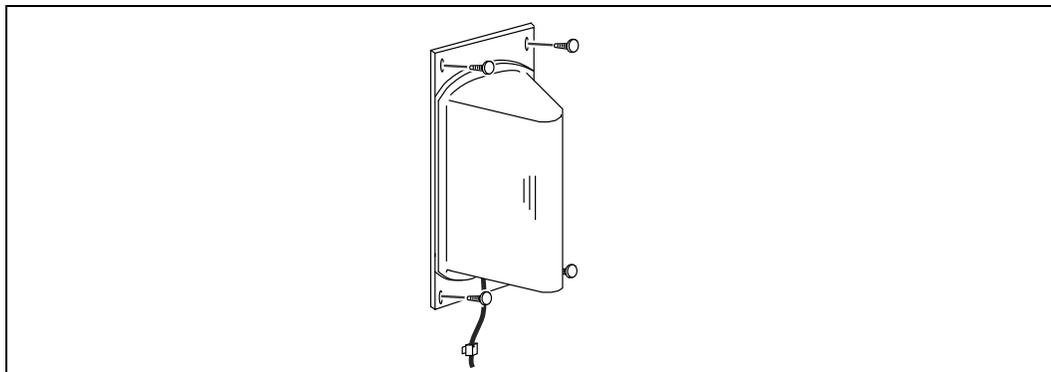
1. Use four screws to install the antenna.

2. To prevent stress on the coaxial cable, fasten it to the mounting surface.

3. Connect the antenna to the appropriate Base Station radio.

   Note: The coaxial cable length must not exceed 10 m.

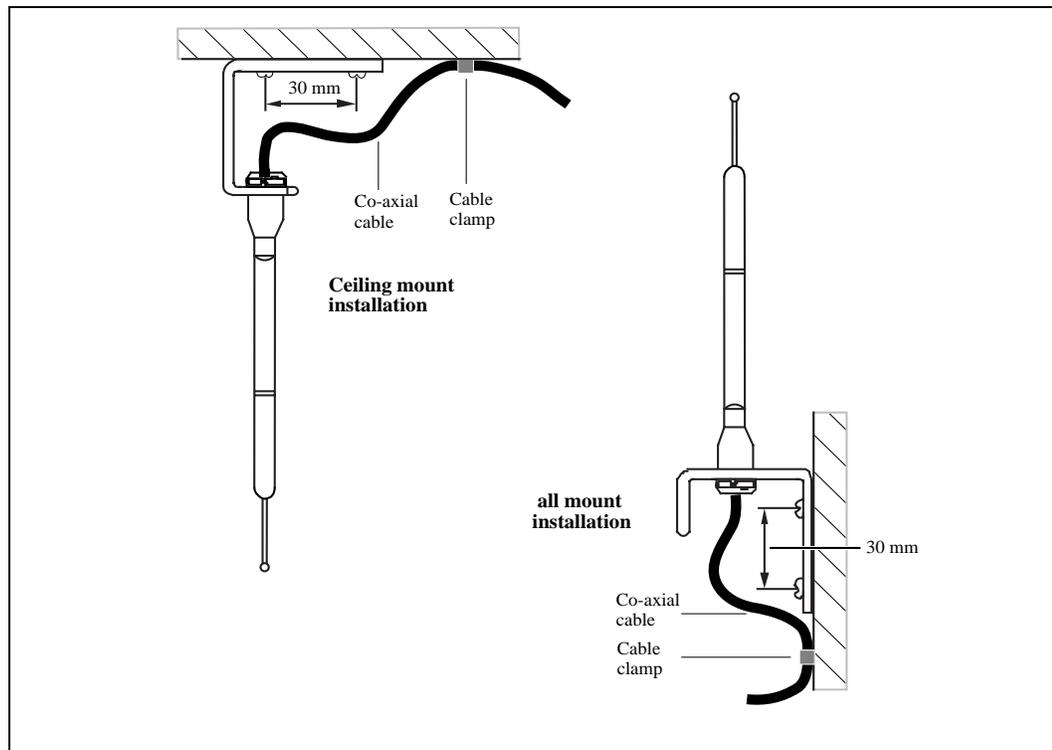### Install an indoor omnidirectional external antenna (Canada)

When installing an indoor omnidirectional external antenna:

• Use the bracket supplied to install the antenna on a wall or ceiling.

Note: Use the bracket supplied with the antenna to provide the necessary clearance between the floor or wall and the antenna.

• Install the bracket so that the external antenna is vertical. The recommended install height on a wall is halfway between the floor and the ceiling.

Figure 41 Install an indoor omnidirectional external antenna (Canada)

1. Insert the antenna in the bracket so that the antenna is vertical.

2. Use to screws to install the bracket to the wall or ceiling.

3. To prevent cable stress on the coaxial cable, fasten it to the mounting surface with a clamp.

4. Connect the external antenna to the appropriate Base Station radio.

> **Note:** The length of the coaxial cable must not exceed 10 m.

Install an outdoor omnidirectional external antenna (Canada)

When installing an outdoor omnidirectional external antenna:

• Locate the antenna on the external wall of the building.

Note: You must install the antenna on a vertical surface.

• Keep the outdoor omnidirectional external antenna as close as possible to the Base Station (the Base Station **must** be inside). The recommended install height is 4 m to 5 m above ground level.

• Always install a surge protector between an outdoor omnidirectional external antenna and a Base Station.

Note: The connector on the outdoor omnidirectional external antenna is a TNC female connector. To connect the antenna, you need an adapter to connect the TNC connector to the BNC coaxial cables or a coaxial cable with a TNC male connector on one end and BNC male connector on the other end.

⚠ *Fit lightning protection to the antenna if appropriate.*
See [Install a lightning surge protector (Canada)](#) on page 107 for more information.

⚠ *Important points to remember:*
• Do not install the external antenna or the lightning surge protector during an electrical storm.

• Always turn off the Base Station power before connecting the coaxial cable of an outdoor antenna.

• Always install the antenna at the cable entry point into the building.

• Connect the lightning surge protector to ground before connecting the coaxial cable.

Figure 42 Install the outdoor omnidirectional external antenna (Canada)
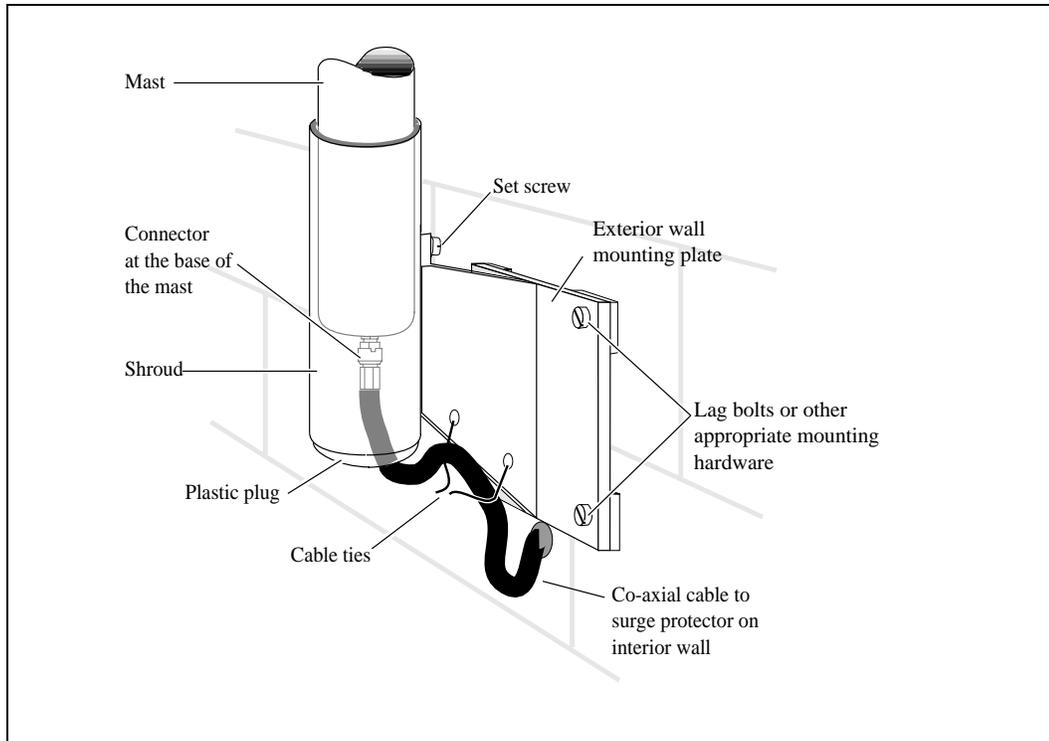
To install an outdoor omnidirectional external antenna, follow these steps:

1. Screw the antenna mounting plate vertically to the exterior wall of the building with lag bolts or other appropriate hardware. Figure 42 shows how to fasten the mounting plate.

2. Feed one end of the coaxial cable up through the bottom of the antenna cover and attach the BNC connector to the base of the mast.

3. Slide the mast down into the cover until it fits.

4. Rotate the mast until the threaded hole in the base of the mast aligns with the set screw hole in the cover. Tighten the set screw.

5. Route the coaxial cable along the bottom edge of the plate between the cover and the wall plate and tie the cable up.

   Note: The total length of the coaxial cables from the outdoor antenna to the Base Station must not exceed 10 m.

6. Insert the plastic plug into the base of the cover to keep the weather out.

7. Feed the coaxial cable through the wall to the surge protector on the interior wall.

Install a lightning surge protector (Canada)

Install the lightning surge protector for the outdoor omnidirectional external antenna to protect it from electrical surges. The recommended lightning surge protector is part number A0382082. Refer to the manufacturer's installation instructions for more details on its installation. To install a lightning surge protector, follow these steps:

1. Install the surge protector on the interior wall as close as possible to the entry point of the coaxial cable from the outdoor antenna. Figure 43 shows where to locate the surge protector. Follow the installation instructions that come with the surge protector.

Figure 43 Install the lightning surge protector (Canada)
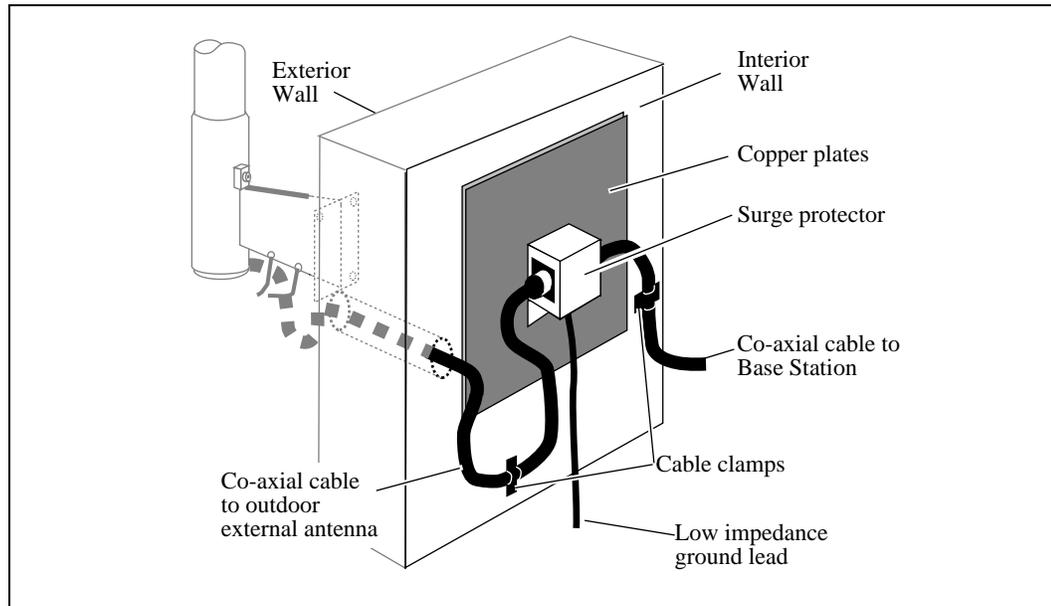
2. Before you connect the ground lead to the surge protector, attach it to an approved ground. The recommended wire gauge is 6 AWG (4 mm). Connect the ground lead to the building ground. **Do not connect to a ground rod or series of ground rods**. If you cannot connect the ground lead to the building ground, connect it to the metal frame of the building frame. The connection must be no more than two to three meters.

   You can connect the ground lead to the 120 Vac conduit (which is connected to the building ground). However, Nortel Networks does not recommend using the 120 V ac conduit.

3. Route and connect the coaxial cable from the outdoor antenna to the surge protector.

4. Route and connect the coaxial cable from the surge protector to the appropriate Base Station BNC connector.

    Note: The total length of the coaxial cables from the outdoor antenna to the Base Station must not exceed 10 m.

Power up the system

If you added a Base Station that requires a software update, the system begins downloading the software to the Base Station. The display shows   .

1. Press   **A**   to clear the message. When the Base Station software finishes downloading, the   appears.

2. Press   **A**   to clear the message. Some Base Stations do not power up at the same time, and this message repeats at the beginning of each download.

In the United States, the display shows one of the following messages after powering up:

Table 17 UTAM messages

If display shows	See
UTAM code req'd	System logical identifier (LID) information
UTAM test failed	See alarm codes in the Windows NT event log.

> *A loss of UTAM information occurs when upgrading US Enterprise Edge systems.*
> You need UTAM Recovery Codes.

Install the Data Networking Hardware 10

Task overview

The data networking hardware is installed in the Enterprise Edge server at the factory. To install the data networking hardware, you need to perform the following tasks:

- Connect wiring to the LAN card
- Connect wiring to the WAN card
- Connect wiring to the modem card

Connect wiring to the LAN card

To connect the LAN card, insert the local area network (LAN) cable into the RJ-45 jack on the LAN card. For information about the location of the LAN card, refer to the figure Enterprise Edge server external points of connection on page 23.

Connect wiring to the WAN card

If your Enterprise Edge server does not contain a WAN card or you do not have a connection to the WAN, skip to Connect wiring to the modem card.

To connect the WAN card, insert the wide area network (WAN) cable into the RJ-48C jack on the WAN card. For information about the location of the WAN card, refer to the figure Enterprise Edge server external points of connection on page 23.

Connect wiring to the modem card

To connect the modem card, a PSTN line into the Line jack on the modem. For information about the location of the modem card, refer to the figure Enterprise Edge server external points of connection on page 23.

Note: You do not need the modem card for all installations.

Initializing the Enterprise Edge system 11

After you install the Enterprise Edge server, you must set the initial configuration parameters. These initial parameters allow you to connect to the Enterprise Edge system using Enterprise Edge Unified Manager. Enterprise Edge Unified Manager is the application you use to program the Enterprise Edge system.

The default address for Enterprise Edge Unified Manager is:

- IP: 10.10.10.1
- Subnet: 255.255.255.0

Ask the network administrator before you connect the Enterprise Edge server to the network to make sure there are not conflicts.

If you can use the default IP address, connect the Enterprise Edge server to the network and use Enterprise Edge Unified Manager to configure the system.

If you cannot use the default IP address, you must change the IP address of the Enterprise Edge server. The IP address is changed when you set the initial configuration parameters. You can set the initial configuration parameters using:

- a terminal and a null modem cable
- a computer and an Ethernet crossover cable

After you set the initial parameters, you can connect the Enterprise Edge server to the network and use Enterprise Edge Unified Manager to configure the system.

Note: For detailed information about configuring the Enterprise Edge system, refer to the *Enterprise Edge Programming Operations Guide* or the *Enterprise Edge Networking Operations Guide*.

Setting the initial parameters using a null modem cable

To use a null modem cable, you must have a VT100 compatible terminal or a computer that has a VT100 compatible terminal emulation program.

Set the transmission parameters of your terminal or terminal emulation program to:

- 9600 bits per second
- 8 data bits
- no parity
- 1 stop bit
- hardware flow control

Note: For instructions on how to set the transmission parameters, refer to the terminal or operating manual. When configuring the terminal, Enterprise Edge supports carriage return.

Important: Your terminal must be VT100 compatible and must support the VT100 National Character set. If the terminal does not support the National Character set, text appears wrong on the display.

Setting the initial parameters

To set the initial configuration parameters:

1. Make sure the **Status** LED is on. This LED indicates that the Enterprise Edge server is operating correctly.

2. Attach the null modem cable to the Enterprise Edge server.
   Table 18 shows the serial port connections.

   Note: The location of the transmit (TX) and receive (RX) pins on your terminal can vary. Refer to your terminal or computer documentation to confirm pin locations.

Table 18 Serial port connections

Enterprise Edge server		Required connections	Terminal or laptop computer	
Signal	Pin		9 pin port	25 pin port
Data Carrier Detect (DCD)	1			
Serial data in (RX)	2	————	Pin 3	Pin 2
Serial data out (TX)	3	————	Pin 2	Pin 3
Data Terminal Ready (DTR)	4			
Ground	5	————	Pin 5	Pin 7
Data Set Ready (DSR)	6			
Request to Send (RTS)	7			
Clear to Send (CTS)	8			
Ring Indicator (RI)	9			

3. Attach the other end of the null modem cable to the serial port on the terminal or computer.

4. Make sure the Enterprise Edge server and your terminal or computer are on.

5. If you are using a computer, start your terminal emulation program.

6. Press the **Enter** key.

7. Press the **CT L** and **Y** keys.

8. Beside the **User ID** prompt, type `supervisor` and then press the **Enter** key.

9. Beside the **Password** prompt, type `super` and then press the **Enter** key.

10. Press the **Q** key to access the Quick Start Page.

11. For the LAN1 IP Address, enter the IP address for the Enterprise Edge server. If you do not know the IP address for the Enterprise Edge server, ask your network administrator.

12. For the LAN1 Subnet Mask, enter the Subnet Mask for the Enterprise Edge server. If you do not know the Subnet Mask for the Enterprise Edge server, ask your network administrator.

13. Press the **A** key to accept the changes.

14. Restart the Enterprise Edge server.

Setting the initial parameters using an Ethernet crossover cable

You can use an Ethernet crossover cable to connect your computer to the LAN card on the Enterprise Edge server. With this connection, you can run Enterprise Edge Unified Manager to configure the Enterprise Edge system.

You use an Ethernet crossover cable when:

- the computer you are using does not have access to the Enterprise Edge server through the network

- you have to configure the Enterprise Edge server before you connect it to the network

To connect using an Ethernet crossover cable, you need a computer equipped with a 10/100 BaseT network interface card and TCP/IP protocol. You also need an Ethernet crossover cable. Figure 44 shows the connections required for Ethernet crossover cable.

Figure 44 Crossover Ethernet Cable
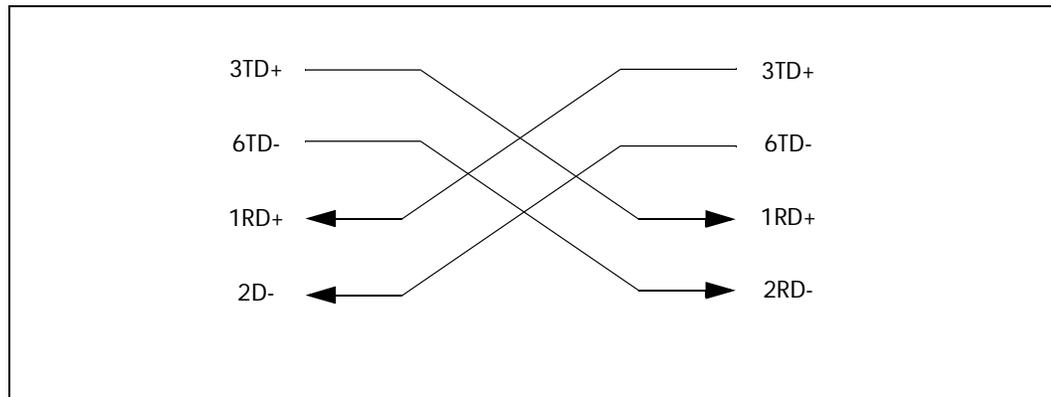
Configuring your computer

You must configure your computer, before you use it to connect to the Enterprise Edge server. To configure your computer:

1. Click the **Start** button, point to **Settings** and then click **Control Panel**.

2. Double click the **Network** icon.

3. Select your TCP/IP adapter and then click the **Properties** button.

4. Click the **IP Address** tab.

5. Click **Specify an IP addres**s.

6. Click the **IP Address** field and enter 10.10.10.2.

7. Click the **Subnet mask** field and enter 255.255.255.0.

8. Click the **OK** button.

9. Click the **OK** button.

10. Click the **Yes** button to restart the PC.

After you have configured the computer, you need to connect it to the Enterprise Edge server.

Connecting the Ethernet crossover cable

To connect the Ethernet crossover cable:

1. Shutdown the computer.

2. Attach one end of the Ethernet crossover cable to the LAN card on the Enterprise Edge server.

3. Connect the other end of the cable to the network interface card on your computer.

4. Start up the computer.

After you connect the computer to the Enterprise Edge server, you can use Enterprise Edge Unified Manager to configure the Enterprise Edge system.

Enterprise Edge Initialization

The Enterprise Edge is usually initialized at the factory. However, if you have to replace the hard drive in Enterprise Edge server, you must initialize Enterprise Edge.

To initialize Enterprise Edge:

1. Make sure the **Status** LED is on. This LED indicates that the Enterprise Edge server is operating correctly.

2. Attach the null modem cable to the Enterprise Edge server.

3. Attach the other end of the null modem cable to the serial port on the terminal or computer.

4. Make sure the Enterprise Edge server and your terminal or computer are on.

5. If you are using a computer, start your terminal emulation program.

6. Press the **Enter** key.

7. Press the **CT L** and **Y** keys.

8. For **User ID**, type `ee_amdin` and then press the **Enter** key.

9. For **Domain**, press the **Enter** key

10. For **Password**, type `msp` and then press the **Enter** key.

11. If the Enterprise Edge system is in the United States, press the key to select the Etiquette standard.
    If the Enterprise Edge system is in Canada, press the key to select the CT2 Plus standard.

12. Press the key.
    The configuration screen appears.

13. Select the configuration that matches your Enterprise Edge system by typing the number that is beside the configuration.

14. Press the **A** key to accept the changes.

15. Restart the Enterprise Edge server.

Programming the Enterprise Edge system

After you have set the initial configuration parameters, you can connect the Enterprise Edge server to the network and program the telephony and data networking features. For information about configuring the telephony parameters, refer to the *Enterprise Edge Programming Operations Guide*. For information about configuring the data networking parameters, refer to the *Enterprise Edge Networking Operations Guide*.

> *Tip*
> In certain situations, you may not be able to connect the Enterprise Edge server to the network and use Enterprise Edge Unified Manager. (For example, the network is not installed or the network has restricted access.) In these situations, you can connect to the Enterprise Edge server using an Ethernet crossover cable and use Enterprise Edge Unified Manager. With this connection, you can program all of parameters on the Enterprise Edge system.

Section III - Enterprise Edge Software

- Enterprise Edge Software
- Enterprise Edge Unified Manager software

Enterprise Edge Software

12

Your Enterprise Edge server has all of the system software pre-installed. <u>Software applications</u> on page 119 describes available software packages that you can purchase. The Enterprise Edge Base Software contains several Enterprise Edge software packages.

To enable the other software packages, you use a security keycode. A security keycode is a password number provided to the installer. Each security key contains three eight digit numbers. You enter all three eight digit numbers in separate boxes. For more information about how to enable software using keycodes, refer to the *Enterprise Edge Security Keycode Installation Guide*.

The Enterprise Edge Unified Manager provides a graphic user interface (GUI) with Windows based capabilities for programming and maintaining your Enterprise Edge system and its peripherals.

For more information about the procedures you must perform after you power up your system, refer to <u>Next step</u> on page 121.

Software applications

The Enterprise Edge system provides the following software application packages.

Package	Features and functionality	Configuration capacity
Enterprise Edge Base Software	Enterprise Edge Integrated Solution	On
	Enterprise Edge Voice Messaging	On
	Enterprise Edge Auto Attendant	On
	Enterprise Edge Call Detail Recording	On
	Enterprise Edge Hunt Groups	On
	Enterprise Edge PRI	On
	Enterprise Edge TSP Server	2 Seat Licenses
	Enterprise Edge Unified Messaging	2 Seat Licenses
Enterprise Edge Bundle #1	Enterprise Edge Integrated Solution	On
	Enterprise Edge Voice Messaging	On
	Enterprise Edge Auto Attendant	On
	Enterprise Edge Call Detail Recording	On
	Enterprise Edge Hunt Groups	On
	Enterprise Edge Call Center	On
	Enterprise Edge PRI	On
	Enterprise Edge TSP Server	Unlimited Seat Licenses
	Enterprise Edge Attendant Console	2 Seat Licenses
	Enterprise Edge Unified Messaging	Unlimited Seat Licenses

Package	Features and functionality	Configuration capacity
Enterprise Edge Bundle #2	Enterprise Edge Integrated Solution	On
	Enterprise Edge Voice Messaging	On
	Enterprise Edge Auto Attendant	On
	Enterprise Edge Call Detail Recording	On
	Enterprise Edge Hunt Groups	On
	Enterprise Edge Networking	On
	Enterprise Edge Call Center	On
	Enterprise Edge Call Center Reporting	On
	Enterprise Edge PRI	On
	Enterprise Edge TSP Server	2 Seat Licenses
	Enterprise Edge Unified Messaging	2 Seat Licenses
Enterprise Edge Networking	Enables Enterprise Edge Networking	On
Enterprise Edge Call Center	Enables Enterprise Edge Call Center	On
Enterprise Edge Call Center Reporting	Enables Enterprise Edge Call Center Reporting	On
Enterprise Edge TSP Seats - 1	Adds one Enterprise Edge TSP user	1 TSP Seat License
Enterprise Edge TSP Seats - 4	Adds four Enterprise Edge TSP users	4 TSP Seat Licenses
Enterprise Edge TSP Seats - 8	Adds eight Enterprise Edge TSP users	8 TSP Seat Licenses
Enterprise Edge TSP Seats - Unlimited	Adds all of the users connected to the Enterprise Edge server	Unlimited TSP Seat Licenses
Enterprise Edge Attendant Console	Adds one Enterprise Edge Attendant Console user	1 Attendant Console License (maximum 6)
Enterprise Edge VoIP Gateway	Adds two Enterprise Edge VoIP Gateway trunks	2 VoIP trunks (maximum 8)
Enterprise Edge Unified Messaging - 1	Adds one Enterprise Edge Unified Messaging Seat License	1 Unified Messaging Seat License
Enterprise Edge Unified Messaging - 4	Adds four Enterprise Edge Unified Messaging Seat Licenses	4 Unified Messaging Seat Licenses
Enterprise Edge Unified Messaging - 8	Adds eight Enterprise Edge Unified Messaging Seat Licenses	8 Unified Messaging Seat Licenses
Enterprise Edge Unified Messaging - Unlimited	Adds all of the users connected to the Enterprise Edge server	Unlimited Unified Messaging Seat Licenses
Enterprise Edge Companion Wireless	Adds one Enterprise Edge Companion handset	1 Companion handset
Enterprise Edge Companion UTAM Activation (Etiquette only)	Adds one Enterprise Edge Companion UTAM Base Station	1 Companion Base Station
Enterprise Edge Integrated QoS Routing Plus	Enables Enterprise Edge Integrated QoS Routing Plus	On

Next step

Following the system power up, you need to configure your Enterprise Edge system. There are two applications that you use to configure the Enterprise Edge system. Use Enterprise Edge Unified Manager to configure Enterprise Edge Integrated Solutions, Enterprise Edge TSP and Enterprise Edge Integrated QoS Routing. Use Enterprise Edge Voice Applications Manager to manage other applications, including Enterprise Edge Voice Messaging and Enterprise Edge Call Center.

To access these applications, you must connect to the Enterprise Edge server. You connect to the Enterprise Edge server using a cross connect cable or the local area network

Enterprise Edge Unified Manager operates on the Enterprise Edge server and you access this application using a web browser. For information how to use Enterprise Edge Unified Manager, refer to the *Enterprise Edge Programming Operations Guide*.

Enterprise Edge Voice Applications Manager is a client application that operates on the computer that is connected to the Enterprise Edge server. For information about how to use Enterprise Edge Voice Applications Manager, refer to the *Enterprise Edge Voice Messaging Set Up and Operation Guide*.

Programming your software

Program your software in the following order. For information about how to access the appropriate documentation, refer to .

1. Launch Enterprise Edge Unified Manager and program the key telephony services (trunks, lines and sets). You must program the key telephony services the first time you power up your system and when you perform a system startup.

   Note: Your system uses the PBX template. However, you can select a different programming template. For more information, refer to *Enterprise Edge Programming Operations Guide*.

2. Configure the Enterprise Edge VoIP Gateway application. This application provides VoIP gateway functionality. The VoIP gateway allows you to make telephone calls over any intranet connected to the Enterprise Edge server.

3. Use the Enterprise Edge Voice Applications Manager, to program your Enterprise Edge Voice Messaging application. This application provides automated attendant and voice messaging.

4. If you have purchased Enterprise Edge Networking, program Enterprise Edge Networking.

5. Install and configure Enterprise Edge Unified Messaging client software. Enterprise Edge Unified Messaging allows network users to create and receive messages on their computers.

6. Install and configure Enterprise Edge TSP. Enterprise Edge TSP allows your telephony application to communicate with and control your Enterprise Edge telephone. You must configure Enterprise Edge TSP on both the Enterprise Edge server and the client computers.

7. Install and configure Enterprise Edge Personal Call Manager. This application provides an easy to use computer interface for your telephone. You must install and configure Enterprise Edge Personal Call Manager on the client computers. You must install and configure Enterprise Edge TSP before Enterprise Edge Personal Call Manager can function.

8. Install and configure Enterprise Edge Call Detail Recording to meet your company requirements. This application provides reports on all call activities.

9. If you have ordered Enterprise Edge Call Center, install and configure the application. Enterprise Edge Call Center is an automatic call distribution system which helps you in handling incoming calls.

10. If you have ordered Enterprise Edge Call Center Monitor, install and configure the application. Enterprise Edge Call Center Monitor provides statistics on the daily operation of your Enterprise Edge Call Center system.

11. If you have ordered Enterprise Edge Attendant Console, install and configure the application. Enterprise Edge Attendant Console provides centralized call management and call activity reporting.

Software documentation

Application	Documentation
Enterprise Edge Unified Manager	Enterprise Edge Programming Operations Guide
Enterprise Edge VoIP Gateway	Enterprise Edge VoIP Gateway Configuration Guide
Enterprise Edge Voice Messaging	Enterprise Edge Voice Messaging Set Up and Operation Guide Enterprise Edge Voice Messaging Reference Guide Enterprise Edge Voice Messaging Quick Reference Card Enterprise Edge Voice Messaging Programming Record Enterprise Edge Message Networking Set Up and Operation Guide Enterprise Edge Message Networking AMIS User Guide Enterprise Edge Voice Messaging Software Keycode Installation Guide Enterprise Edge Unified Messaging Client Installation Guide
Enterprise Edge TSP	Enterprise Edge TSP Server Configuration Guide
Enterprise Edge Personal Call Manager	Enterprise Edge Personal Call Manager User Guide
Enterprise Edge Call Detail Recording	Enterprise Edge Call Detail Recording System Administrator Guide
Enterprise Edge Call Center	Enterprise Edge Call Center Set Up and Operation Guide Enterprise Edge Call Center Agent Card
Enterprise Edge Call Center Monitor	Enterprise Edge Call Center Monitor Set Up and Operation Guide
Enterprise Edge Attendant Console	Enterprise Edge Attendant Console Set Up and Operation Guide Enterprise Edge Attendant Console User Guide

Enterprise Edge Unified Manager software 13

Overview

The Enterprise Edge Unified Manager software is on the Enterprise Edge server, but you use it from a computer connected to the Enterprise Edge server.

With Enterprise Edge Unified Manager, you can:

- configure the telephony parameters
- configure the data networking parameters
- shutdown the Enterprise Edge server
- restart the Enterprise Edge server

For information about configuring the telephony parameters, refer to the *Enterprise Edge Programming Operations Guide*. For information about configuring the data networking parameters, refer to the *Enterprise Edge Networking Operations Guide*.

> *Tip*
> In certain situations, you may not be able to connect the Enterprise Edge server to the network and use Enterprise Edge Unified Manager. (For example, the network is not installed or the network has restricted access.) In these situations, you can connect to the Enterprise Edge server using an Ethernet crossover cable and use Enterprise Edge Unified Manager. With this connection, you can program all of parameters on the Enterprise Edge system.

Enterprise Edge Unified Manager requirements

Enterprise Edge Unified Manager operates on the Enterprise Edge server, but you access it using a web browser running from another computer on the network.

Computer requirements

The computer you are using to run Enterprise Edge Unified Manager, should have:

- a Pentium (133 Mhz) or higher CPU (or compatible)
- 64 MB RAM
- 10 MB disk space
- a minimum screen resolution of 1024 X 768
- a minimum monitor size of 17 inches

Browser requirements

To use Enterprise Edge Unified Manager, you must have:

- Java Virtual Machine (JVM) 5.0 (build 5.0.0.3167 or greater)
- one of the following web browsers:
  - Netscape Communicator 4.5 or greater
  - Microsoft Internet Explorer 4.0 or greater

If you are using Netscape Communicator, you must set the following parameters:

- Enable Java: On
- Cached document comparison: Every time

If you are using Microsoft Internet Explorer, you must set the following parameters:

- Check for newer versions: Every visit to the page
- Java JIT compiler enabled: On

For information about setting these parameters, check the documentation that came with your web browser.

Shutdown the Enterprise Edge server

Windows NT requires a controlled shutdown to guarantee the integrity of the file system.

To shutdown the Enterprise Edge server:

1. Start a web browser on a computer with a LAN connection to the Enterprise Edge server.

2. Enter the IP address of the Enterprise Edge server.

    Note: You set the IP address of the Enterprise Edge server during the initial configuration. For more information, refer to <u>Initializing the Enterprise Edge system</u> on page 111.

3. Type your user name in the **Login** box.

4. Type your password in the **Password** box.

5. Click the **Configure** button.

6. Click the **Logoff** menu and then click **eboot** .

7. Click the **Yes** button.

8. Wait until the Power LED turns off and then disconnect the Enterprise Edge power cord from the AC outlet.

Tip
The Enterprise Edge server restarts automatically after a power failure. The Enterprise Edge server restarts approximately five seconds after the Power LED turns off. Make sure you disconnect the Enterprise Edge power cord during before the Enterprise Edge server restarts.

Restart the Enterprise Edge server

To restart the Enterprise Edge server:

1. Start a web browser on a computer with a LAN connection to the Enterprise Edge server.

2. Enter the IP address of the Enterprise Edge server.

   Note: You set the IP address of the Enterprise Edge server during the initial configuration. For more information, refer to <u>Initializing the Enterprise Edge system</u> on page 111.

3. Type your user name in the **Login** box.

4. Type your password in the **Password** box.

5. Click the **Configure** button.

6. Click the **Logoff** menu and then click **eboot** .

7. Click the **Yes** button.

Section IV - Enterprise Edge server Hardware Upgrades and Replacements

- Prepare the Enterprise Edge server to upgrade or replace a hardware component
- Replacing memory
- Replacing the clock/calendar battery
- Replacing the hard disk
- Replacing the fan
- Replacing the power supply
- Replacing the main printed-circuit board

Prepare the Enterprise Edge server to upgrade or replace a hardware component 14

Overview

Before you can upgrade or replace a hardware component, you have to open the Enterprise Edge server. To open the Enterprise Edge server, you need to:

- shutdown the Enterprise Edge server
- remove the connections to the Enterprise Edge server
- remove the Enterprise Edge server from a rack
- remove the Enterprise Edge server cover
- remove the Enterprise Edge server front cover

Special tools

Before you replace or upgrade the components, ensure you have the following equipment:

- Phillips screwdriver #2 that has a blade 3.5 in. long
- 3/16 in. slot screwdriver
- an antistatic grounding strap

> ⚠️ **CAUTION**
> You must wear an antistatic grounding strap at all times when handling electronic components. If you do not, you can damage to the equipment.

Remove the connections

You must remove all of the connections to the Enterprise Edge server before you open or move it. Make sure you remove the connections in the order described in this section. To remove the connections:

1. Remove the RJ-48C cable from the EE-DTM and the RJ-11 cables from the EE-CTM. Mark the cables to indicate which media bay module and port the cable was connected to.

2. Shutdown the Enterprise Edge server. For more information, refer to

3. Remove the amphenol connectors from the EE-DSM 16, EE-DSM 32 and EE-ASM 8. Mark the cables to indicate which media bay module and port the cable was connected to.

4. Remove the RJ-48C, RJ-45 and RJ-11 cables from the WAN, LAN and modem cards. Mark the cables to indicate which card and port the cable was connected to.

Remove the Enterprise Edge server from a rack

If the Enterprise Edge server is in rack, remove it from the rack before you open it.

To remove the Enterprise Edge server from a rack:

1. Make sure you remove all of the connections to the Enterprise Edge server. For more information refer to <u>Remove the connections</u> on page 132.

2. Remove the screws that connect the rack mounting bracket to the rails.

Figure 45 Remove the Enterprise Edge server from a rack
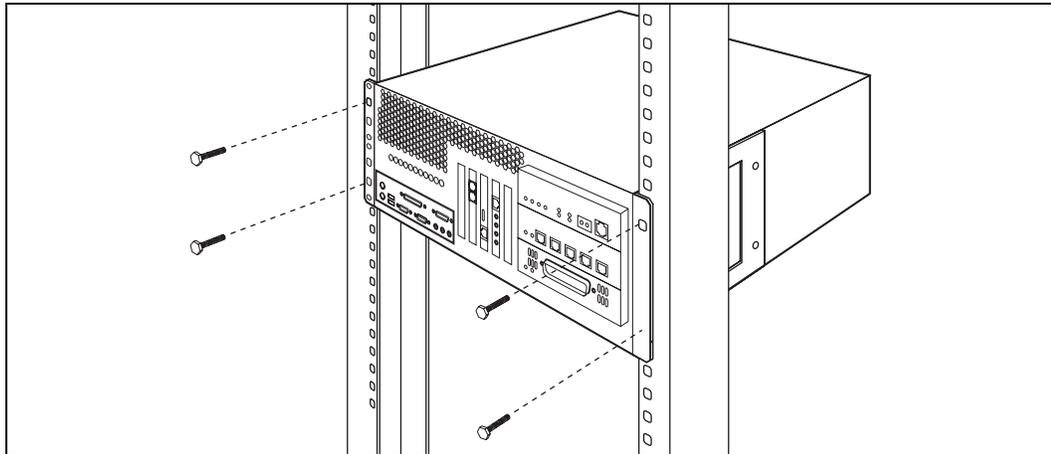
3. Place the Enterprise Edge server on a table that provides easy access and can support the weight of the server.

Remove the cover from the Enterprise Edge server

The cover is on the top of the Enterprise Edge server. You must remove the cover to access any of the internal components of the Enterprise Edge server.

To remove the cover:

1. Remove all of the connections to the Enterprise Edge server.
   For more information refer to <u>Remove the connections</u> on page 132.

2. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

3. If the rack mounting brackets are attached, remove the brackets.

4. Remove the six screws from the cover.

5. Lift the back of the cover and slide it back and up.

Figure 46 Remove the cover
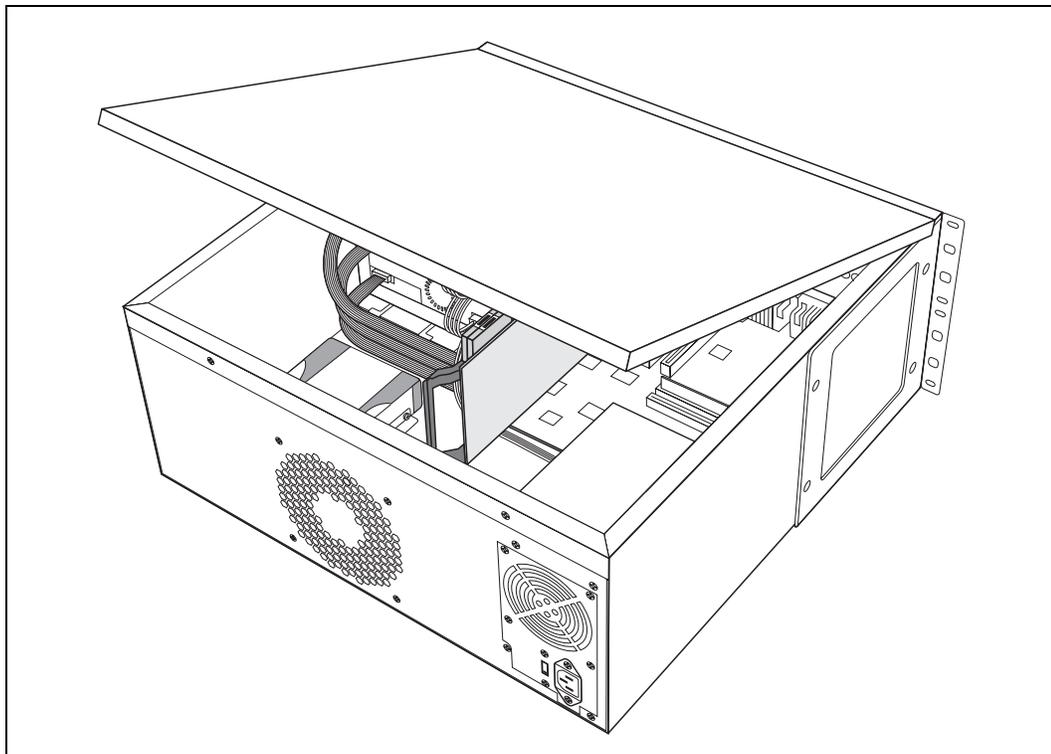
Remove the front cover

The front cover is a plastic cover installed on the front of the Enterprise Edge server. You must remove the front cover to add or remove the Enterprise Edge cards, the media bay modules or the main printed-circuit board.

To remove the front cover, carefully pull the cover forward.

Replacing memory 15

Overview

The Enterprise Edge server is equipped with 128 MB of Random Access Memory (RAM). This memory is located on Dual In-line Memory Modules (DIMMs) in center of the main printed-circuit board. For information about the location of the DIMM slots, refer to the figure Enterprise Edge server interior components on page 22.

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully.

Replacing memory

You replace a DIMM when the DIMMs fails or when you want to increase the amount of RAM in the Enterprise Edge server.

To expand the amount of RAM, you replace one of the 64 MB DIMMs with a DIMM that contains more RAM. Ensure you use the Nortel Networks recommended DIMMs.

> ⚠️ **CAUTION**
> Do not use an electric screwdriver or any magnetic tools near the DIMMs. These tools can disrupt the DIMMs. Refer to Equipment for installing the Enterprise Edge system on page 55 for equipment recommendations.

Note: There must be at least one DIMM installed in the Enterprise Edge server in order for the Enterprise Edge server to function.

To replace a DIMM:

1. Remove the connections from the EE-DTM and EE-CTM.

   **Note:** For more information, refer to Remove the connections on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to Shutdown the Enterprise Edge server on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to <u>Remove the cover from the Enterprise Edge server</u> on page 134.

6. Carefully push down on the fastening tabs on either side of the DIMM. When press down on the fastening tabs, the DIMM lifts out of the DIMM slot.

7. Remove the DIMM from the slot.

Figure 47 Remove the DIMM
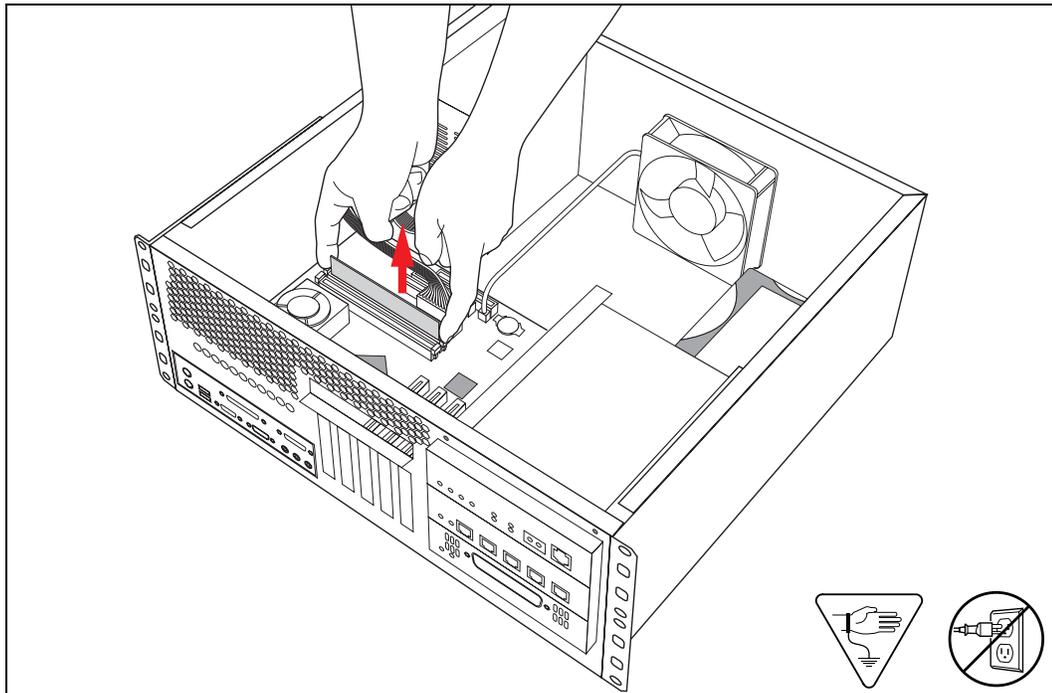
8. Slide the DIMM, edge connectors first, into the slot. Refer to Figure 48.

    Note: The DIMM has two notches on the edge connector. Position the DIMM so that one of the notches is on the side of the slot nearest to the Enterprise Edge cards.

Figure 48 Install a DIMM
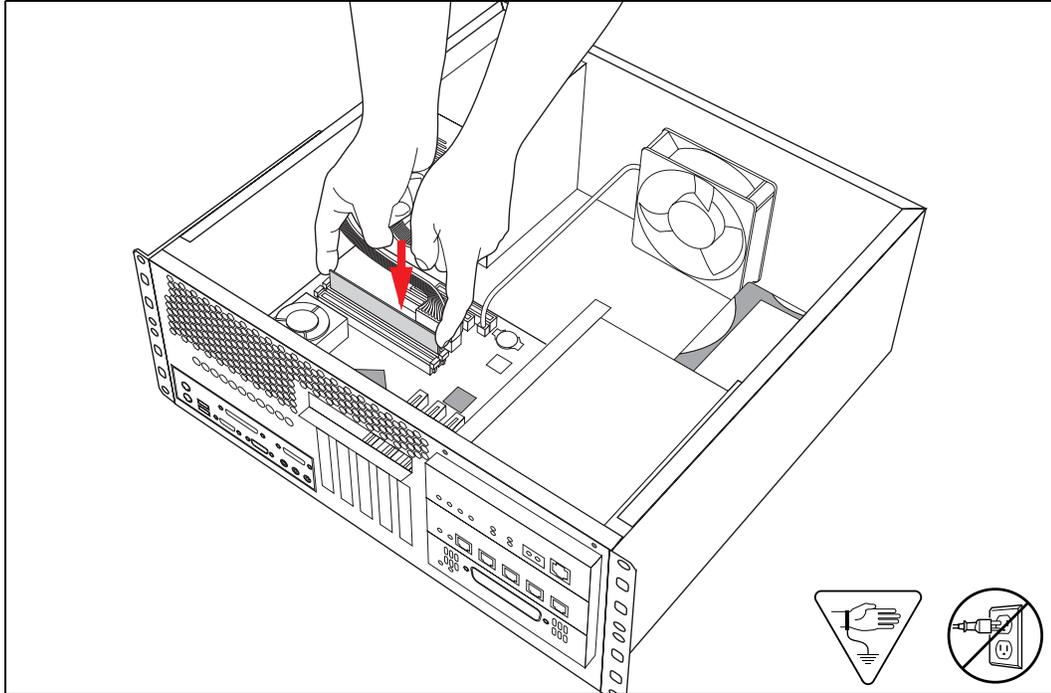
9. Carefully push the DIMM down until the fastening tabs clip to the side of the DIMMS.

    Note: Do not force the DIMM into its slot. If the DIMM does not slide in easily, check the alignment of the DIMM.

10. Replace the cover.

11. If the Enterprise Edge server was in a rack, install the server back in the rack.

12. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

13. Plug the Enterprise Edge power cord into the ac outlet.

14. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Replacing the clock/calendar battery 16

Overview

The clock/calendar battery supplies the power required to keep the BIOS information current if there is a power failure. You must replace the battery with a 3 V, 170 mAh, lithium coin cell such as a Sony CR2032.

> ⚠️ **WARNING**
> If you do not replace the battery with a 3 V, 170 mAh, lithium coin cell battery, there is a danger of explosion.

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables or network cables before opening the computer.
>
> Read and follow installation instructions carefully

Removing the battery

To remove the battery:

1. Remove the connections from the EE-DTM and EE-CTM.

   Note: For more information, refer to <u>Remove the connections</u> on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to <u>Shutdown the Enterprise Edge server</u> on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to <u>Remove the cover from the Enterprise Edge server</u> on page 134.

6. Use your finger to carefully lift the battery out of the socket. For the location of the battery socket, refer to Figure 49.

> ⚠️ *CAUTION*
> Do not use any type of tool to remove the battery.

Figure 49 Remove the battery
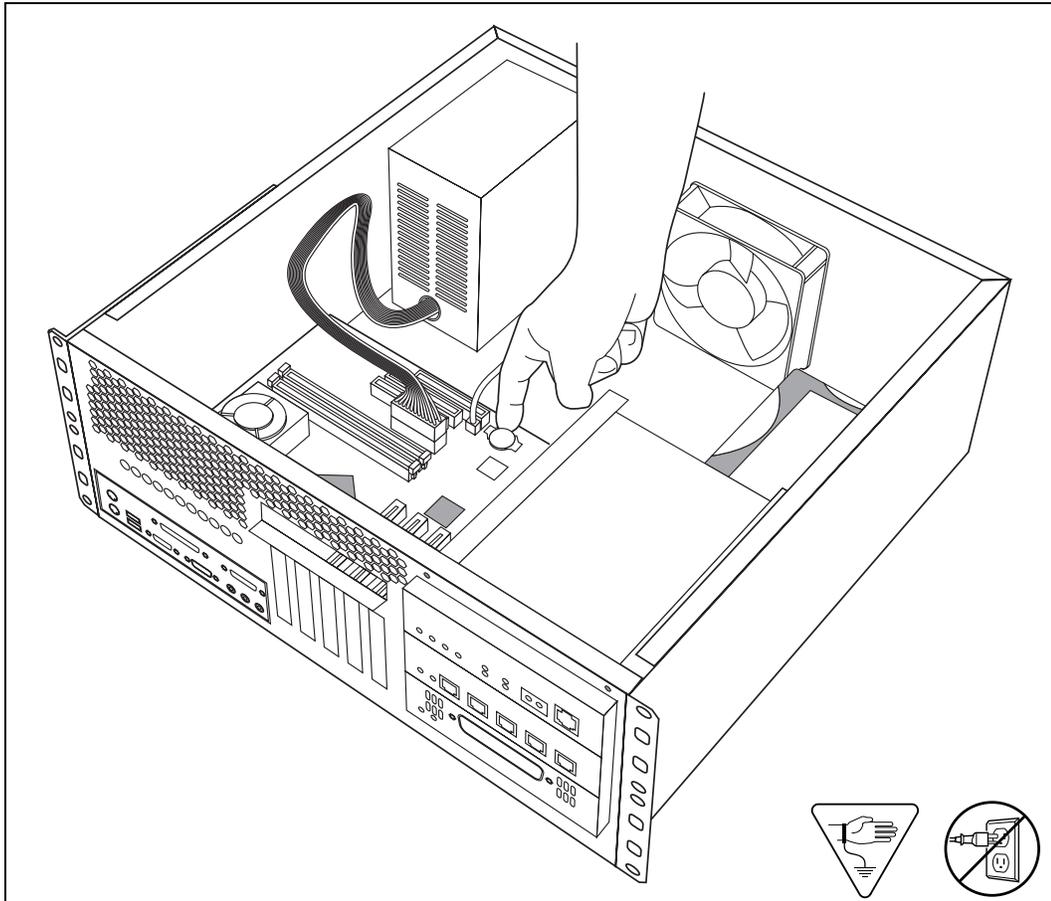
Installing the new battery

To install the battery:

1. Position the battery in the socket and push down on it until the battery snaps into the socket. Make sure the positive (+) side of the battery faces up and you seat the battery in the socket completely.

> ⚠️ *WARNING*
> There is a danger of explosion if you do not replace the battery correctly. You must replace the battery with a 3 V, 170 mAh, lithium coin cell battery.

2. Replace the cover.

3. If the Enterprise Edge server was in a rack, install the server back in the rack.

4. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8,
   LAN card, WAN card and modem card.

5. Plug the Enterprise Edge power cord into the ac outlet.

6. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The
Enterprise Edge server start up takes several minutes to complete.

Replacing the hard disk   17

Overview

The Enterprise Edge server includes one factory installed hard disk. You replace the hard disk if a problem exists.

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables or network cables before opening the computer.
>
> Read and follow installation instructions carefully.

Removing the hard disk

> ⚠️ **CAUTION**
> Do not use an electric screwdriver near the hard disk. You can loose the information stored the disk. Refer to <u>Special tools</u> on page 131 for equipment recommendations.

1. Remove the connections from the EE-DTM and EE-CTM.

   Note: For more information, refer to <u>Remove the connections</u> on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to <u>Shutdown the Enterprise Edge server</u> on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to <u>Remove the cover from the Enterprise Edge server</u> on page 134.

6. Disconnect the power supply wiring and ribbon cable from the hard disk.

7. Remove the four screws holding the hard disk bracket to the Enterprise Edge server.

Figure 50 Remove the hard disk
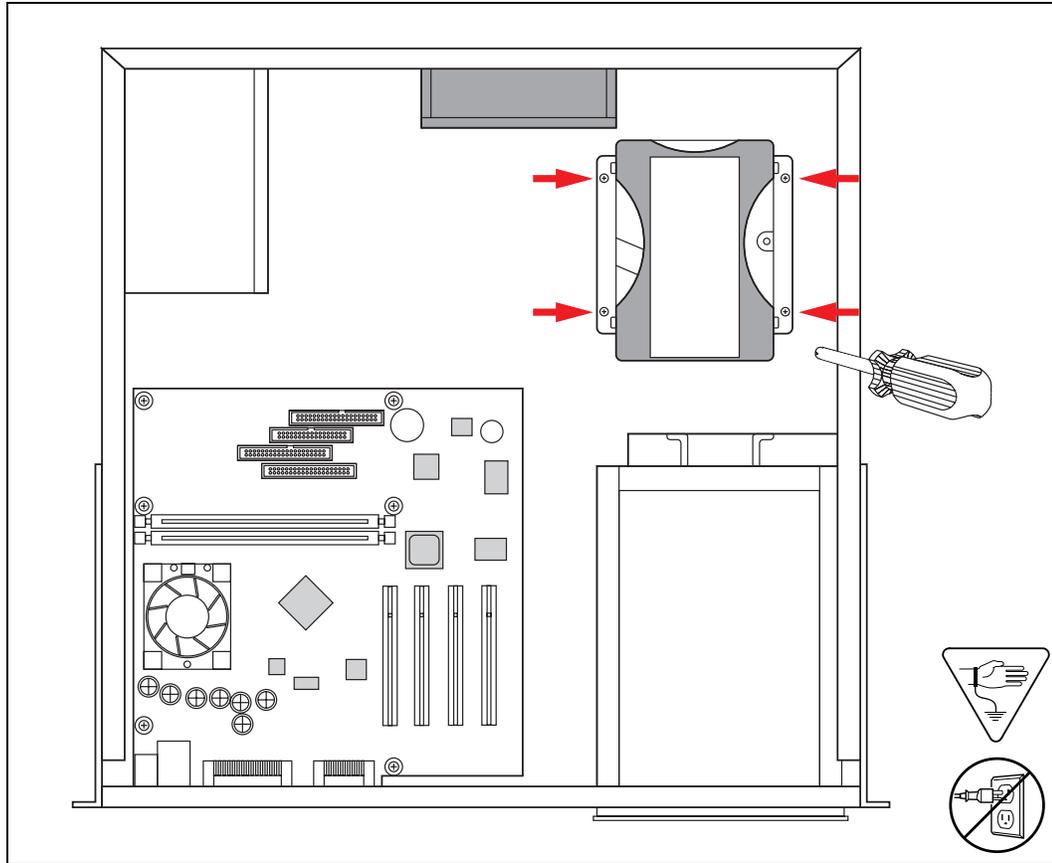
8. Lift the hard disk out of the Enterprise Edge server.

9. Remove the two screws that fasten each bracket to the hard disk.

Figure 51 Remove the brackets from the hard disk
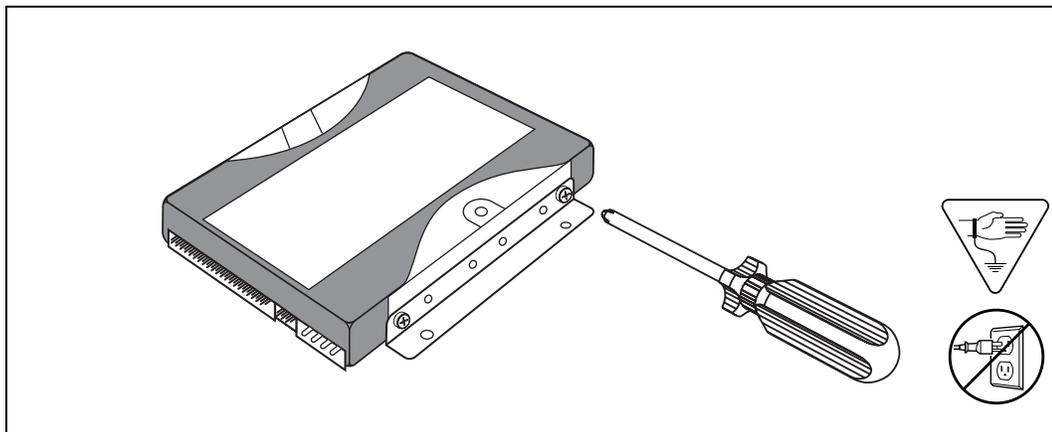
⚠	*CAUTION* Shock can damage the hard disk. Do not drop or hit the hard disk drive.

If you are returning the hard disk to a Nortel Networks repair facility, package it carefully in the replacement hard disk box. If you do not have the original box, package the drive in another box with shock absorbing material.

Installing a new hard disk

> *You must initialize the Enterprise Edge system when you install a new hard disk.*
> For information about how to initialize the Enterprise Edge system, refer to Enterprise Edge Initialization on page 115.

To install a new hard disk:

1. Fasten both brackets to the hard disk. You must position the hard drive with the bottom of the hard disk drive (the side with the exposed electronic connectors) down.

Figure 52 Connect the brackets to the hard disk
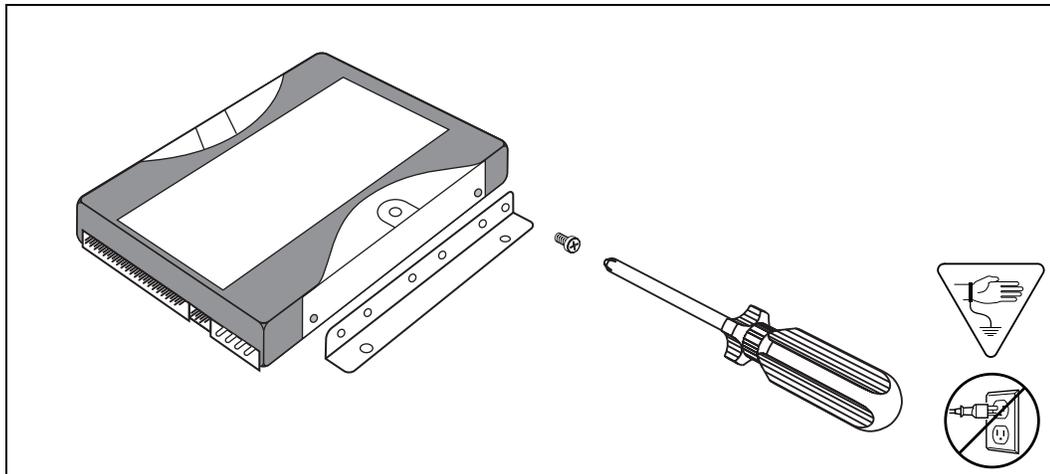
2. Fasten both brackets to the Enterprise Edge server.

3. Place the hard disk in the Enterprise Edge server. Align the holes in the brackets with the holes in the bottom of the Enterprise Edge server.
   Make sure the power supply and ribbon cable connectors are toward the media bay modules.

Figure 53 Position the hard disk in the Enterprise Edge server
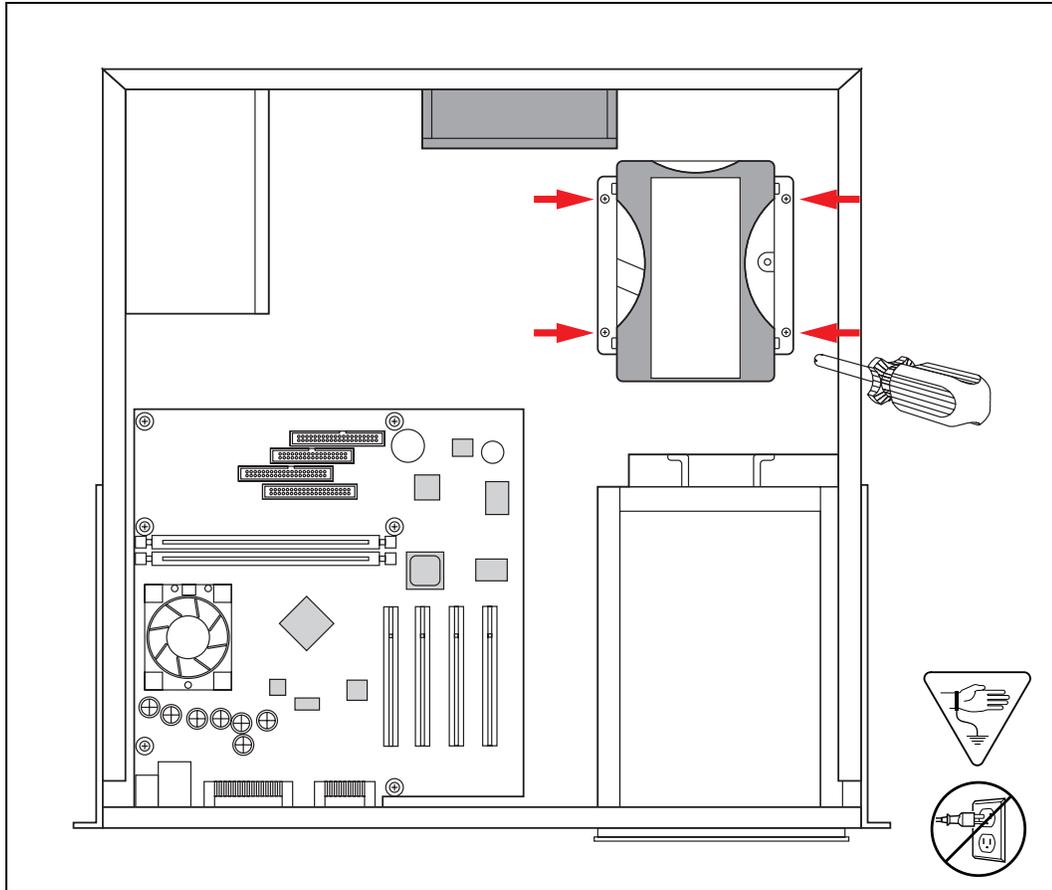
4. Fasten the hard disk to the Enterprise Edge server using four screws.

5. Connect the hard disk drive power supply wiring and ribbon cable.

   Note: All connectors have a notch so you cannot insert the cable backwards.
   If you cannot push a connector in easily, do not force it.

6. Replace the cover.

7. If the Enterprise Edge server was in a rack, install the server back in the rack.

8. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8,
   LAN card, WAN card and modem card.

9. Plug the Enterprise Edge power cord into the ac outlet.

10. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The
Enterprise Edge server start up takes several minutes to complete.

Replacing the fan

18

Overview

The Enterprise Edge server includes a fan installed on the back of the server. This fan helps cool the Enterprise Edge components. If the fan stops working, you must replace the fan to prevent the components from over heating.

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully.

Removing the fan

To remove the fan:

1. Remove the connections from the EE-DTM and EE-CTM.

    Note: For more information, refer to <u>Remove the connections</u> on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to <u>Shutdown the Enterprise Edge server</u> on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to <u>Remove the cover from the Enterprise Edge server</u> on page 134.

6. Disconnect the power cable from the connector on the main printed-circuit board.

Figure 54 Remove the power supply cable
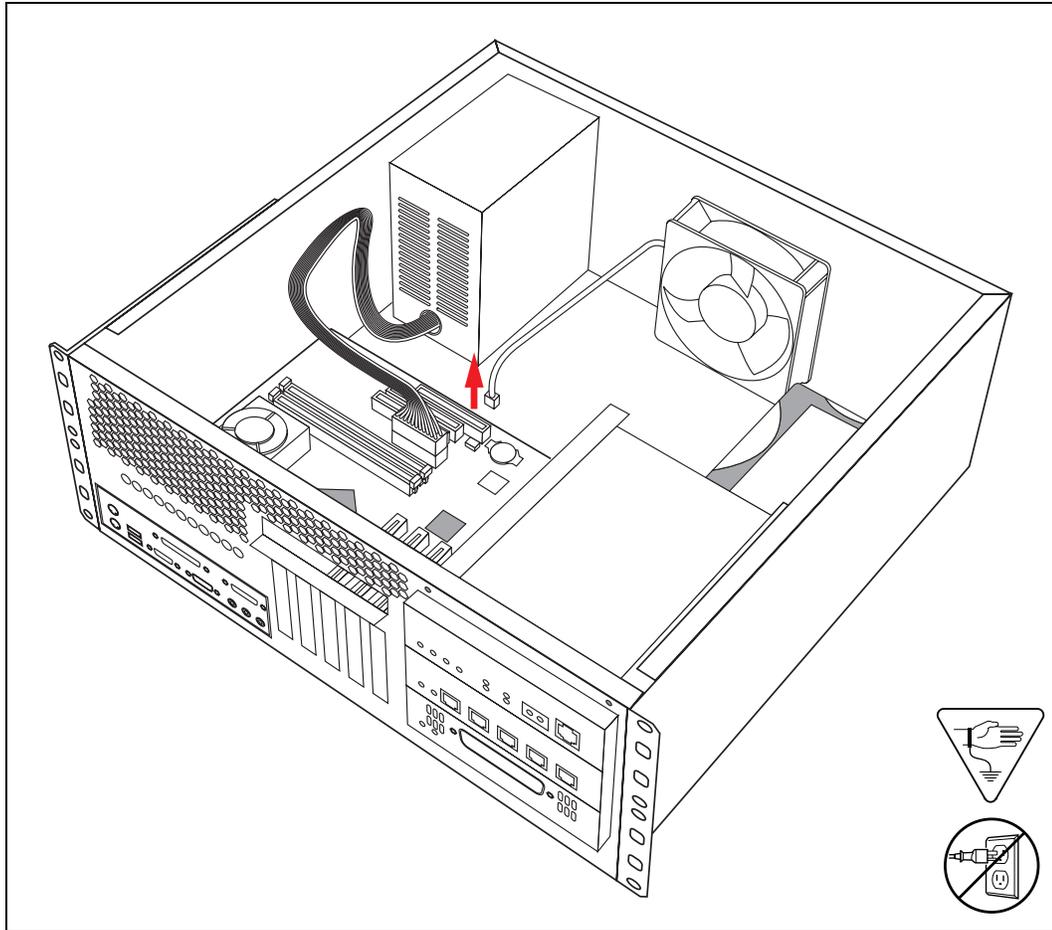
7. Cut the cable tie that holds the excess power cable to the wall of the Enterprise Edge server.

8. Remove the four screws holding the fan to the Enterprise Edge server. You access these screws from the back of the Enterprise Edge server.

   Note: There is a nut on all of the screws. When you loosen the screws, you have to hold the nuts to prevent the nuts from turning.

Figure 55 Remove the fan
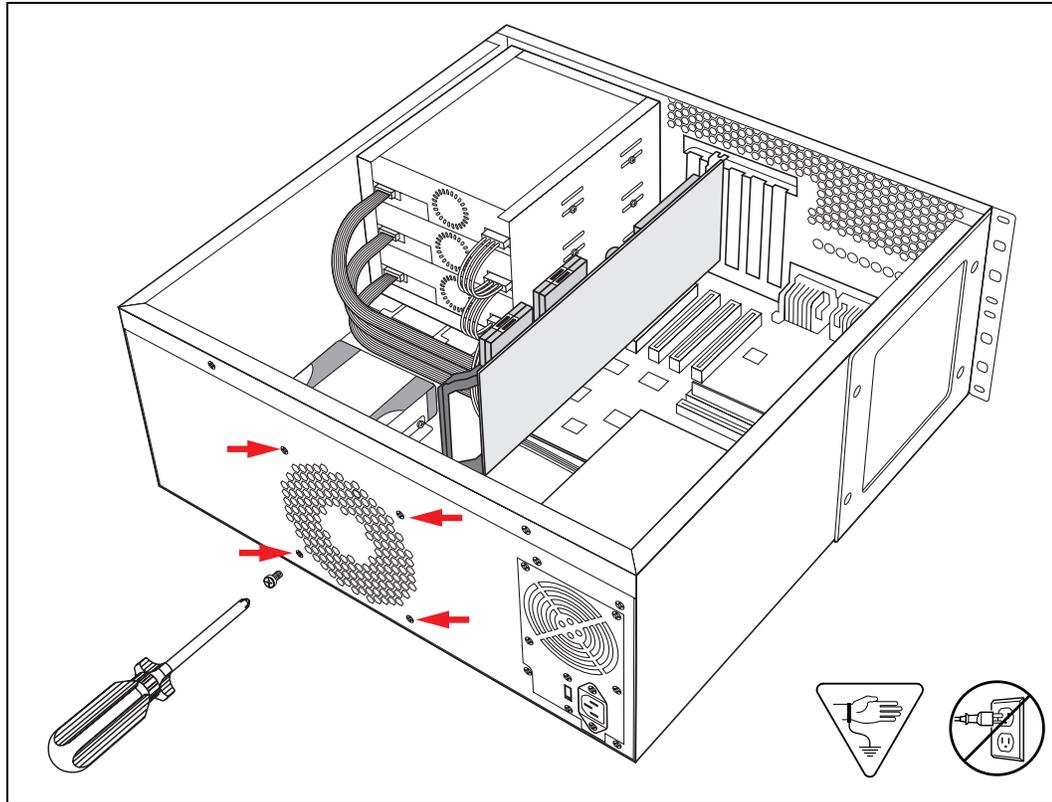
9. Lift the fan out of the Enterprise Edge server.

Installing a new fan

To install a new fan:

1. Place the fan in the Enterprise Edge server. Make sure the label on the fan is toward the wall of the Enterprise Edge server.

2. Align the screw holes in the fan with the screw holes in Enterprise Edge server.

3. Fasten the fan to the Enterprise Edge server using the four screws, locking washers and nuts. Make sure the locking washers are on the screws before inserting the screws.

> *Tips*
> Install all four screws before you tighten the screws.
> Install the screws on the top of the fan first.

4. Connect the fan power cable to the connector on the main printed-circuit board.

Figure 56 Connect the power cable
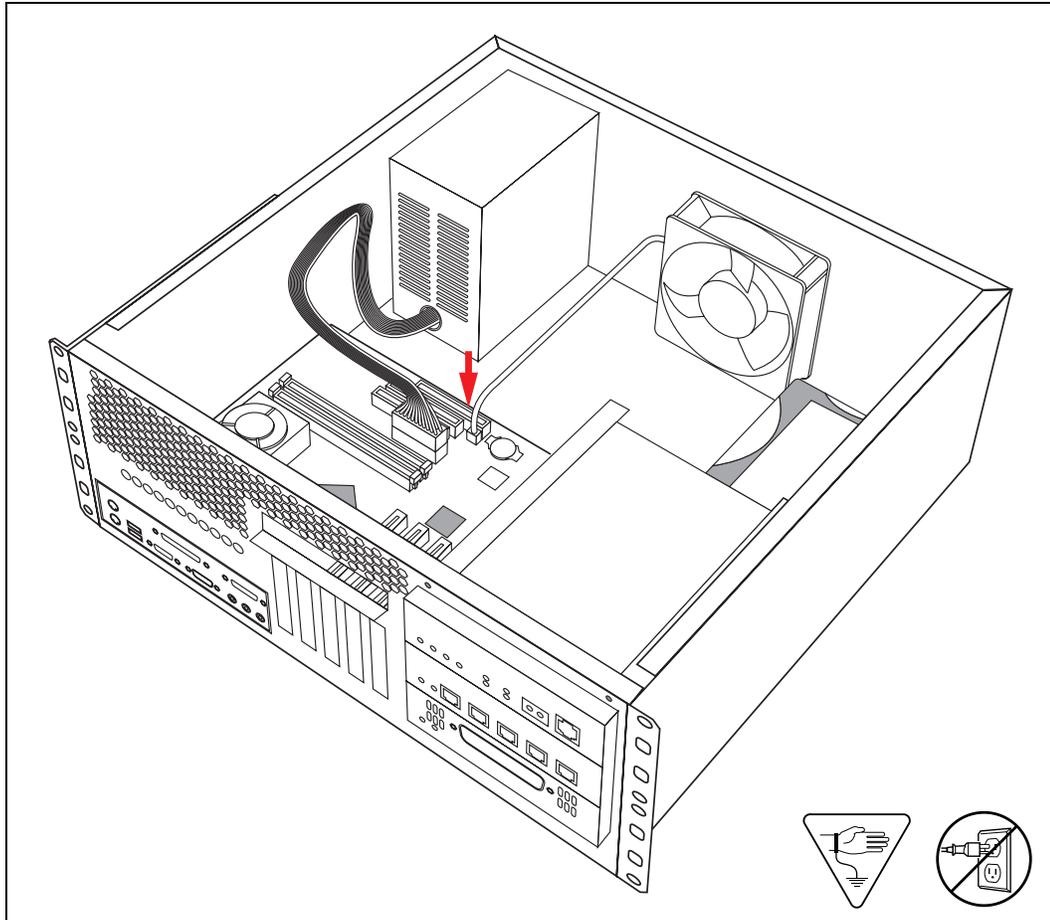
5. Attach the excess fan power cable to the wall of the Enterprise Edge server using a cable tie.

6. Replace the cover.

7. If the Enterprise Edge server was in a rack, install the server back in the rack.

8. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

9. Plug the Enterprise Edge power cord into the ac outlet.

10. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Replacing the power supply   19

Overview

The power supply provides power to all of the components contained within the
Enterprise Edge server. You replace the power supply when it is no longer
operating.

⚠	***Risk of shock.*** Disconnect the power cord, telephone cables and network cables before opening the computer. Read and follow installation instructions carefully.

Removing the power supply

To remove the power supply:

1. Remove the connections from the EE-DTM and EE-CTM.

    Note: For more information, refer to <u>Remove the connections</u> on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge
    power cord from the ac outlet. For more information, refer to <u>Shutdown the
    Enterprise Edge server</u> on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8,
    LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a
    grounded metal surface.

5. Remove the cover. For more information, refer to <u>Remove the cover from the
    Enterprise Edge server</u> on page 134.

6. Disconnect the power supply cables from the main printed-circuit board, hard
    disk and media bay modules.

7. Remove the cable ties that hold the power supply cables to the Enterprise
    Edge server.

8. Remove the four screws that hold the power supply to the Enterprise Edge
    server. You access these screws from the back of the Enterprise Edge server.

Figure 57 Remove the power supply
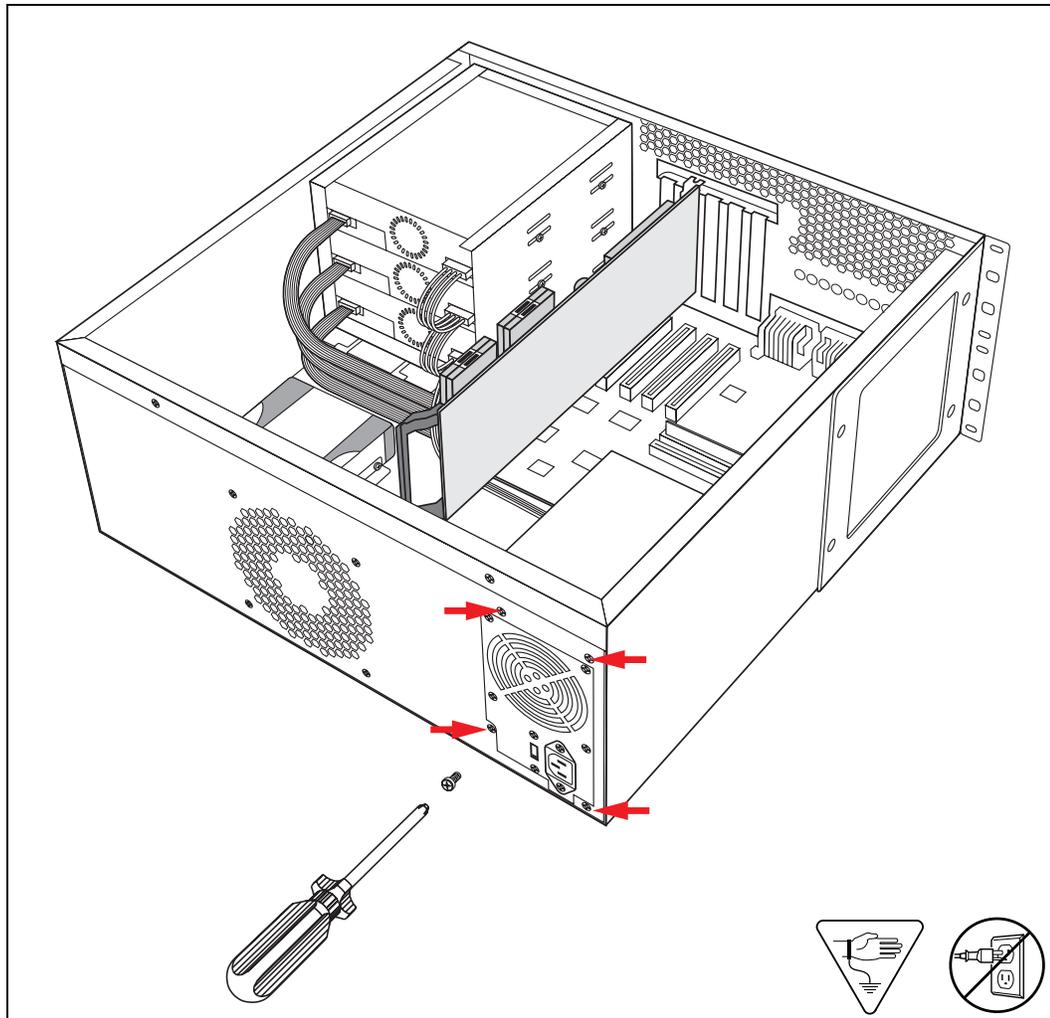
9. Lift the power supply out of the Enterprise Edge server.

Installing a new power supply

To install a new power supply:

1. Place the power supply in the Enterprise Edge server.

2. Align the screw holes in the power supply with the screw holes in Enterprise Edge server.

3. Fasten the power supply to the Enterprise Edge server using the four screws.

4. Connect the power supply cables to the main printed-circuit board, hard drive and media bay modules.

> *Tip*
> Route the power cables so they do not get in the way when you replace other Enterprise Edge components. Also, store the excess hard disk and media bay module power cables under the media bay module bracket.

5. Attach the power supply cables to the Enterprise Edge server using cable ties.

6. Replace the cover.

7. If the Enterprise Edge server was in a rack, install the server back in the rack.

8. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

9. Plug the Enterprise Edge power cord into the ac outlet.

10. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Replacing the main printed-circuit board 20

Overview

Replace the main printed-circuit board when it is no longer operating.

	Risk of shock.
⚠	Disconnect the power cord, telephone cables and network cables before opening the computer. Read and follow installation instructions carefully

Removing the main printed-circuit board

To remove the main printed-circuit board:

1. Remove the connections from the EE-DTM and EE-CTM.

   Note: For more information, refer to <u>Remove the connections</u> on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to <u>Shutdown the Enterprise Edge server</u> on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to <u>Remove the cover from the Enterprise Edge server</u> on page 134.

6. Remove the front cover. From more information, refer to <u>Remove the front cover</u> on page 134.

Figure 58 Main printed-circuit board
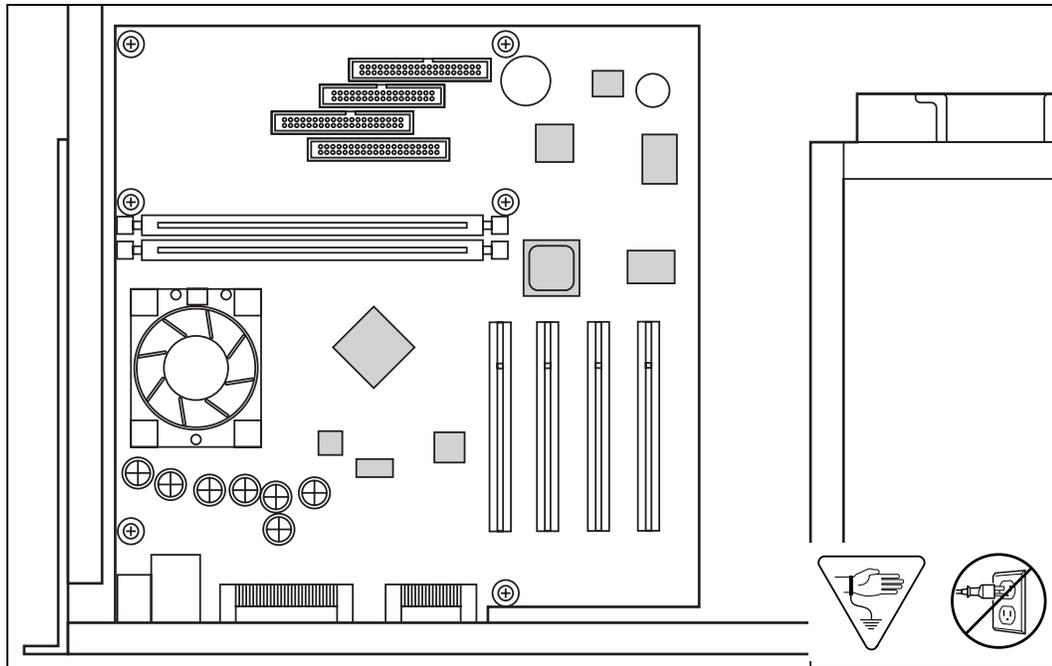
7. Remove the MSC. For information about removing the MSC, refer to Remove the MSC on page 173.

8. Remove the modem card. For information about removing the modem card, refer to Remove the modem card on page 223.

9. Remove the LAN card. If your system has two LAN cards, remove both LAN cards. For information about removing the LAN card, refer to Remove the LAN card on page 227.

10. Remove the WAN card (if the server has a WAN card). For information about removing the WAN card, refer to Remove the WAN card on page 231.

11. Disconnect the power supply cable from the main printed-circuit board.

12. Remove the fan power cable.

13. Remove the IDE ribbon cable.

14. Remove the DIMMs. For information about removing DIMMs, refer to Replacing memory on page 135.

15. Remove the screws that hold the main printed-circuit board to the Enterprise Edge server.

16. Lift the main printed-circuit board and pull it toward the power supply. When the connectors are clear of the front of the Enterprise Edge server, lift the main printed-circuit board out.

Installing a new main printed-circuit board

To install a new main printed-circuit board:

1. Place the main printed-circuit board in the Enterprise Edge server.

2. Align the connectors on the main printed-circuit board with the opening in the front of the Enterprise Edge server.

3. Lift the main printed-circuit board and slide it toward the front of the Enterprise Edge server.

4. Align the screw holes in the main printed-circuit board with the screw holes in Enterprise Edge server.

5. Fasten the main printed-circuit board to the Enterprise Edge server using the six screws.

6. Insert the DIMMs. For information about installing a DIMM, refer to Replacing memory on page 135.

7. Insert the IDE ribbon cable into the connector on the main printed-circuit board.

    Note: All connectors have a notch so you cannot insert the cable backwards. If you cannot push a connector in easily, do not force it.

8. Insert the fan power cable into the connector on the main printed-circuit board.

9. Insert the power supply cable into the connector on the main printed-circuit board.

10. Insert the WAN card (if the system has a WAN card). For information about inserting the WAN card, refer to Install the WAN card on page 232.

11. Insert the LAN card. If your system has two LAN cards, insert both LAN cards. For information about inserting the LAN card, refer to Install the LAN card on page 228.

12. Insert the modem card. For information about inserting the modem card, refer to Install the modem card on page 224.

13. Insert the MSC. For information about inserting the MSC, refer to Install the MSC on page 175.

14. Replace the front cover.

15. Replace the cover.

16. If the Enterprise Edge server was in a rack, install the server back in the rack.

17. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

18. Plug the Enterprise Edge power cord into the ac outlet.

19. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Section V - Enterprise Edge telephony hardware upgrades and replacements

- Upgrading or replacing telephony hardware
- Preparing for an upgrade
- Replacing the MSC
- Replacing the EE-CTM
- Replacing the EE-DTM
- Replacing the EE-DSM 16
- Replacing the EE-DSM 32
- Replacing the EE-ASM 8
- Replacing a telephone

Upgrading or replacing telephony hardware

21

Overview

The telephony hardware does all of the call processing in the Enterprise Edge system. This hardware also connects to the telephone equipment in your office and to the public switched telephone network.

The Enterprise Edge telephony hardware includes:

- **MSC** – This PCI card provides all of the call processing function on the Enterprise Edge system. The MSC also connects the other telephony hardware together.

- **EE DTM** – This media bay module connects digital telephone lines from the public switched telephone network to the Enterprise Edge system.

- **EE CTM** – This media bay module connects analog telephone lines from the public switched telephone network to the Enterprise Edge system.

- **EE DSM** – This media bay module connects up to 16 Enterprise Edge telephones to the Enterprise Edge system.

- **EE DSM** – This media bay module connects up to 32 Enterprise Edge telephones to the Enterprise Edge system.

- **EE ASM** – This media bay module connects single line analog telephones to the Enterprise Edge system.

- **Telephones** – Enterprise Edge telephones and analog telephony devices

To operate correctly, the Enterprise Edge server must have an MSC and one of the following:

- one trunk media bay module (EE-DTM or EE-CTM)

- one station media bay module (EE-DSM 16, EE-DSM 32 or EE-ASM 8)

Upgrading or replacing?

Upgrading the Enterprise Edge system is different from replacing Enterprise Edge system telephony components.

You replace components when you have a component that is not functioning correctly. To replace a telephony component, you take a component out of the Enterprise Edge server and then install a component of the same type. For example, you remove an EE-DSM 16 and then install a different EE-DSM 16.

You upgrade the Enterprise Edge system to add new functions or expand the number of telephones or lines you can connect. To upgrade the Enterprise Edge system, you install a new component or you take out a component and then install a different type of component. For example, you remove an EE-DSM 16 and then install an EE-DSM 32.

If you are replacing a telephony component, follow the appropriate replacement instructions in the section. If you are upgrading, you must follow the instructions in and the appropriate replacement instructions.

Preparing for an upgrade 22

When you upgrade the Enterprise Edge system, you are changing the number or type of telephones or telephone lines you can connect to the Enterprise Edge server. To upgrade the Enterprise Edge system, you need to add a new media bay module or change the type of media bay module installed.

When you add or change a media bay module, you need to:

- check the switch settings of the existing media bay modules
- configure the switch settings for the new media bay module

These switches determine the module number that is assigned to the media bay module. This module number then determines which line numbers or extension numbers are assigned to the media bay module.

Figure 59 DIP switches on media bay module
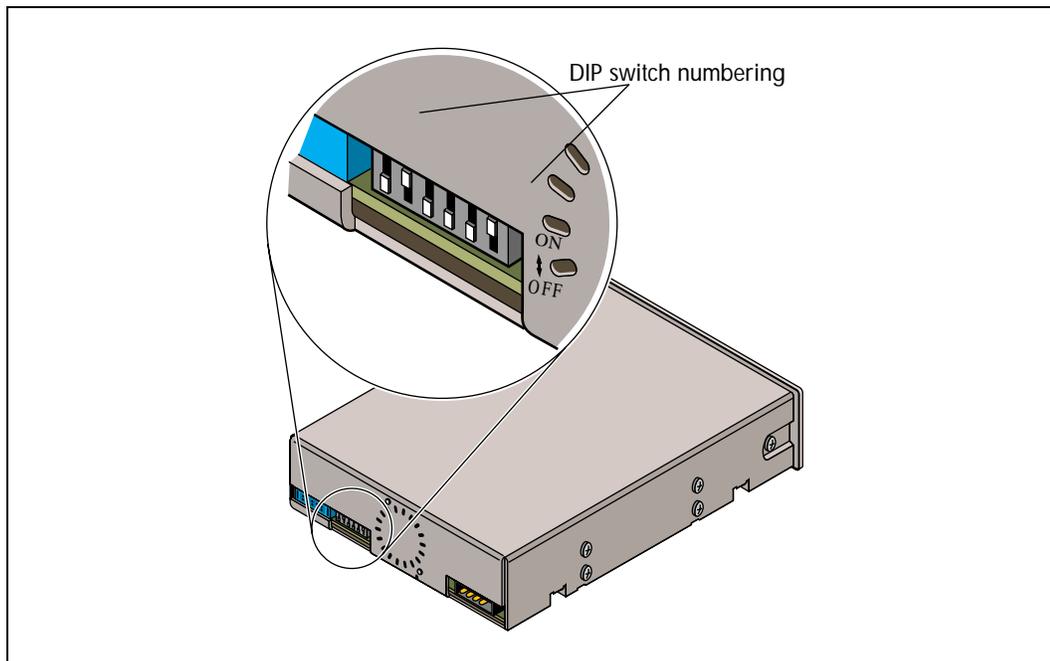
Module numbers

The module number assigned to the media bay module determines the range of line numbers or extension numbers that are assigned to the media bay module.

There are eight module numbers on an Enterprise Edge system. The MSC uses two of these modules numbers. The media bay modules use the other six modules numbers.

Each module number has access to 16 voice channels. These voice channels carry the telephony information (such as telephone calls and voice messages) between the media bay modules and the MCS.

To assign a module number to a media bay module, set switches 4, 5 and 6 on the back of the media bay module. Table 19 shows the switch settings for each module number.

Table 19 Switch settings for the module numbers

DS30 channel selected[*]	Switch settings		
	Switch #4	Switch #5	Switch #6
2	on	on	on
3	on	on	off
4	on	off	on
5	on	off	off
6	off	on	on
7	off	on	off

* The MSC uses module numbers 0 and 1.

Offset

Each type of media bay module requires a different number of voice channels. Some media bay modules (EE-CTM and EE-ASM 8) use less than 16 voice channels and can share a module number. Table 20 shows the number of media bay modules per module number.

Note: One media bay module (EE-DSM 32) uses two module numbers.

Table 20 Number of media bay modules per module number

Media bay modules	media bay modules/ module number	Notes
EE-CTM	4	EE-CTM modules can share a module number with other EE-CTM modules only.
EE-DTM	1	
EE-ASM 8	2	EE-ASM 8 modules can share a module number with another EE-ASM 8 module only.
EE-DSM 16	1	
EE-DSM 32	0.5	Each EE-DSM 32 requires two module numbers.

When media bay modules share a module number, the MCS uses the Offset to tell the difference between the media bay modules.

Only assign an Offset to media bay modules that share a module number. Do not use the Offset for the other media bay modules. To assign an Offset to a media bay module, set switches 1, 2 and 3 on the back of the media bay module. Table 21 shows the DIP switch settings for each Offset.

Table 21 Offset settings for DIP switches

Offset selected	Switch settings (for sharing of one channel)		
	Switch #1	Switch #2	Switch #3
0	on	on	on
1	on	on	off
2	on	off	on
3	on	off	off

Note: You cannot mix the type of media bay modules on a shared module number. EE-CTMs can share a module number and EE-ASM 8s can share a module number, but an EE-ASM 8 and an EE-CTM cannot share the same module number.

Assigning line numbers and extension numbers

To assign line number and extension numbers to a media bay module, you must set the switches on the back of the media bay module.

Rules for assigning lines and trunks

Use the following rules when you assign module numbers to media bay modules:

- Assign module numbers to station media bay modules (EE-DSM 32, EE-DSM 16, and EE-ASM 8) in the following order: module 2, module 3, module 4, module 5, module 6, module 7

- Assign module numbers to station media bay modules in the following order of preference: EE-DSM 32, EE-DSM 16, EE-ASM 8

- Each EE-DSM 32 uses two module numbers. When you assign a module number to an EE-DSM 32, the EE-DSM 32 also uses the next module number. For example, if you assign module number 2 to an EE-DSM 32, the EE-DSM 32 uses module numbers 2 and 3.

- Assign module numbers to trunk modules (EE-DTM and EE-CTM) in the following order; module 7, module 6, module 5, module 4, module 3, module 2

- Assign module numbers to trunk modules in the following order of preference: EE-DTM, EE-CTM

Note: If you are installing Enterprise Edge Companion, configure the station media bay module or modules handling Enterprise Edge Companion to module 7 and module 6. You must move any trunk media bay modules configured to module 6 or 7 to an open module number to prevent conflicts with Enterprise Edge Companion.

Checking the switch setting on the existing media bay modules

Before you set the switches, check the other media bay modules to find out which module numbers and Offsets are available.

To check the switch settings:

1. Look at the front of the Enterprise Edge server.

2. In Table 22, circle the type of media bay modules installed in the Enterprise Edge server.

3. Open the Enterprise Edge server.

4. Look at the switches on the back of the media bay modules.

5. In Table 22, circle the switch settings for each media bay module.

    Note: If you are replacing a media bay module, do not include the switch
    settings for that module.

6. In Table 22, circle the matching module numbers. If you have an EE-ASM 8
    or EE-CTM, circle the matching Offset number for these media bay modules.

    Note: For an EE-DSM 32, circle the next module number also.

7. Select one of the available module number for the new media bay module.
    Make sure you select two module numbers in sequence if you are adding an
    EE-DSM 32 media bay module. For example, if you select module number 6,
    make sure that module number 7 is available.

    Note: If you are adding an EE-ASM 8 or EE-CTM, select an Offset also.

Table 22 Programming record for the Media bay module switches

Module location	Type of module	Switch setting 4 5 6	Module number	Switch setting 1 2 3	Offset
Top	EE-DTM	on on on	2	on on on	0
	EE-CTM	on on off	3	on on off	1
	EE-DSM 32	on off on	4	on off on	2
	EE-DSM 16	on off off	5	on off off	3
	EE-ASM 8	off on on	6		
		off on off	7		
Center	EE-DTM	on on on	2	on on on	0
	EE-CTM	on on off	3	on on off	1
	EE-DSM 32	on off on	4	on off on	2
	EE-DSM 16	on off off	5	on off off	3
	EE-ASM 8	off on on	6		
		off on off	7		
Bottom	EE-DTM	on on on	2	on on on	0
	EE-CTM	on on off	3	on on off	1
	EE-DSM 32	on off on	4	on off on	2
	EE-DSM 16	on off off	5	on off off	3
	EE-ASM 8	off on on	6		
		off on off	7		

Setting the switches on the media bay modules

After you have selected the module number and Offset, set the switches on the media bay module.

To set the media bay module switches:

1. Use Table 22 to determine the switch settings for module number you are assigning to the media bay module.

2. Set switches 4, 5 and 6 to assign the selected module number.

3. If you have more than one EE-ASM 8 or EE-CTM, set the switches for the Offset required for the module. Use Table 22 to determine the switch settings for the Offset you are assigning to the media bay module.

4. Set switches 1, 2 and 3 to assign the selected Offset.

> *Tip*
> Set an offset when there is more than one EE-ASM 8 or EE-CTM
>
> If you do not have more than one EE-ASM 8 or EE-CTM, set the offset for all modules to "on".

Media bay module switch settings

Table 23 EE-ASM 8 switch settings

Module	Offset	Extensions	Switch Settings					
			1	2	3	4	5	6
2	0	221-228	on	on	on	on	on	on
	1	229-236	on	on	off	on	on	on
3	0	237-244	on	on	on	on	on	off
	1	245-252	on	on	off	on	on	off
4	0	253-260	on	on	on	on	off	on
	1	261-268	on	on	off	on	off	on
5	0	269-276	on	on	on	on	off	off
	1	277-284	on	on	off	on	off	off
6	0	285-292	on	on	on	off	on	on
	1	293-300	on	on	off	off	on	on
7	0	301-308	on	on	on	off	on	off
	1	309-316	on	on	off	off	on	off

Table 24 EE-DSM 16 and EE-DSM 32 switch settings

Module	Extensions	Switch Settings					
		1	2	3	4	5	6
2	221-236	on	on	on	on	on	on
3	237-252	on	on	on	on	on	off
4	253-268	on	on	on	on	off	on
5	269-284	on	on	on	on	off	off
6	285-300	on	on	on	off	on	on
7	301-316	on	on	on	off	on	off

Each EE-DSM 32 uses two module numbers. When you assign a module number
to an EE-DSM 32, the EE-DSM 32 also uses the next module number. For example,
if you set the switches to all on (Module 2), the EE-DSM 32 uses module numbers
2 and 3.

Table 25 EE-DTM switch settings

Module	Lines	Switch Settings					
		1	2	3	4	5	6
2	221-234	on	on	on	on	on	on
3	181-204	on	on	on	on	on	off
4	151-174	on	on	on	on	off	on
5	121-144	on	on	on	on	off	off
6	91-114	on	on	on	off	on	on
7	61-84	on	on	on	off	on	off

Table 26 EE-CTM switch settings

Module	Offset	Lines	Switch Settings					
			1	2	3	4	5	6
2	0	211-214	on	on	on	on	on	on
	1	219-222	on	on	off	on	on	on
	2	227-230	on	off	on	on	on	on
	3	235-238	on	off	off	on	on	on
3	0	181-184	on	on	on	on	on	off
	1	189-192	on	on	off	on	on	off
	2	197-200	on	off	on	on	on	off
	3	205-208	on	off	off	on	on	off
4	0	151-154	on	on	on	on	off	on
	1	159-162	on	on	off	on	off	on
	2	167-170	on	off	on	on	off	on
	3	175-178	on	off	off	on	off	on
5	0	121-124	on	on	on	on	off	off
	1	129-132	on	on	off	on	off	off
	2	137-140	on	off	on	on	off	off
	3	145-148	on	off	off	on	off	off
6	0	91-94	on	on	on	off	on	on
	1	99-102	on	on	off	off	on	on
	2	107-110	on	off	on	off	on	on
	3	115-118	on	off	off	off	on	on
7	0	61-64	on	on	on	off	on	off
	1	69-72	on	on	off	off	on	off
	2	77-80	on	off	on	off	on	off
	3	85-88	on	off	off	off	on	off

Default switch settings

Table 27 Default media bay module switch settings

Configuration	Type of module (top to bottom)	Switch settings 1 2 3 4 5 6	Extension numbers	Line numbers
8 x 16	EE-CTM	on on off on on off		189 - 192
	EE-CTM	on on on on on off		181 - 184
	EE-DSM 16	on on on off on on	285 - 300	
8 x 32	EE-CTM	on on off on on off		189 - 192
	EE-CTM	on on on on on off		181 - 184
	EE-DSM 32	on on on off on on	285 - 316	
28 x 32	EE-DTM	on on on on on on		201 - 224
	EE-CTM	on on on on on off		181 - 184
	EE-DSM 32	on on on off on on	285 - 316	
24 x 64	EE-DTM	on on on on on on		201 - 224
	EE-DSM 32	on on on off on on	285 - 316	
	EE-DSM 32	on on on on off on	253 - 284	

Replacing the MSC

The Media Services Card (MSC) performs call processing and media processing of the voice channels. The MSC also connects all of the media bay modules and handles time switching of all synchronous channels.

You only replace the MSC when it is damaged. To replace the MSC, you need to:

- [Remove the MSC](#)
- [Install the MSPECs on the new MSC](#)
- [Install the MSC](#)

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully.

Remove the MSC

To remove the MSC:

1. Remove the connections from the EE-DTM and EE-CTM.

   Note: For more information, refer to [Remove the connections](#) on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to [Shutdown the Enterprise Edge server](#) on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to [Remove the cover from the Enterprise Edge server](#) on page 134.

6. Remove the front cover. From more information, refer to [Remove the front cover](#) on page 134.

7. Disconnect the DS256 ribbon cables.

8. Remove the slot cover lock. Refer to Figure 60, for the location of the slot cover lock

Figure 60 Slot cover lock
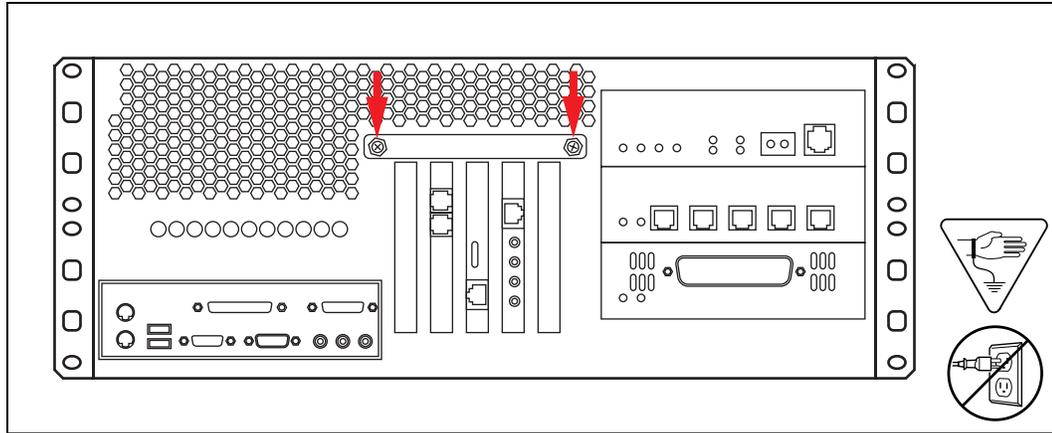
9. Remove the slot cover screw.

10. Use both hands to carefully hold the MSC along the top. Lift the MSC straight up and out of the module.

Install the MSPECs on the new MSC

The MSC has four MSPECs which increase the DSP capacity. You need to remove the MSPECs from the old MSC and then install MSPECs in the new MSC.

> ⚠️ *Electrostatic discharge can damage the MSPEC.*
> Do not touch the connector.
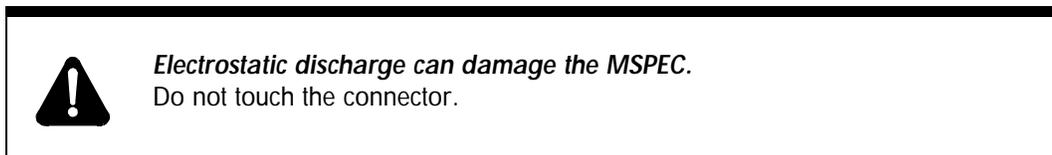
To install the MSPECs:

1. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

2. Lift the MSPEC straight up and out of the old MSC.

3. Repeat step 2 for all of the MSPECs.

4. Take the new MSC out of the shipping container and antistatic bag.

5. Inspect for damage. Handle the MSC by its edges at all times. Do not touch any card components.

6. Carefully slide the MSPEC into the MSPEC slot on the new MSC. Ensure the MSPEC snaps into place. The MSPEC has a key so you cannot the MSPEC backwards. Do not force the MSPEC into place.

7. Repeat step 6 for all of the MSPECs.

Figure 61 Insert an MSPEC
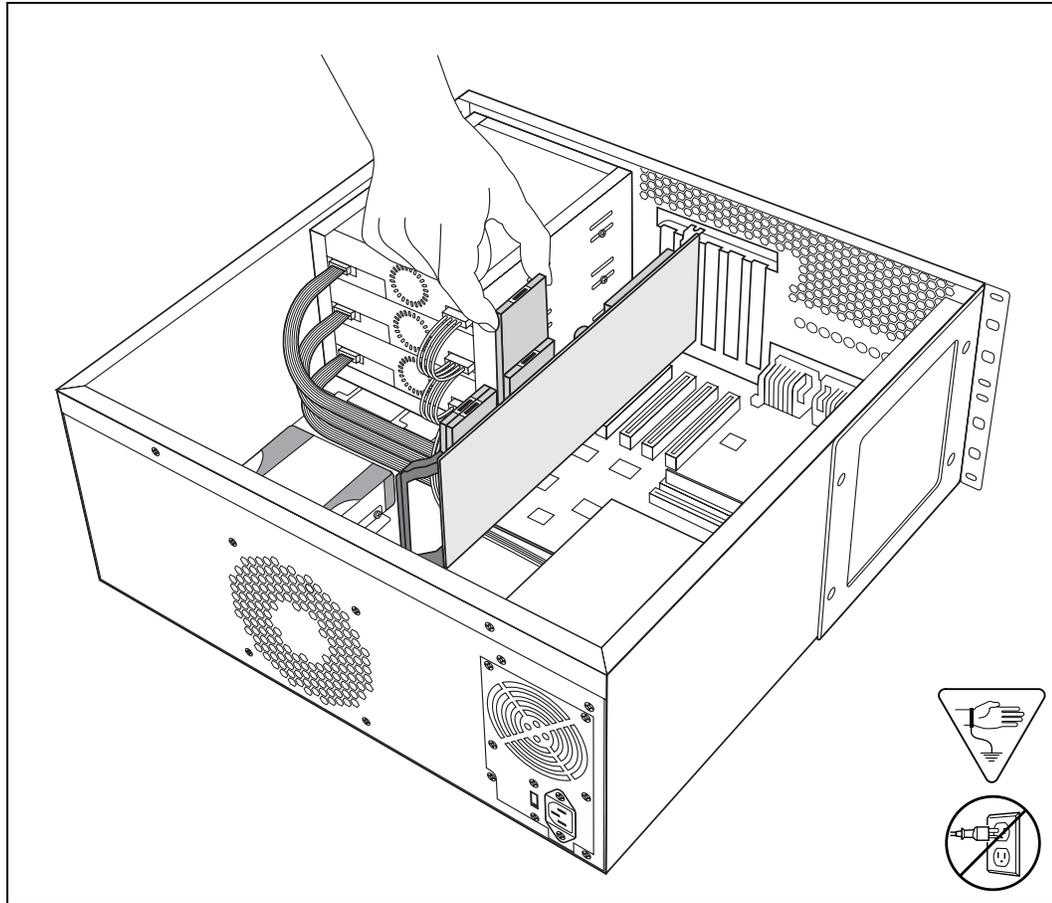
Install the MSC

1. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

2. Insert the card in the PCI slot.

3. Push the MSC down until it fits in position. The edge connector must be in the socket completely.

Figure 62 Install the MSC
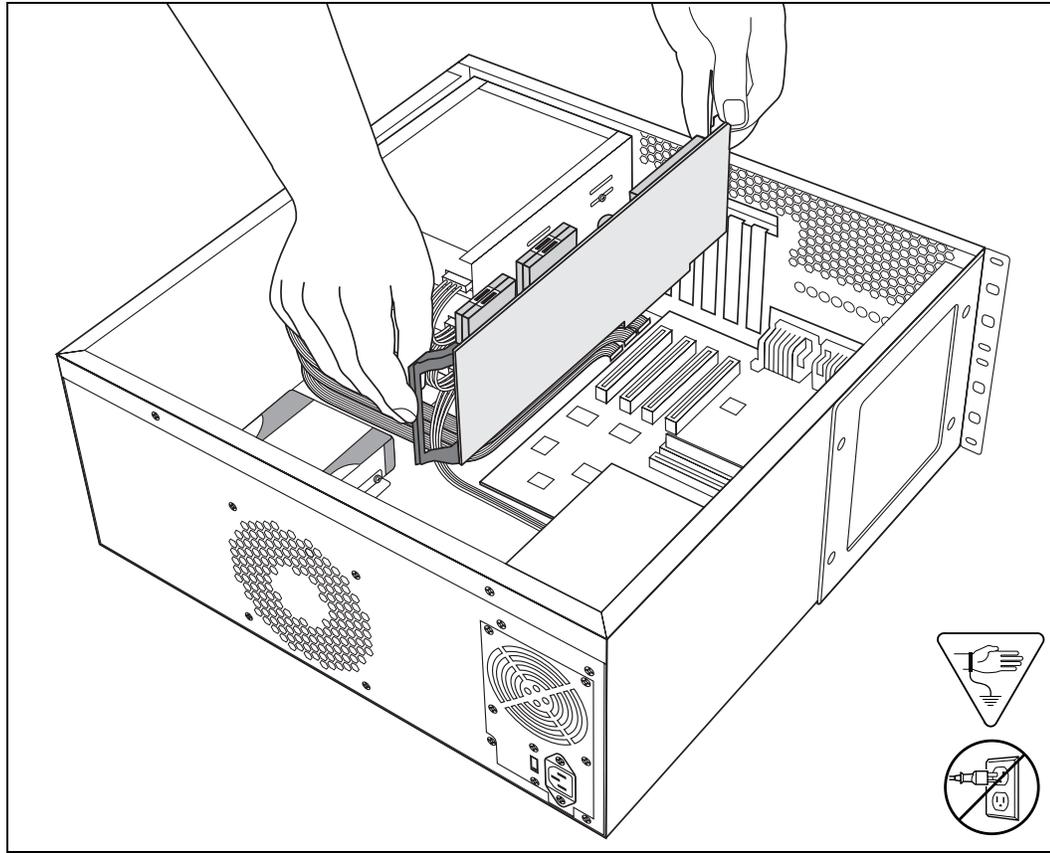
4. Fasten the slot cover screw in the MSC slot cover.

5. Replace the slot cover lock.

6. Insert the DS256 ribbon cables into the connectors on the MSC. The DS256 cables has a key so you cannot install the cable backwards. Do not force the DS256 cables into place.

7. Replace the front cover.

8. Replace the cover.

9. If the Enterprise Edge server was in a rack, install the server back in the rack.

10. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

11. Plug the Enterprise Edge power cord into the ac outlet.

12. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Replacing the EE-CTM

The EE-CTM media bay module connects up to four analog public switched telephone lines to the Enterprise Edge system.

You replace an EE-CTM when the EE-CTM is damaged. To replace the EE-CTM, you need to:

- Remove the EE-CTM

- Set the switches on the new EE-CTM

- Installing the EE-CTM

There are three media bays in the Enterprise Edge server. If there is an open media bay in the Enterprise Edge server, you can upgrade your Enterprise Edge system by adding a new EE-CTM. If you are upgrading, read Preparing for an upgrade on page 163 before installing the new EE-CTM.

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully.

Remove the EE-CTM

To remove the EE-CTM:

1. Remove the connections from the EE-DTM and EE-CTM.

   Note: For more information, refer to Remove the connections on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to Shutdown the Enterprise Edge server on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to Remove the cover from the Enterprise Edge server on page 134.

6. Remove the front cover. From more information, refer to Remove the front cover on page 134.

7. Remove the DS256 ribbon cables from all of the media bay modules.

8. Remove the power cables from all of the media bay modules.
    Put the cables flat on the bottom of the Enterprise Edge server. If the cables
    are up, they can disrupt the removal of the media bay module bracket.

Figure 63 Remove the ribbon cables and power cables
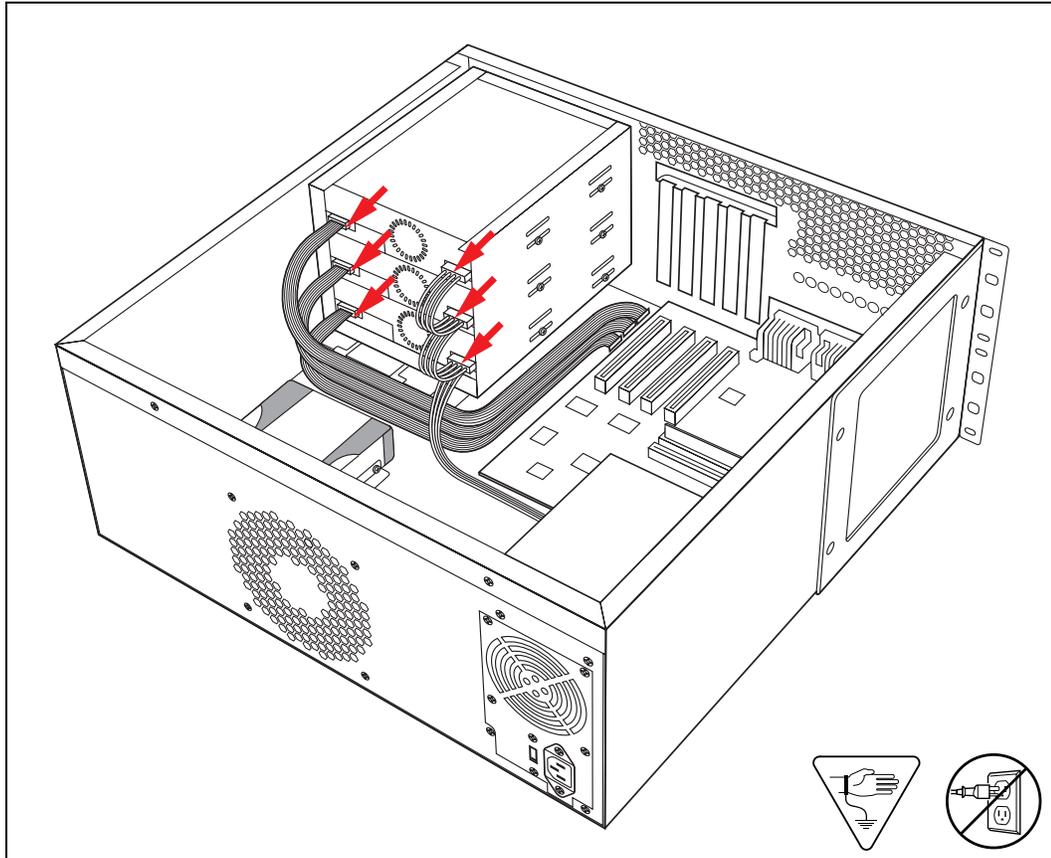
9. Remove the two screws that hold the media bay module bracket to the
    Enterprise Edge server.

Figure 64 Media bay module bracket screws
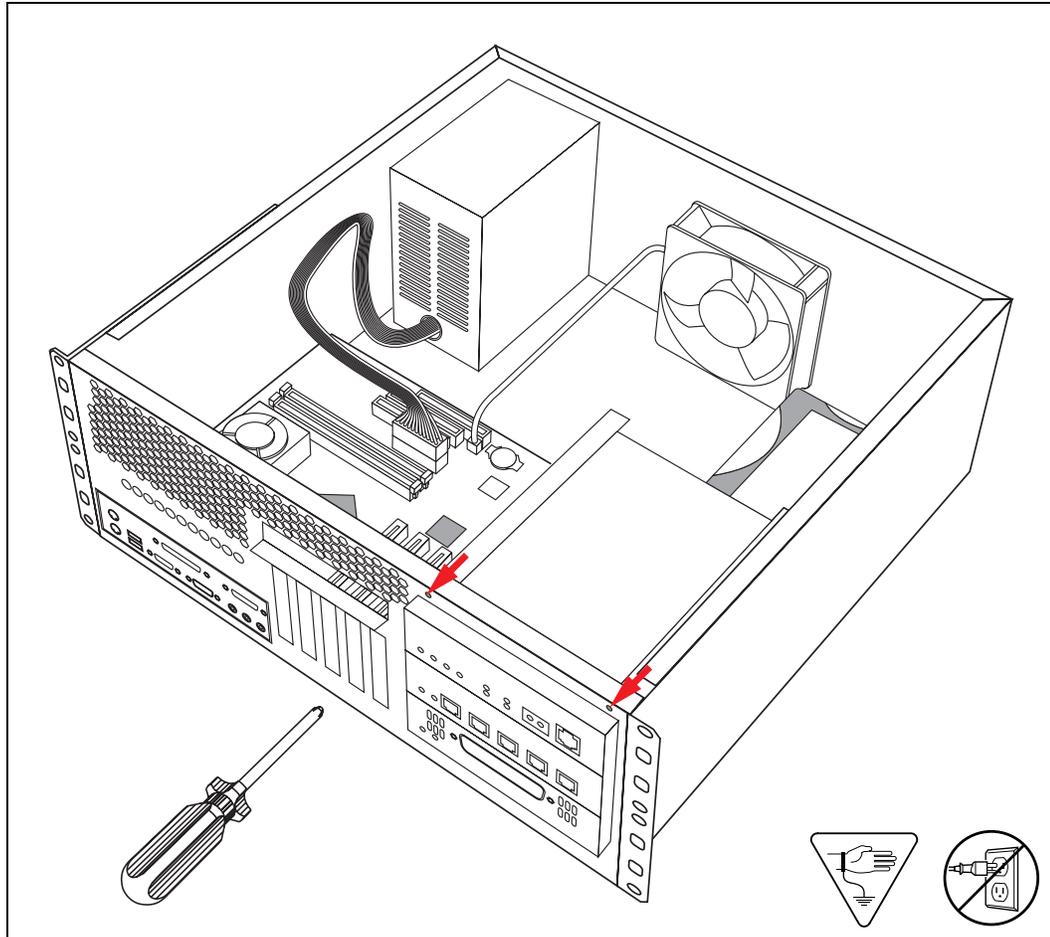
10. Carefully slide the media bay module bracket back until it touches the hard disk.

> ⚠ *Caution*
> Slide the media bay module bracket back slowly to prevent the bracket from hitting the hard disk. A hard impact can damage the hard disk.

Figure 65 Slide the media bay module bracket back
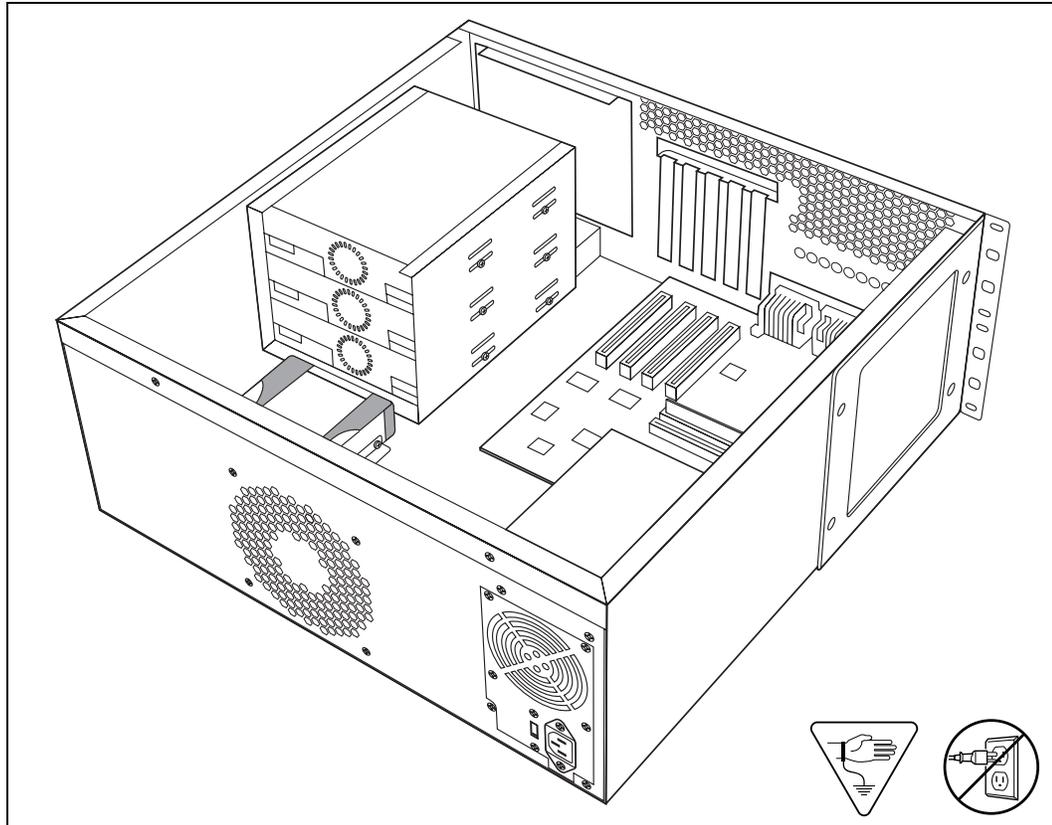
11. Lift the media bay module bracket out of the Enterprise Edge server.

12. Remove the screws that hold the EE-CTM in the media bay module bracket. There are two screws on each side of the bracket.

Figure 66 Remove the EE-CTM from the bracket
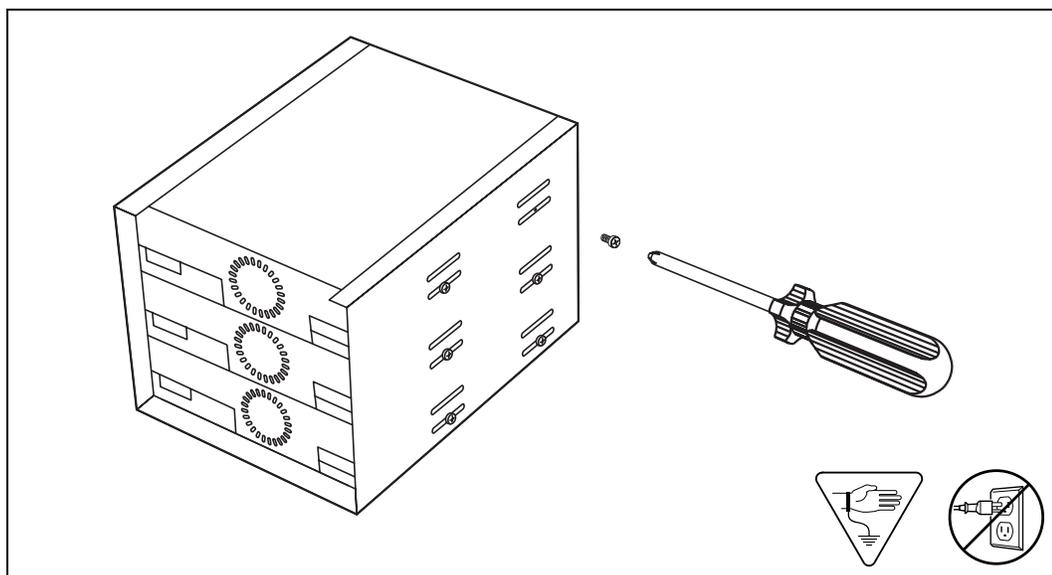
13. Slide the EE-CTM out of the media bay module bracket.

Set the switches on the new EE-CTM

The switches on the back of the media bay modules determine which DS30 channel and Offset the media bay modules use. You must set these switches before you install the media bay module.

Figure 67 DIP switches on media bay module
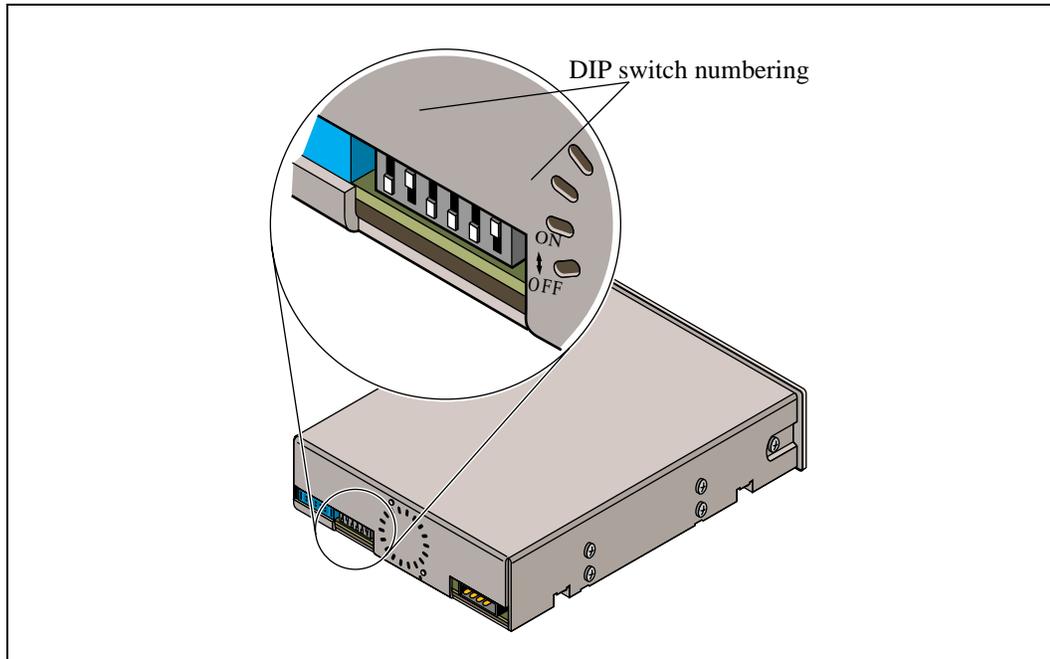
To set the switches:

1. Record the switch settings on the old EE-CTM.
    Switches 4, 5 and 6 determine the DS30 channel. Switches 1, 2 and 3 determine the Offset.

2. Set the switches on the back of the new EE-CTM so that they match the switches of the old EE-CTM.

> *Warning*
> If you are replacing the EE-CTM, you can use the same switch settings as the old EE-CTM. If you are upgrading the Enterprise Edge server to add another EE-CTM, you must select a new switch setting. The new setting cannot match any of the media bay modules installed in the Enterprise Edge server. For information about how to determine a new switch setting, refer to Preparing for an upgrade on page 163.

Installing the EE-CTM

Make sure you have set the switches on the back of the media bay module before you install the EE-CTM.

To insert the EE-CTM:

1. Slide the EE-CTM into the open media bay in the media bay module bracket. The front cover of the EE-CTM must line up with the covers of the other media bay modules.

2. Fasten the EE-CTM to the media bay module bracket using the four screws.

Figure 68 Fasten the EE-CTM to the media bay module bracket
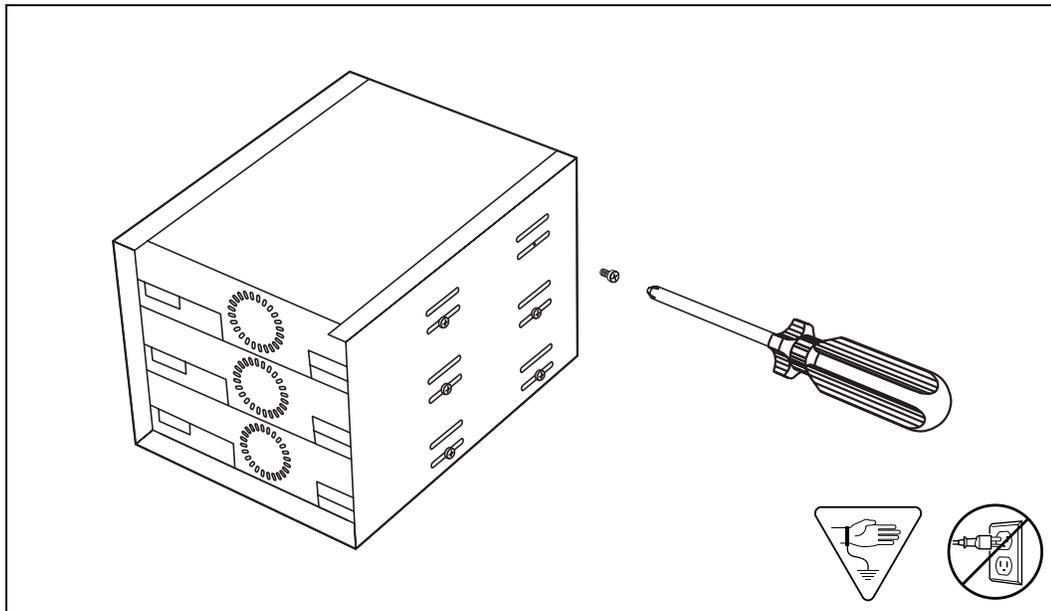
3. Place the media bay module bracket in the Enterprise Edge server.

4. Align the hooks on the bottom of the media bay module with the slots on the media bay module support.

Figure 69 Install the media bay module bracket
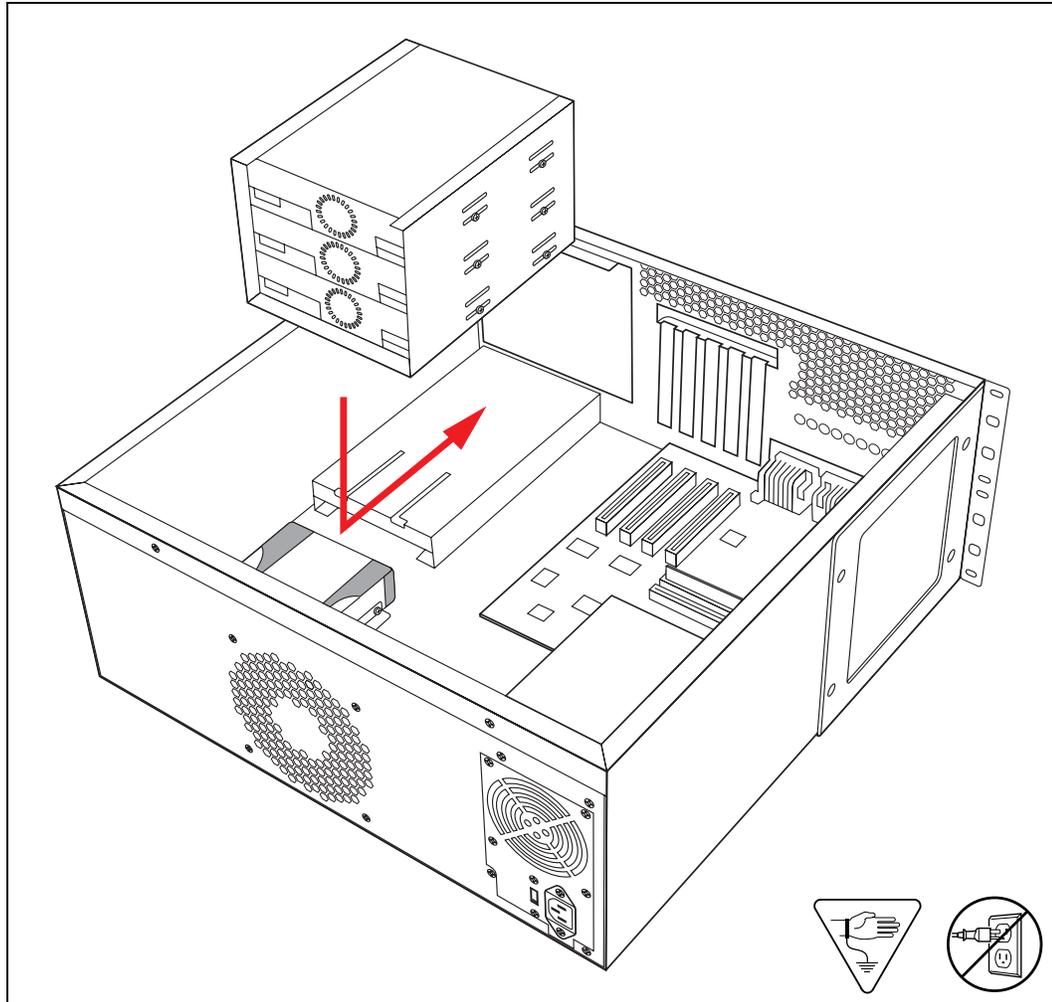
5. Slide the media bay module bracket forward until the bracket touches the front of the Enterprise Edge server.

6. Fasten the media bay module bracket to the Enterprise Edge server using two screws.

7. Insert the power cables into the connectors on the media bay modules.

8. Insert the DS256 ribbon cables into the connectors on the media bay modules.

9. Replace the front cover.

    Note: If you are upgrading the Enterprise Edge server by adding a new EE-CTM, remove the cover plate from the front cover before replacing it.

10. Replace the cover.

11. If the Enterprise Edge server was in a rack, install the server back in the rack.

12. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

13. Plug the Enterprise Edge power cord into the ac outlet.

14. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Replacing the EE-DTM

The EE-DTM media bay module connects up to 24 digital public switched telephone lines to the Enterprise Edge system.

You replace an EE-DTM when the EE-DTM is damaged. To replace the EE-DTM, you need to:

- Remove the EE-DTM

- Set the switches on the new EE-DTM

- Installing the EE-DTM

There are three media bays in the Enterprise Edge server. If there is an open media bay in the Enterprise Edge server, you can upgrade your Enterprise Edge system by adding a new EE-DTM. If you are upgrading, read Preparing for an upgrade on page 163 before installing the new EE-DTM.

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully.

Remove the EE-DTM

To remove the EE-DTM:

1. Remove the connections from the EE-DTM and EE-CTM.

   Note: For more information, refer to Remove the connections on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to Shutdown the Enterprise Edge server on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to Remove the cover from the Enterprise Edge server on page 134.

6. Remove the front cover. From more information, refer to Remove the front cover on page 134.

7. Remove the DS256 ribbon cables from all of the media bay modules.

8. Remove the power cables from all of the media bay modules.
   Put the cables flat on the bottom of the Enterprise Edge server. If the cables are up, they can disrupt the removal of the media bay module bracket.

Figure 70 Remove the ribbon cables and power cables
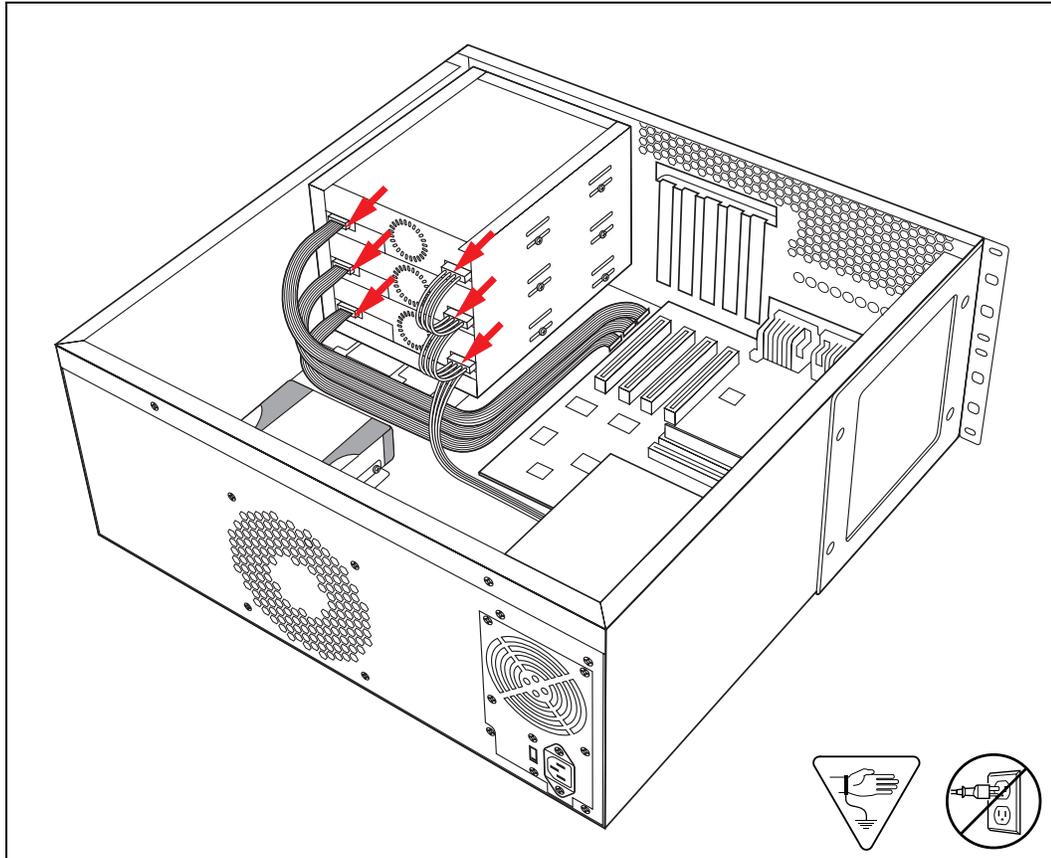
9. Remove the two screws that fasten the media bay module bracket to the Enterprise Edge server.
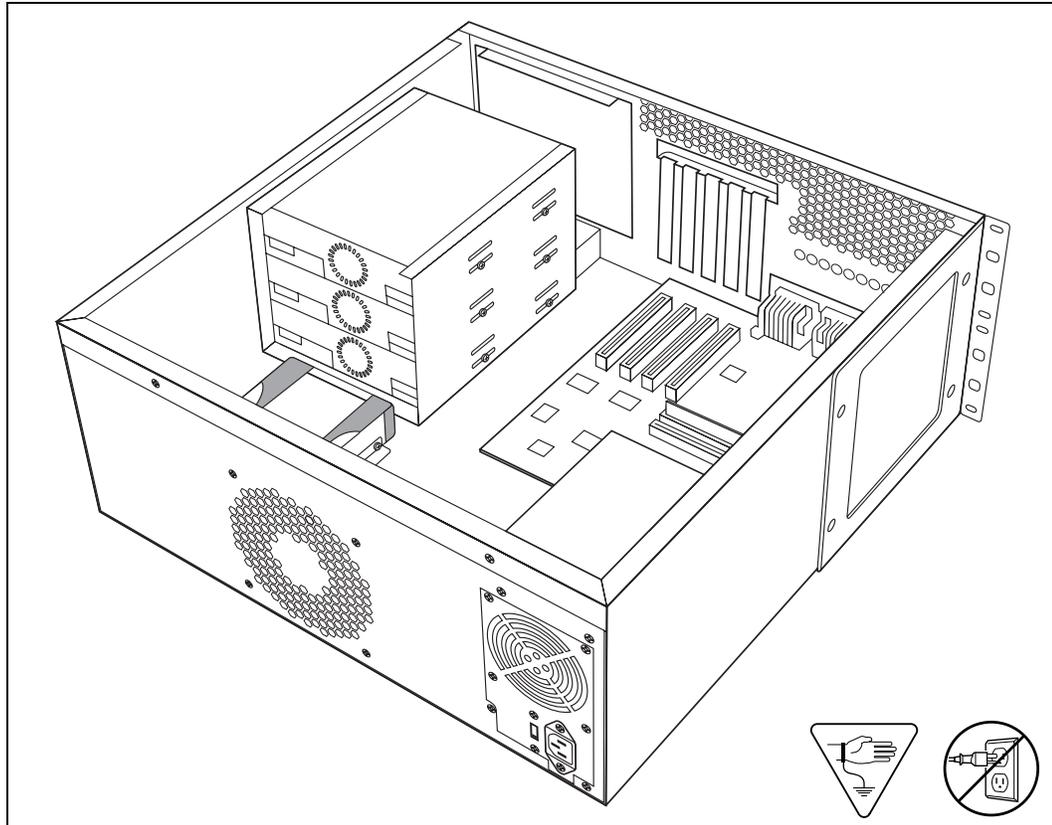
Figure 71 Media bay module bracket screws
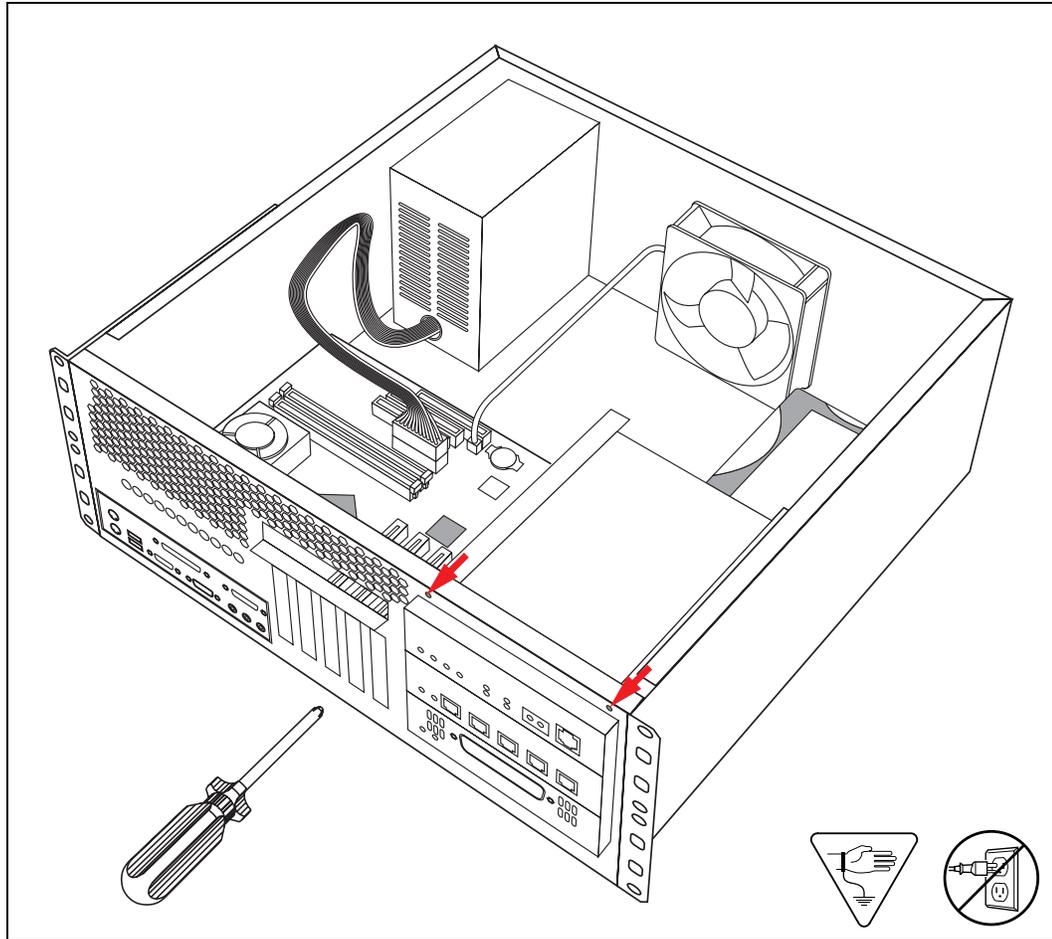
10. Carefully slide the media bay module bracket back until it touches the hard disk.

⚠️ *Caution*
Slide the media bay module bracket back slowly to prevent the bracket from hitting the hard disk. A hard impact can damage the hard disk.

Figure 72 Slide the media bay module bracket back
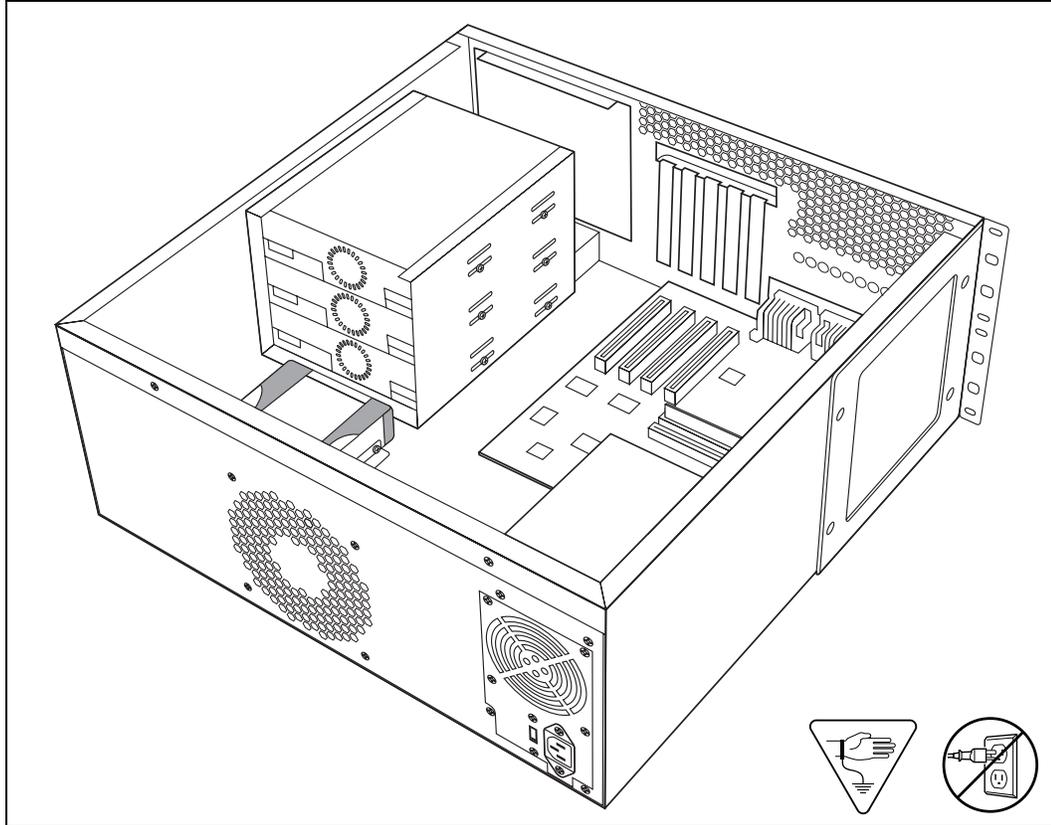
11. Lift the media bay module bracket out of the Enterprise Edge server.

12. Remove the screws that hold the EE-DTM in the media bay module bracket. There are two screws on each side of the bracket.

Figure 73 Remove the EE-DTM from the bracket
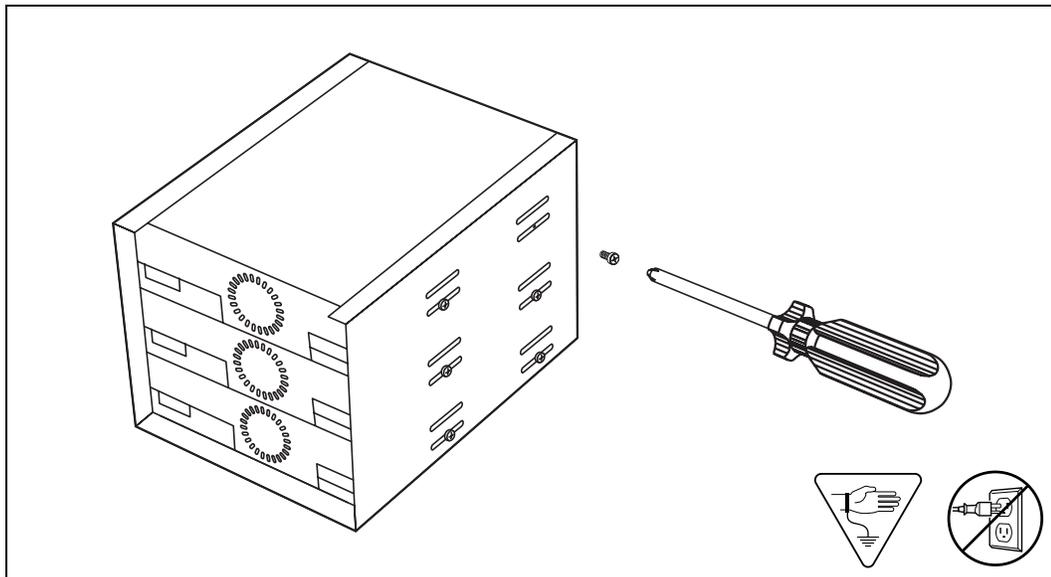
13. Slide the EE-DTM out of the media bay module bracket.

Set the switches on the new EE-DTM

The switches on the back of the media bay modules determine which DS30 channel and Offset the media bay modules use. You must set these switches before you install the media bay module.

Figure 74 DIP switches on media bay module
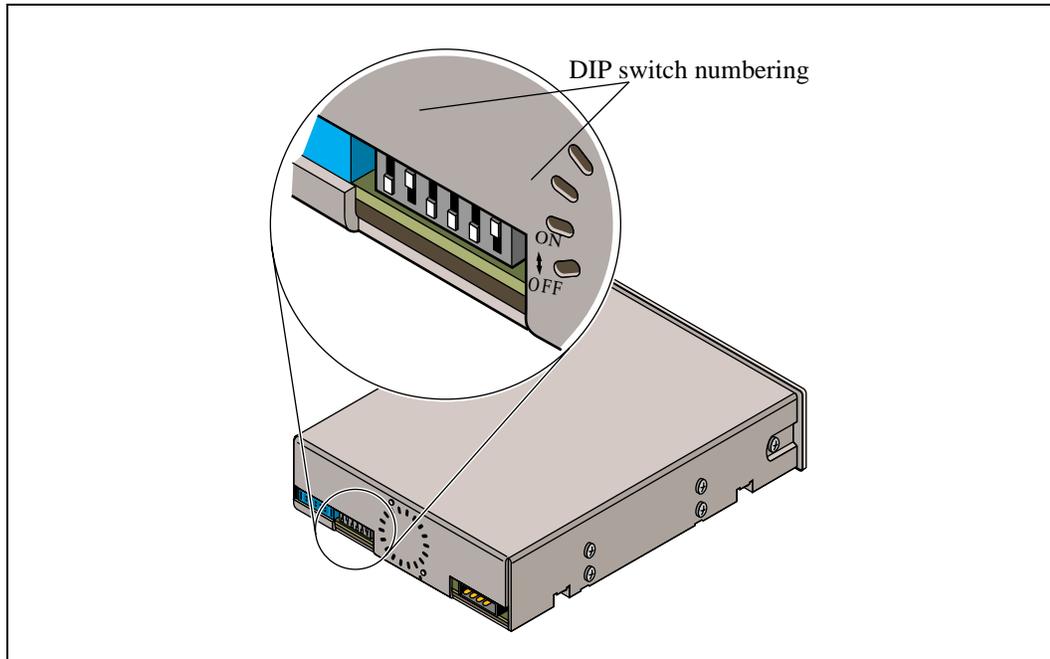
To set the switches:

1. Record the switch settings on the old EE-DTM.
   Switches 4, 5 and 6 determine the DS30 channel. Switches 1, 2 and 3 determine the Offset.

   Note: The EE-DTM does not use the Offset. Set switches 1, 2 and 3 to on.

2. Set the switches on the back of the new EE-DTM so that they match the switches of the old EE-DTM.

> *Warning*
> If you are replacing the EE-DTM, you can use the same switch settings as the old EE-DTM. If you are upgrading the Enterprise Edge server to add another EE-DTM, you must select a new switch setting. The new setting cannot match any of the media bay modules installed in the Enterprise Edge server. For information about how to determine a new switch setting, refer to Preparing for an upgrade on page 163.

Installing the EE-DTM

Make sure you have set the switches on the back of the media bay module before you install the EE-DTM.

To insert the EE-DTM:

1. Slide the EE-DTM into the open media bay in the media bay module bracket. The front cover of the EE-DTM must line up with the covers of the other media bay modules.

2. Fasten the EE-DTM to the media bay module bracket using the four screws.

Figure 75 Fasten the EE-DTM to the media bay module bracket
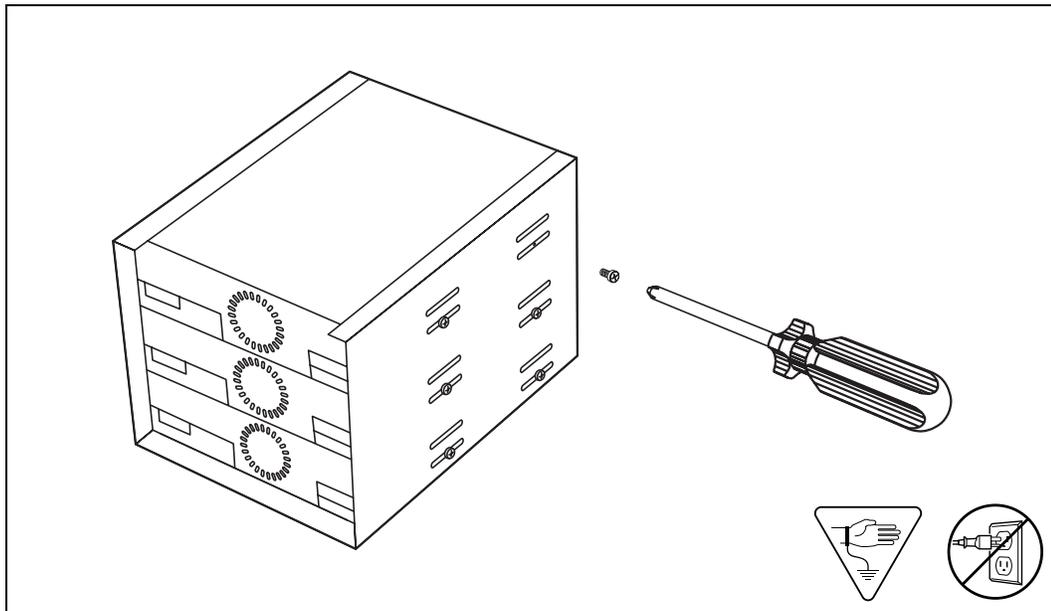
3. Place the media bay module bracket in the Enterprise Edge server.

4. Align the hooks on the bottom of the media bay module with the slots on the media bay module support.

Figure 76 Install the media bay module bracket
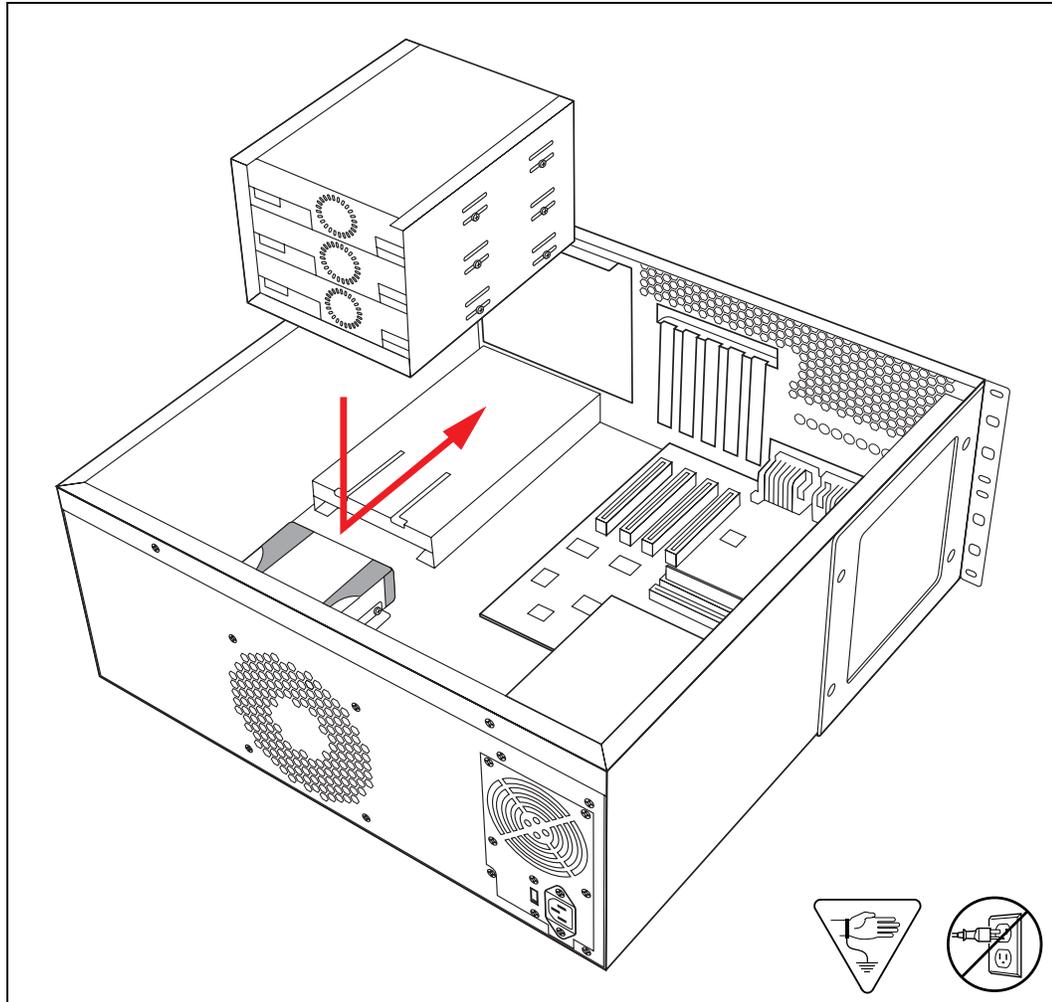
5. Slide the media bay module bracket forward until the bracket touches the front of the Enterprise Edge server.

6. Fasten the media bay module bracket to the Enterprise Edge server using the two screws.

7. Insert the power cables into the connectors on the media bay modules.

8. Insert the DS256 ribbon cables into the connectors on the media bay modules.

9. Replace the front cover.

    Note: If you are upgrading the Enterprise Edge server by adding a new EE-DTM, remove the cover plate from the front cover before replacing it.

10. Replace the cover.

11. If the Enterprise Edge server was in a rack, install the server back in the rack.

12. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

13. Plug the Enterprise Edge power cord into the ac outlet.

14. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Replacing the EE-DSM 16 26

The EE-DSM 16 media bay module connects up to 16 Enterprise Edge telephones to the Enterprise Edge system.

You replace an EE-DSM 16 when the EE-DSM 16 is damaged. To replace the EE-DSM 16, you need to:

- Remove the EE-DSM 16

- Set the switches on the new EE-DSM 16

- Installing the EE-DSM 16

There are three media bays in the Enterprise Edge server. If there is an open media bay in the Enterprise Edge server, you can upgrade your Enterprise Edge system by adding a new EE-DSM 16. If you are upgrading, read Preparing for an upgrade on page 163 before installing the new EE-DSM 16.

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cable and network cables before opening the computer.
>
> Read and follow installation instructions carefully.

Remove the EE-DSM 16

To remove the EE-DSM 16:

1. Remove the connections from the EE-DTM and EE-CTM.

    Note: For more information, refer to Remove the connections on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to Shutdown the Enterprise Edge server on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to Remove the cover from the Enterprise Edge server on page 134.

6. Remove the front cover. From more information, refer to Remove the front cover on page 134.

7. Remove the DS256 ribbon cables from all of the media bay modules.

8. Remove the power cables from all of the media bay modules.
    Put the cables flat on the bottom of the Enterprise Edge server. If the cables
    are up, they can disrupt the removal of the media bay module bracket.

Figure 77 Remove the ribbon cables and power cables
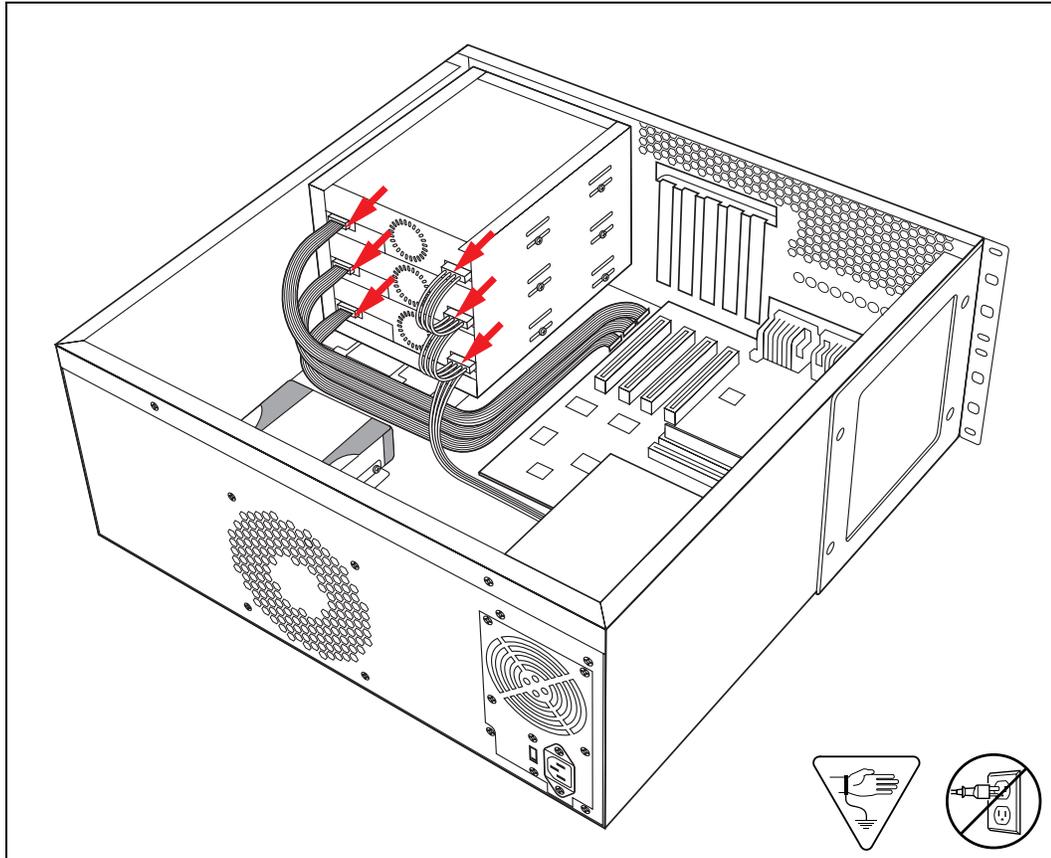
9. Remove the two screws that fasten the media bay module bracket to the
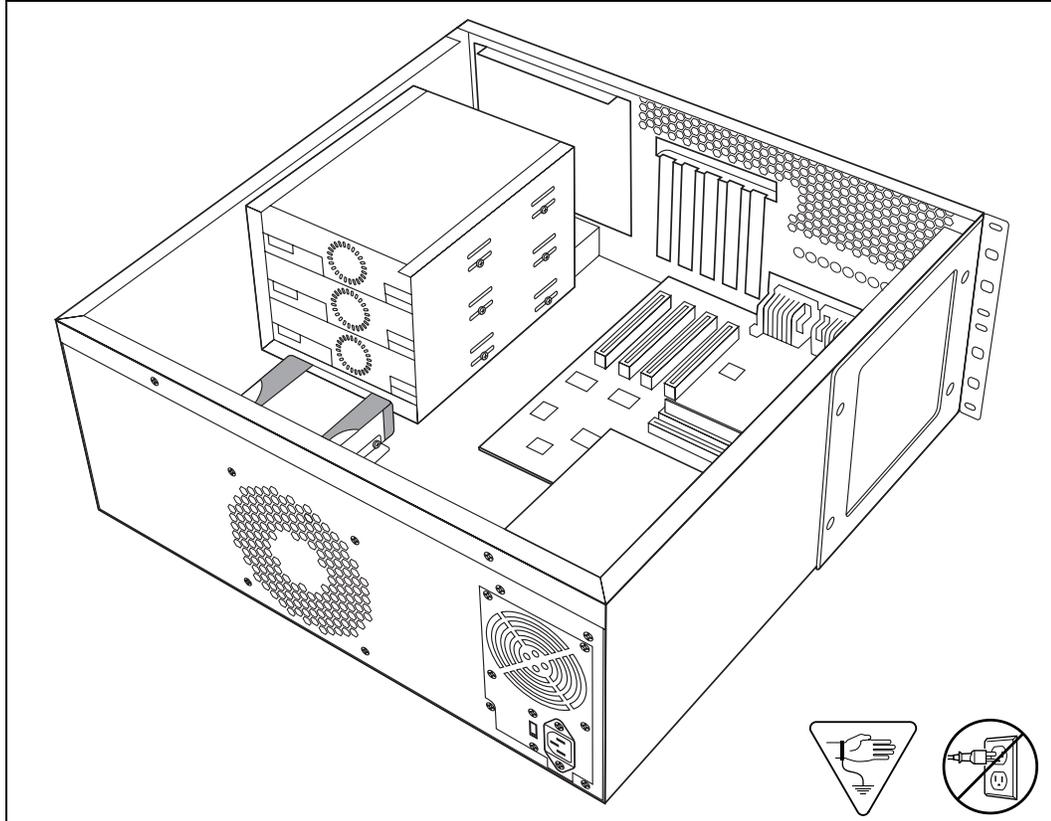   Enterprise Edge server.

Figure 78 Media bay module bracket screws
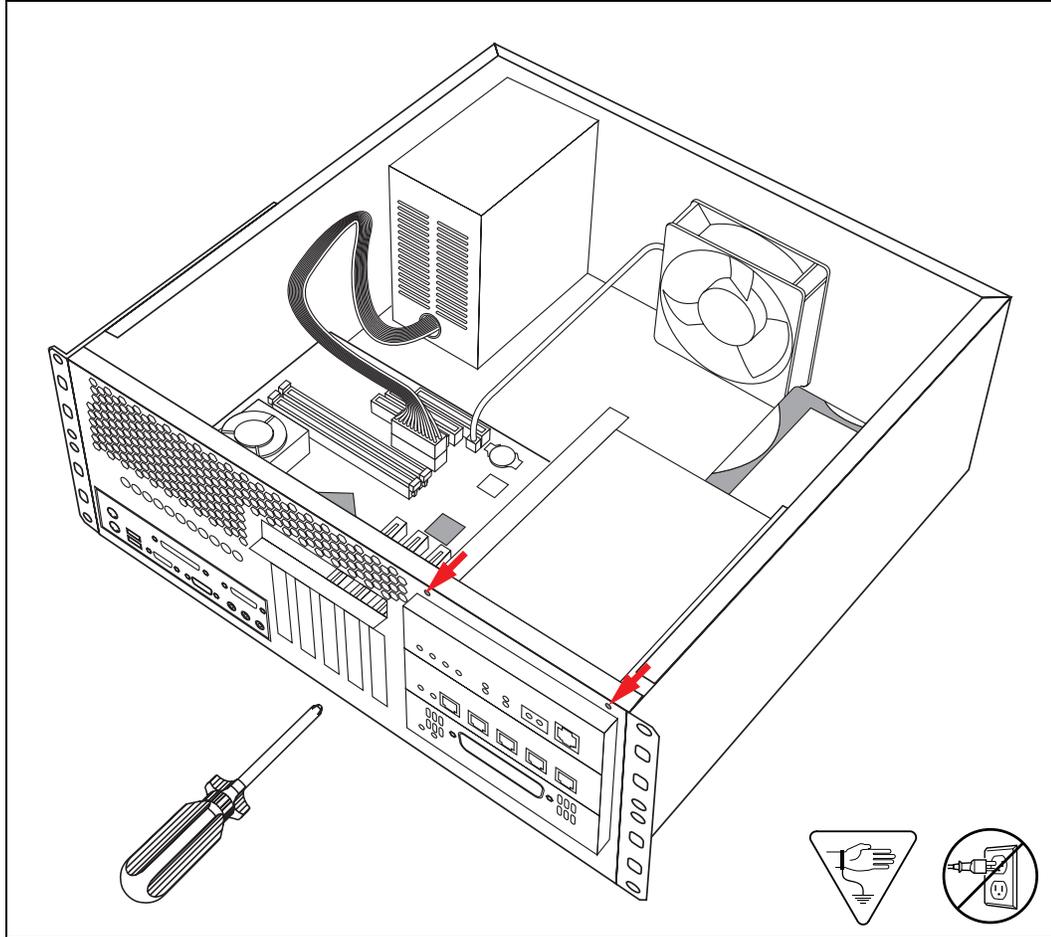
10. Carefully slide the media bay module bracket back until it touches the hard disk.

Caution
Slide the media bay module bracket back slowly to prevent the bracket from hitting the hard disk. A hard impact can damage the hard disk.

Figure 79 Slide the media bay module bracket back

11. Lift the media bay module bracket out of the Enterprise Edge server.

12. Remove the screws that hold the EE-DSM 16 in the media bay module bracket. There are two screws on each side of the bracket.

Figure 80 Remove the EE-DSM 16 from the bracket
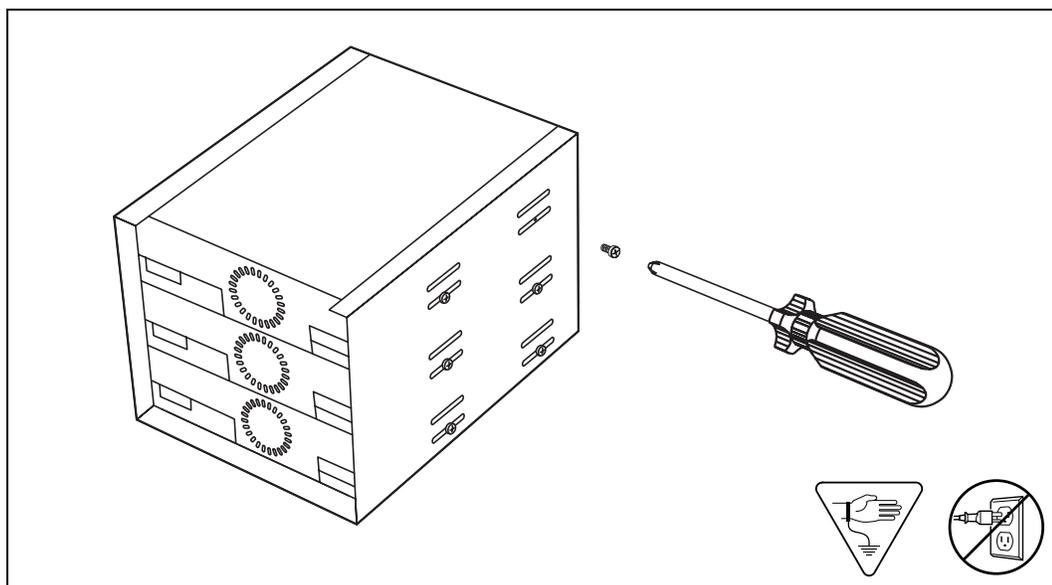
13. Slide the EE-DSM 16 out of the media bay module bracket.

Set the switches on the new EE-DSM 16

The switches on the back of the media bay modules determine which DS30 channel and Offset the media bay modules use. You must set these switches before you install the media bay module.

Figure 81 DIP switches on media bay module
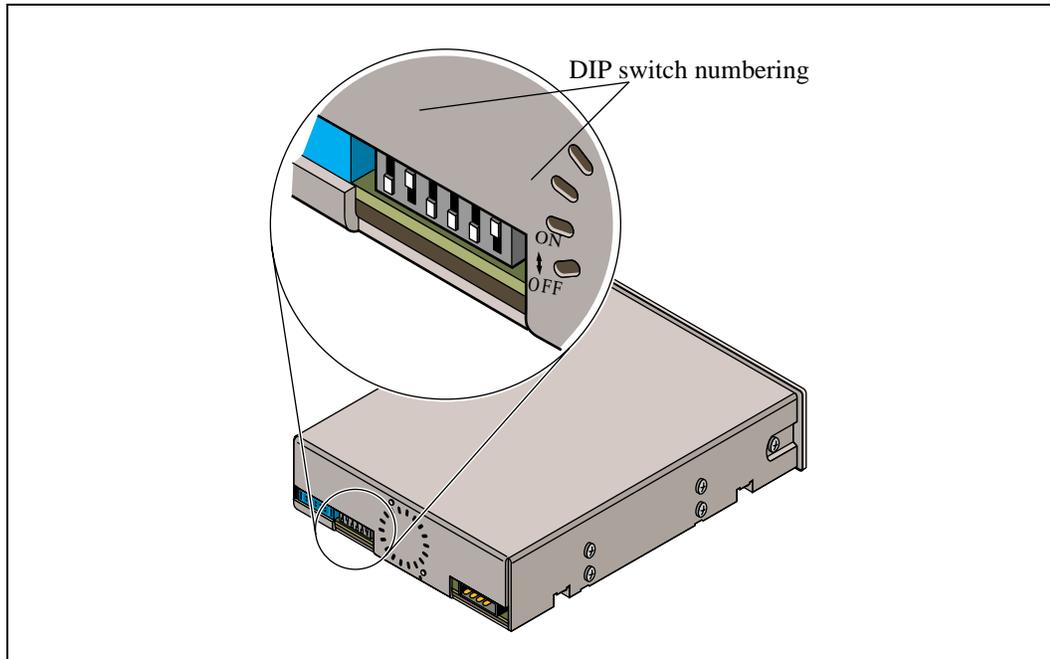
To set the switches:

1. Record the switch settings on the old EE-DSM 16.
   Switches 4, 5 and 6 determine the DS30 channel. Switches 1, 2 and 3 determine the Offset.

   Note: The EE-DSM 16 does not use the Offset. Set switches 1, 2 and 3 to on.

2. Set the switches on the back of the new EE-DSM 16 so that they match the switches of the old EE-DSM 16.

> *Warning*
> If you are replacing the EE-DSM 16, you can use the same switch settings as the old EE-DSM 16. If you are upgrading the Enterprise Edge server to add another EE-DSM 16, you must select a new switch setting. The new setting cannot match any of the media bay modules installed in the Enterprise Edge server. For information about how to determine a new switch setting, refer to Preparing for an upgrade on page 163.

Installing the EE-DSM 16

Make sure you have set the switches on the back of the media bay module before you install the EE-DSM 16.

To insert the EE-DSM 16:

1. Slide the EE-DSM 16 into the open media bay in the media bay module bracket. The front cover of the EE-DSM 16 must line up with the covers of the other media bay module.

2. Fasten the EE-DSM 16 to the media bay module bracket using the four screws.

Figure 82 Fasten the EE-DSM 16 to the media bay module bracket
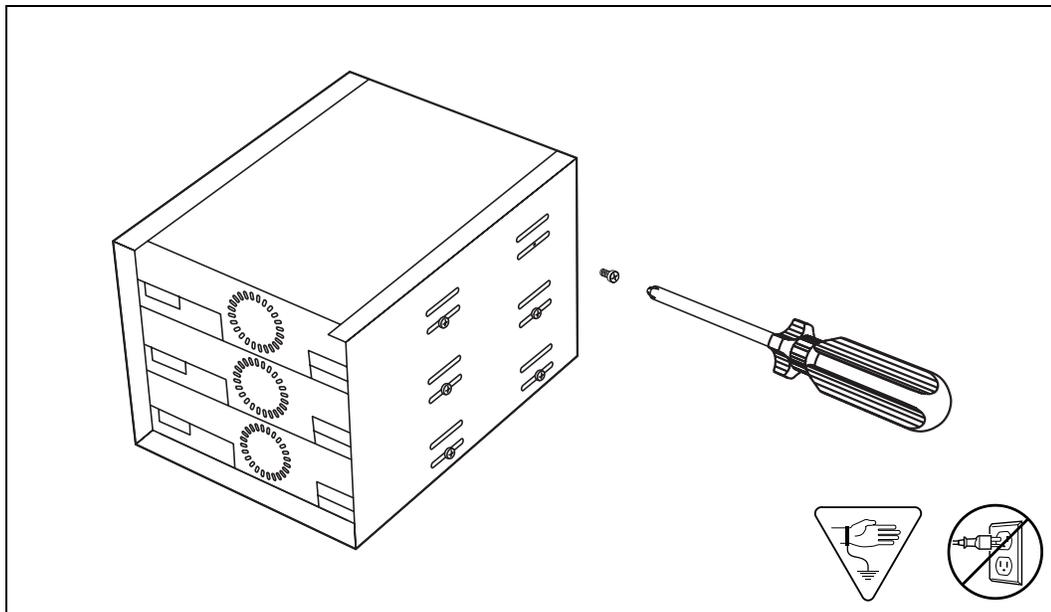
3. Place the media bay module bracket in the Enterprise Edge server.

4. Align the hooks on the bottom of the media bay module with the slots on the media bay module support.

Figure 83 Install the media bay module bracket
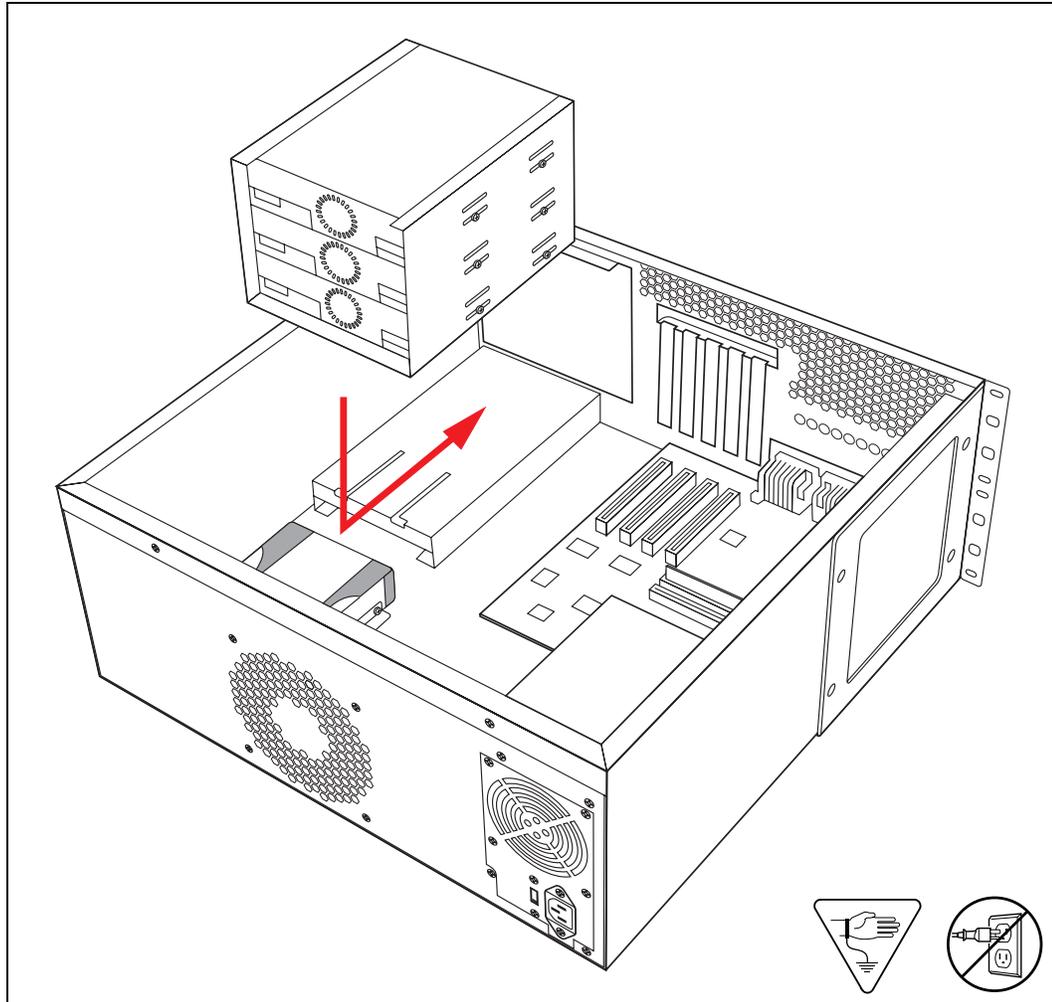
5. Slide the media bay module bracket forward until the bracket touches the front of the Enterprise Edge server.

6. Fasten the media bay module bracket to the Enterprise Edge server using the two screws.

7. Insert the power cables into the connectors on the media bay modules.

8. Insert the DS256 ribbon cables into the connectors on the media bay modules.

9. Replace the front cover.

    Note: If you are upgrading the Enterprise Edge server by adding a new EE-DSM 16, remove the cover plate from the front cover before replacing it.

10. Replace the cover.

11. If the Enterprise Edge server was in a rack, install the server back in the rack.

12. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

13. Plug the Enterprise Edge power cord into the ac outlet.

14. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

The EE-DSM 32 media bay module connects up to 32 Enterprise Edge telephones to the Enterprise Edge system.

You replace an EE-DSM 32 when the EE-DSM 32 is damaged. To replace the EE-DSM 32, you need to:

- Remove the EE-DSM 32

- Set the switches on the new EE-DSM 32

- Installing the EE-DSM 32

There are three media bays in the Enterprise Edge server. If there is an open media bay in the Enterprise Edge server, you can upgrade your Enterprise Edge system by adding a new EE-DSM 32. If you are upgrading, read Preparing for an upgrade on page 163 before installing the new EE-DSM 32.

Also, you can upgrade the Enterprise Edge system by replacing an EE-DSM 16 with an EE-DSM 32. Read Preparing for an upgrade on page 163 before replacing an EE-DSM 16 with an EE-DSM 32.

> ⚠ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully

Remove the EE-DSM 32

To remove the EE-DSM 32:

1. Remove the connections from the EE-DTM and EE-CTM.

   Note: For more information, refer to Remove the connections on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to Shutdown the Enterprise Edge server on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to [Remove the cover from the Enterprise Edge server](#) on page 134.

6. Remove the front cover. From more information, refer to [Remove the front cover](#) on page 134.

7. Remove the DS256 ribbon cables from all of the media bay modules.

8. Remove the power cables from all of the media bay modules.
   Put the cables flat on the bottom of the Enterprise Edge server. If the cables are up, they can disrupt the removal of the media bay module bracket.

Figure 84 Remove the ribbon cables and power cables
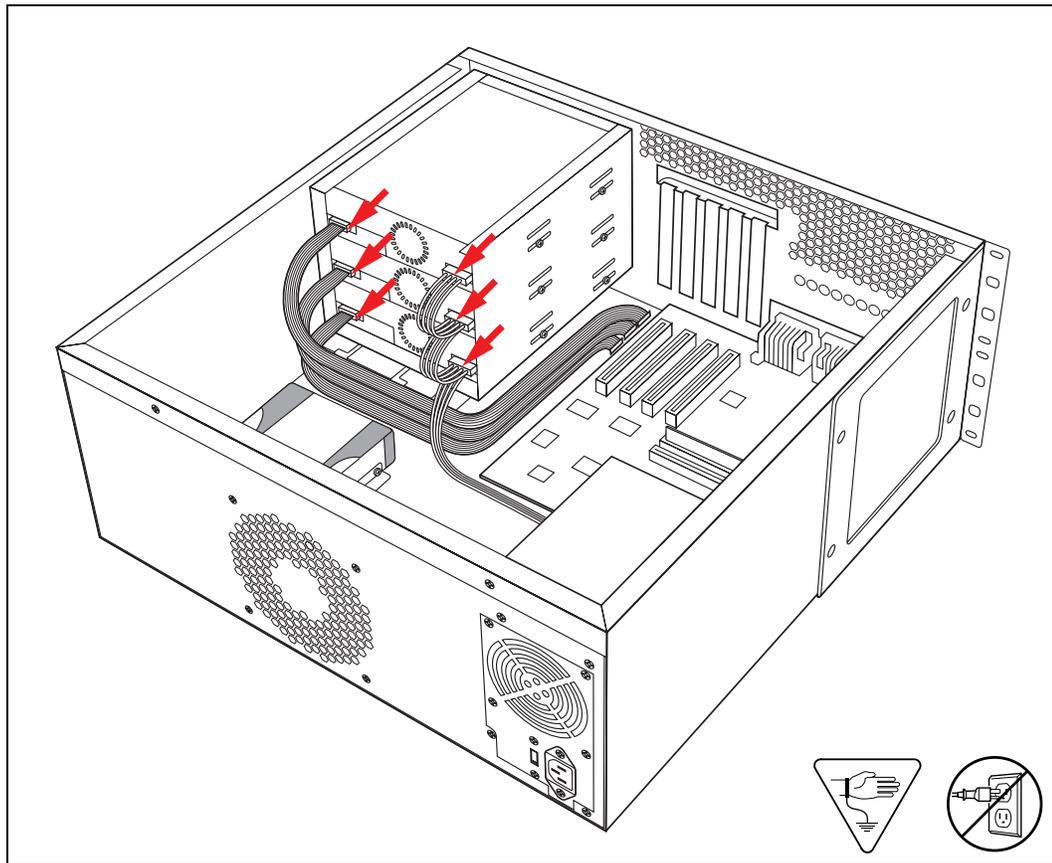
9. Remove the two screws that fasten the media bay module bracket to the Enterprise Edge server.

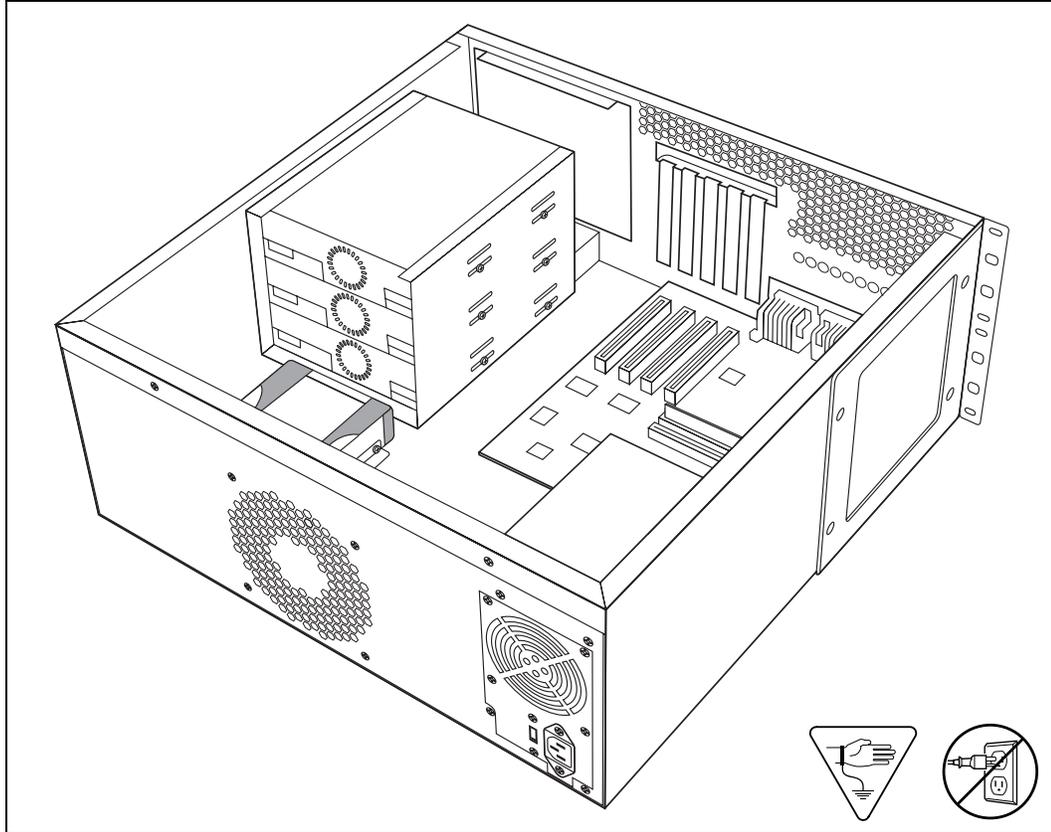**Figure 85 Media bay module bracket screws**
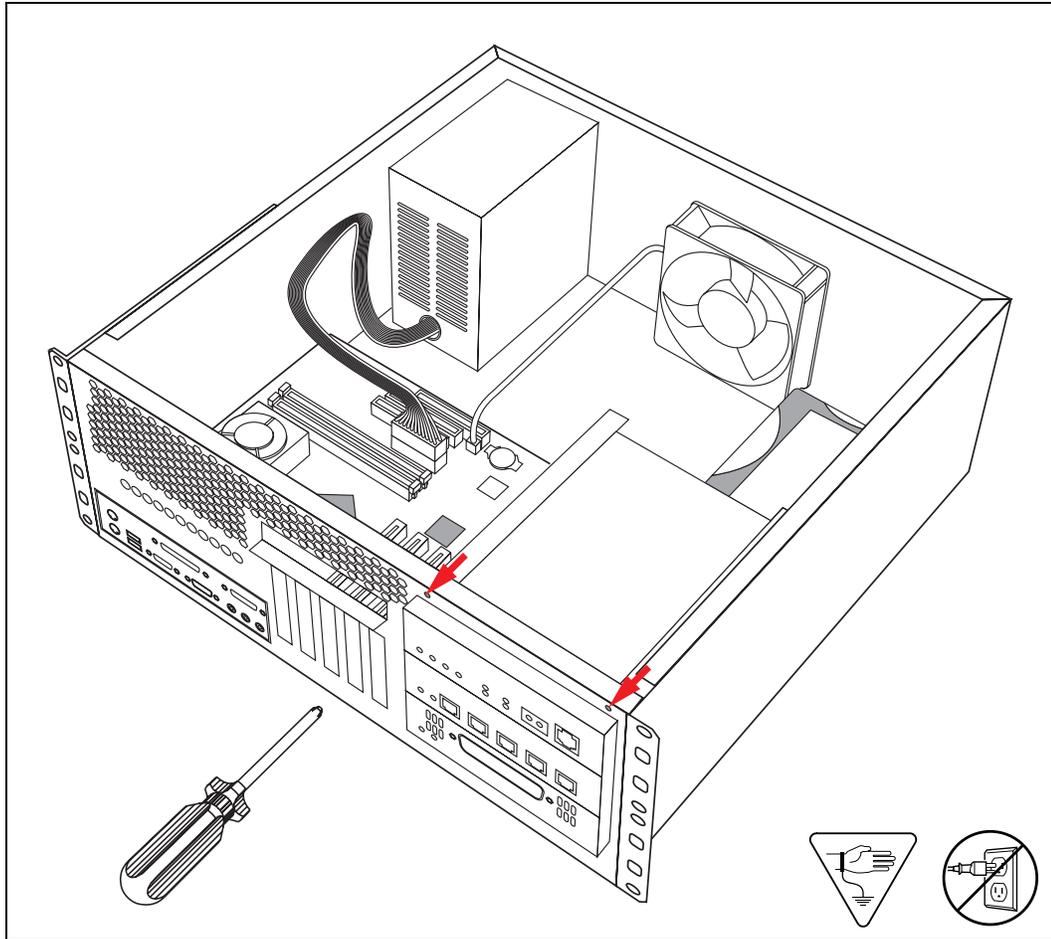
10. Carefully slide the media bay module bracket back until it touches the hard disk.

> ⚠ *Caution*
> Slide the media bay module bracket back slowly to prevent the bracket from hitting the hard disk. A hard impact can damage the hard disk.
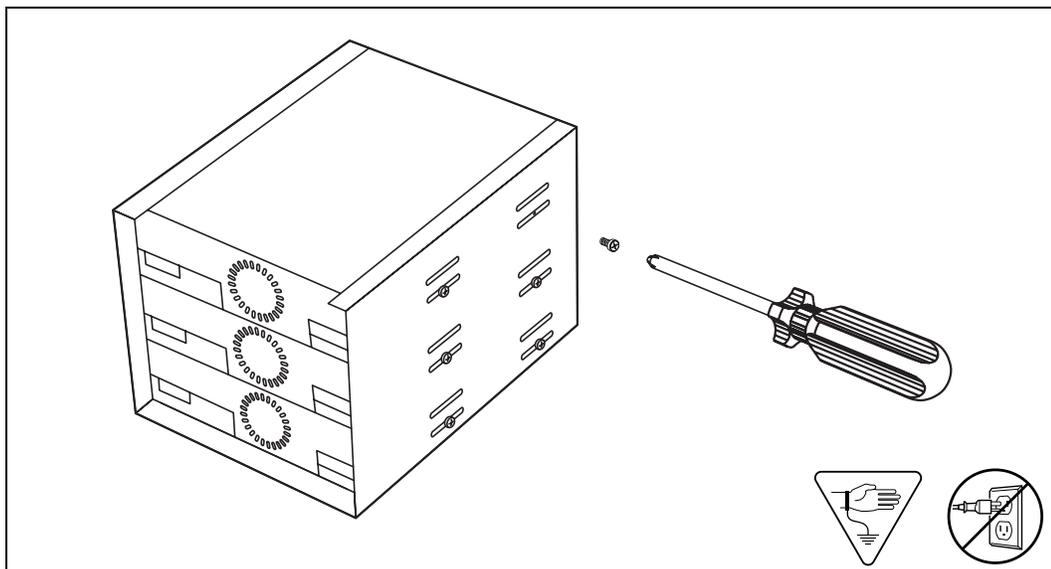
Figure 86 Slide the media bay module bracket back

11. Lift the media bay module bracket out of the Enterprise Edge server.

12. Remove the screws that hold the EE-DSM 32 in the media bay module
    bracket. There are two screws on each side of the bracket.

Figure 87 Remove the EE-DSM 32 from the bracket
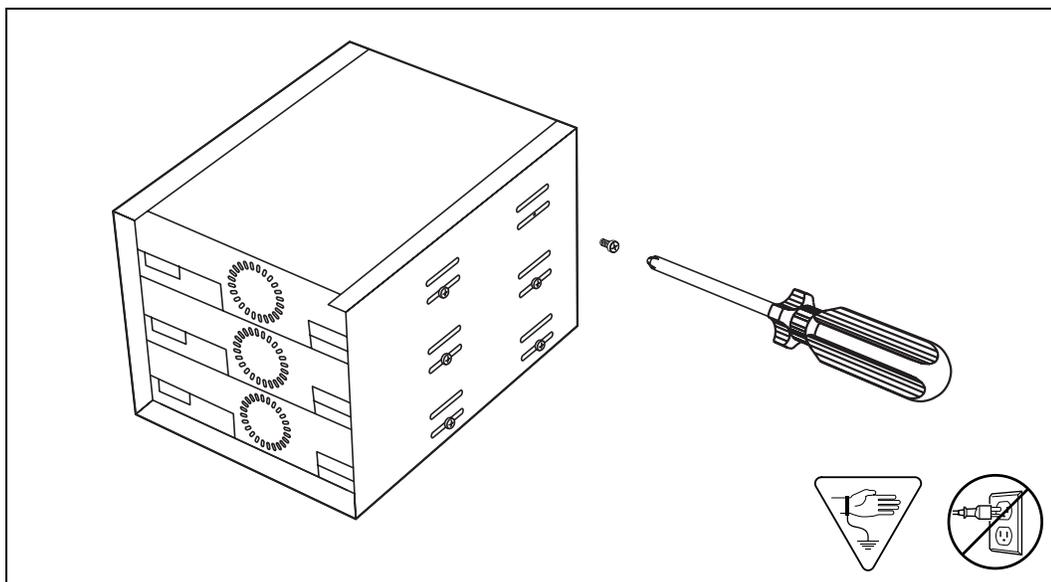
13. Slide the EE-DSM 32 out of the media bay module bracket.

Set the switches on the new EE-DSM 32

The switches on the back of the media bay modules determine which DS30 channel and Offset the media bay modules use. You must set these switches before you install the media bay module.

Figure 88 DIP switches on media bay module
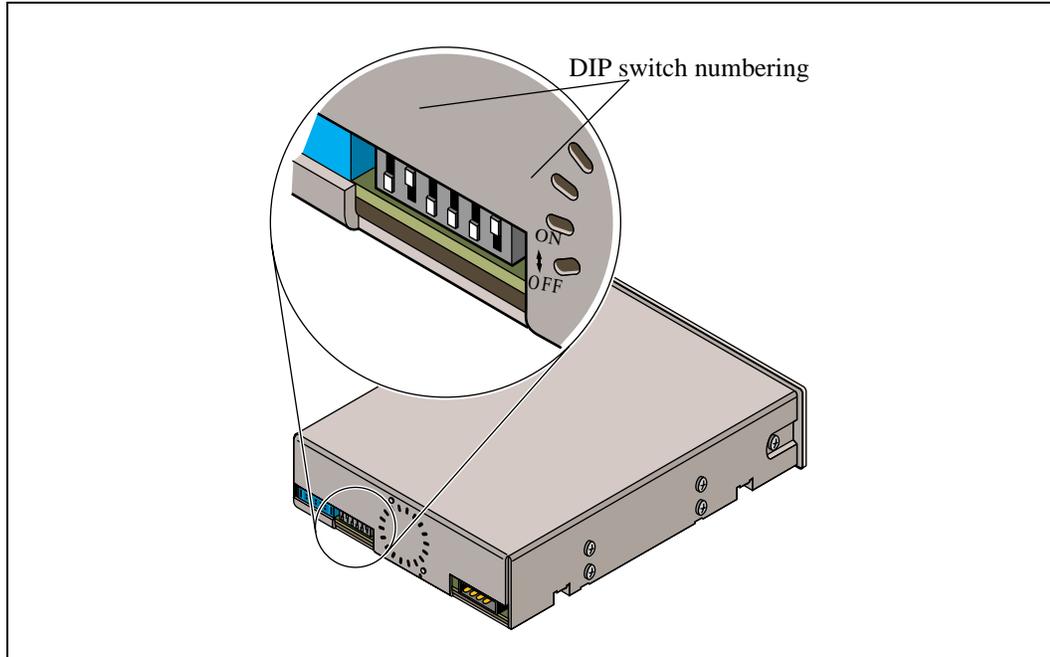
To set the switches:

1. Record the switch settings on the old EE-DSM 32.
    Switches 4, 5 and 6 determine the DS30 channel. Switches 1, 2 and 3 determine the Offset.

    Note: The EE-DSM 32 does not use the Offset. Set switches 1, 2 and 3 to on.

2. Set the switches on the back of the new EE-DSM 32 so that they match the switches of the old EE-DSM 32.

Warning
If you are replacing the EE-DSM 32, you can use the same switch settings as the old EE-DSM 32. If you are upgrading the Enterprise Edge server to add another EE-DSM 32, you must select a new switch setting. The new setting cannot match any of the media bay modules installed in the Enterprise Edge server. For information about how to determine a new switch setting, refer to Preparing for an upgrade on page 163.

The EE-DSM 32 uses two DS30 channels. If you are replacing an EE-DSM 16 with an EE-DSM 32, you can use the same switch setting if the next DS30 channel is available also.

Installing the EE-DSM 32

Make sure you have set the switches on the back of the media bay module before you install the EE-DSM 32.

To insert the EE-DSM 32:

1. Slide the EE-DSM 32 into the open media bay in the media bay module bracket. The front cover of the EE-DSM 32 must line up with the covers of the other media bay module.

2. Fasten the EE-DSM 32 to the media bay module bracket using the four screws.

Figure 89 Fasten the EE-DSM 32 to the media bay module bracket
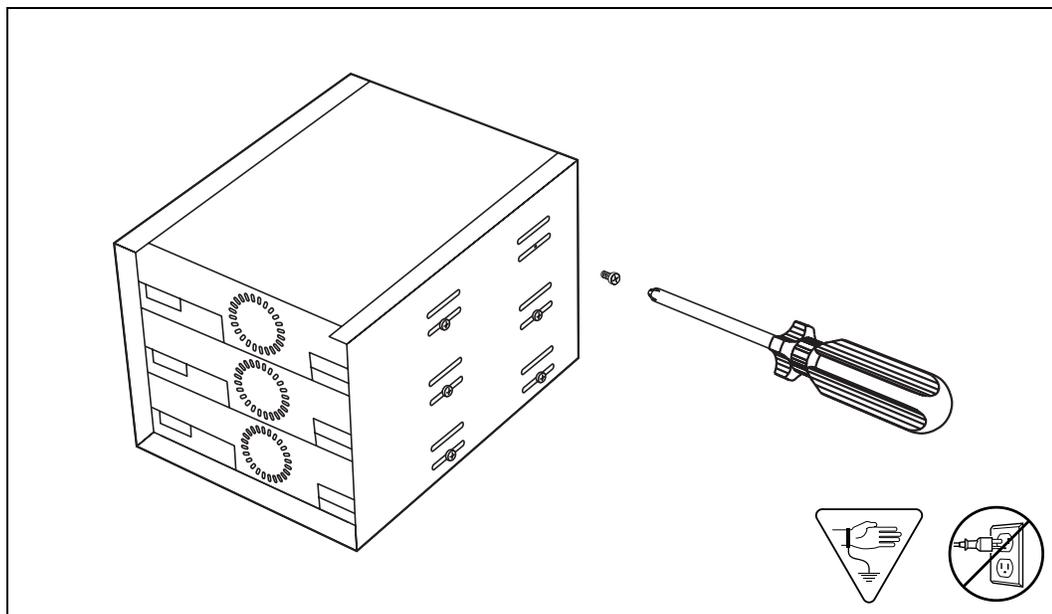
3. Place the media bay module bracket in the Enterprise Edge server.

4. Align the hooks on the bottom of the media bay module with the slots on the media bay module support.

Figure 90 Install the media bay module bracket
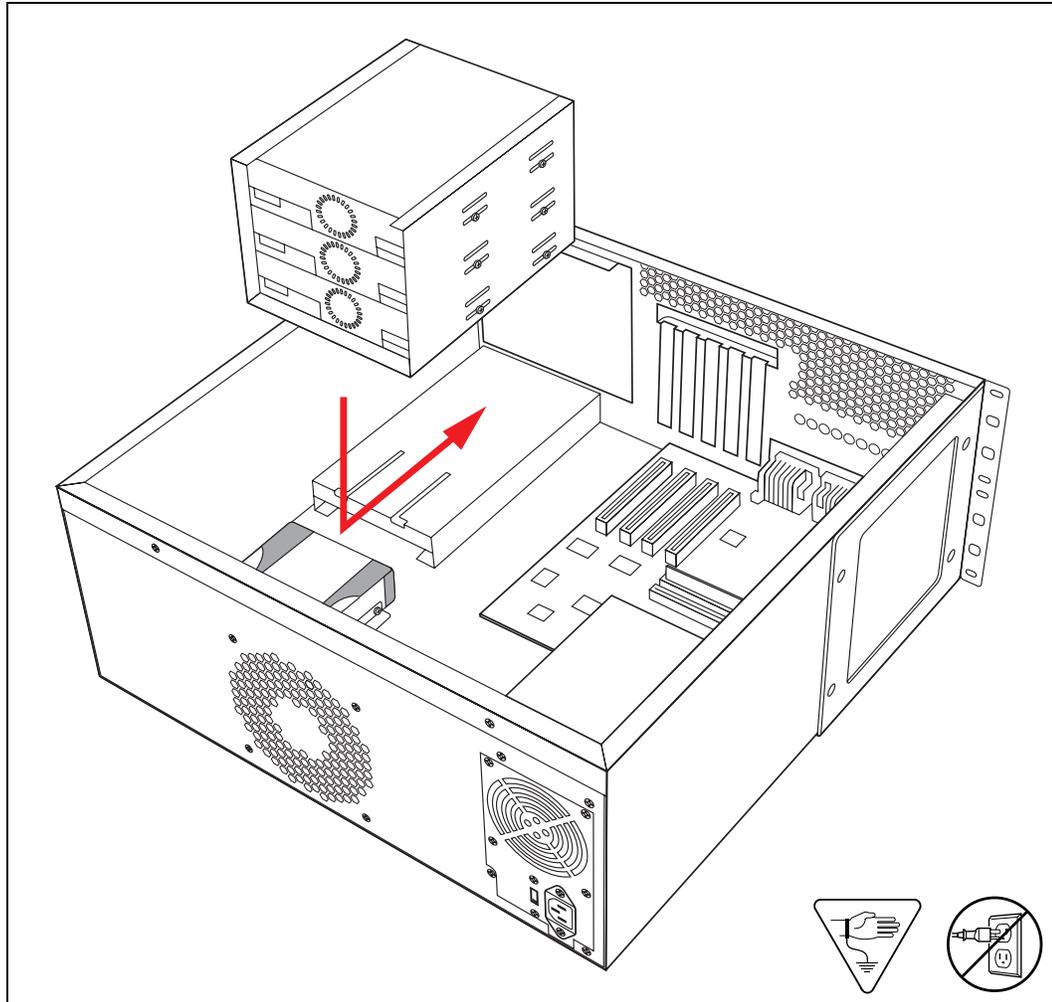
5. Slide the media bay module bracket forward until the bracket touches the front of the Enterprise Edge server.

6. Fasten the media bay module bracket to the Enterprise Edge server using the two screws.

7. Insert the power cables into the connectors on the media bay modules.

8. Insert the DS256 ribbon cables into the connectors on the media bay modules.

9. Replace the front cover.

    Note: If you are upgrading the Enterprise Edge server by adding a new EE-DSM 32, remove the cover plate from the front cover before replacing it.

10. Replace the cover.

11. If the Enterprise Edge server was in a rack, install the server back in the rack.

12. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

13. Plug the Enterprise Edge power cord into the ac outlet.

14. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Replacing the EE-ASM 8 28

The EE-ASM 8 media bay module connects up to eight analog telephones to the Enterprise Edge system.

You replace an EE-ASM 8 when the EE-ASM 8 is damaged. To replace the EE-ASM 8, you need to:

- Remove the EE-ASM 8

- Set the switches on the new EE-ASM 8

- Installing the EE-ASM 8

There are three media bays in the Enterprise Edge server. If there is an open media bay in the Enterprise Edge server, you can upgrade your Enterprise Edge system by adding a new EE-ASM 8. If you are upgrading, read Preparing for an upgrade on page 163 before installing the new EE-ASM 8.

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully

Remove the EE-ASM 8

To remove the EE-ASM 8:

1. Remove the connections from the EE-DTM and EE-CTM.

   Note: For more information, refer to Remove the connections on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to Shutdown the Enterprise Edge server on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to Remove the cover from the Enterprise Edge server on page 134.

6. Remove the front cover. From more information, refer to Remove the front cover on page 134.

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7. Remove the DS256 ribbon cables from all of the media bay modules.

8. Remove the power cables from all of the media bay modules.
   Put the cables flat on the bottom of the Enterprise Edge server. If the cables are up, they can disrupt the removal of the media bay module bracket.

Figure 91 Remove the ribbon cables and power cables
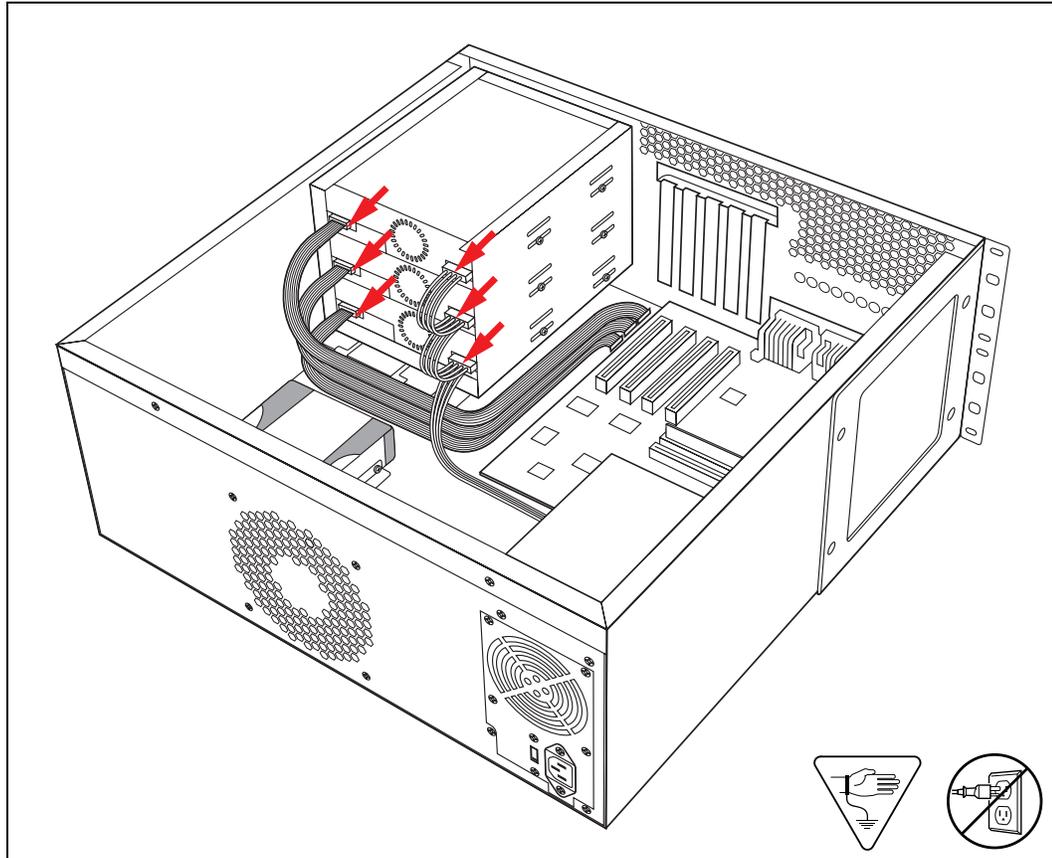
9. Remove the two screws that fasten the media bay module bracket to the Enterprise Edge server.

Figure 92 Media bay module bracket screws
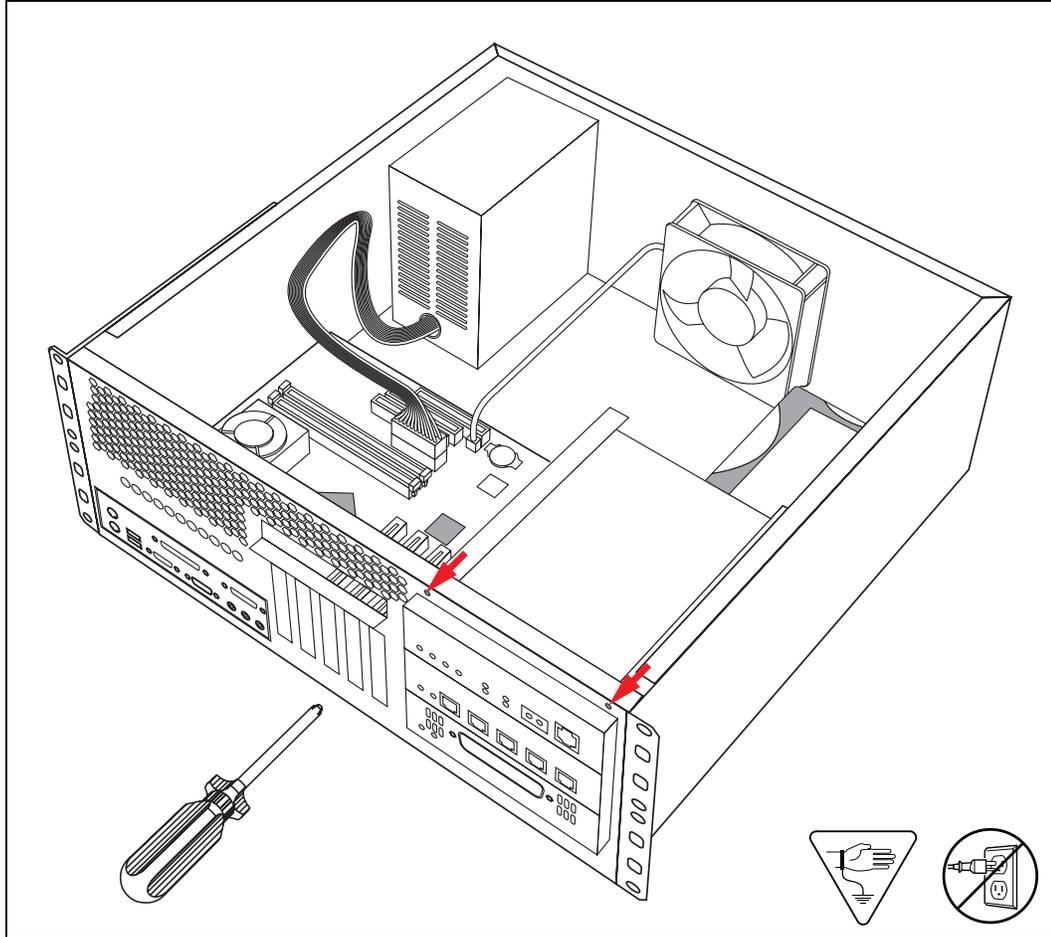
10. Carefully slide the media bay module bracket back until it touches the hard disk.

> ⚠️ *Caution*
> Slide the media bay module bracket back slowly to prevent the bracket from hitting the hard disk. A hard impact can damage the hard disk.

Figure 93 Slide the media bay module bracket back

11. Lift the media bay module bracket out of the Enterprise Edge server.

12. Remove the screws that hold the EE-ASM 8 in the media bay module bracket. There are two screws on each side of the bracket.

Figure 94 Remove the EE-ASM 8 from the bracket

13. Slide the EE-ASM 8 out of the media bay module bracket.

Set the switches on the new EE-ASM 8

The switches on the back of the media bay modules determine which DS30 channel and Offset the media bay modules use. You must set these switches before you install the media bay module.

Figure 95 DIP switches on media bay module
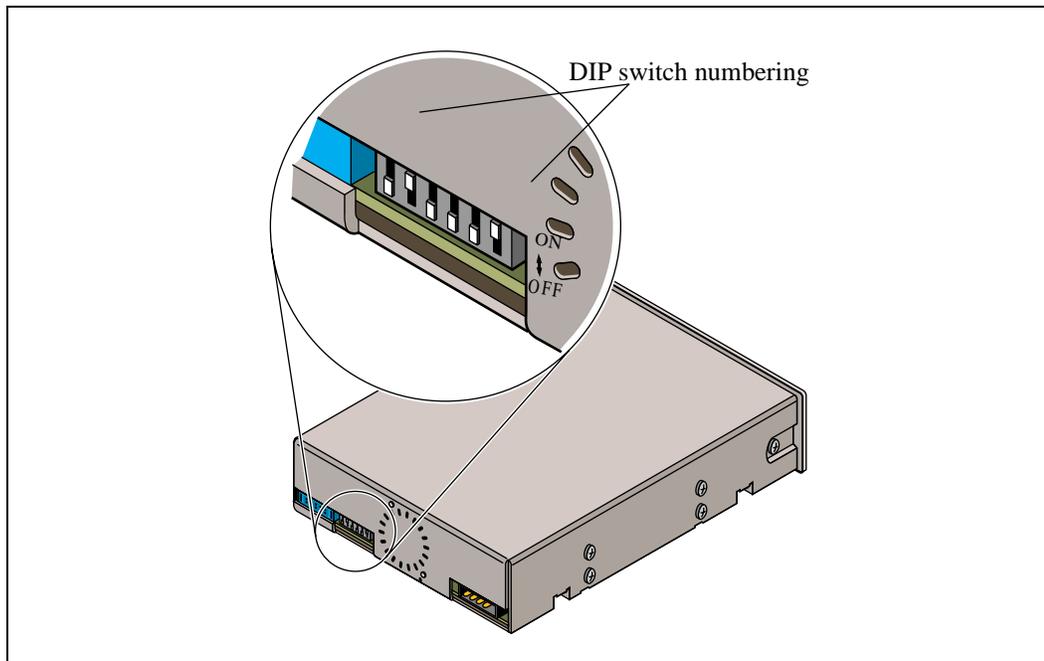
To set the switches:

1. Record the switch settings on the old EE-ASM 8.
    Switches 4, 5 and 6 determine the DS30 channel. Switches 1, 2 and 3 determine the Offset.

2. Set the switches on the back of the new EE-ASM 8 so that they match the switches of the old EE-ASM 8.

> *Warning*
> If you are replacing the EE-ASM 8, you can use the same switch settings as the old EE-ASM 8. If you are upgrading the Enterprise Edge server to add another EE-ASM 8, you must select a new switch setting. The new setting cannot match any of the media bay modules installed in the Enterprise Edge server. For information about how to determine a new switch setting, refer to Preparing for an upgrade on page 163.

Installing the EE-ASM 8

Make sure you have set the switches on the back of the media bay module before you install the EE-ASM 8.

To insert the EE-ASM 8:

1. Slide the EE-ASM 8 into the open media bay in the media bay module bracket. The front cover of the EE-ASM 8 must line up with the covers of the other media bay module.

2. Fasten the EE-ASM 8 to the media bay module bracket using the four screws.

Figure 96 Fasten the EE-ASM 8 to the media bay module bracket
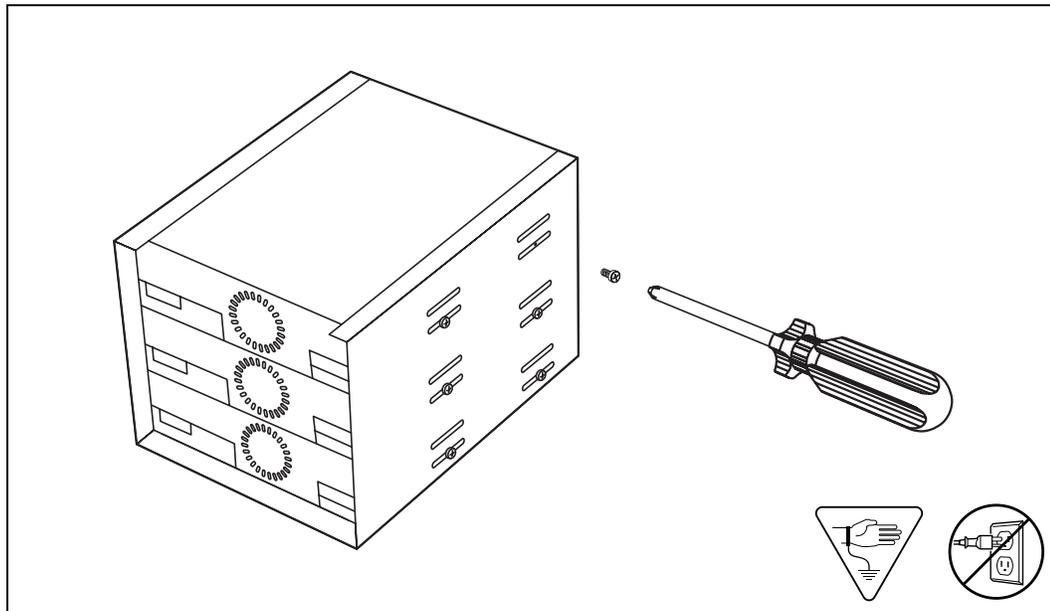
3. Place the media bay module bracket in the Enterprise Edge server.

4. Align the hooks on the bottom of the media bay module with the slots on the media bay module support.

Figure 97 Install the media bay module bracket
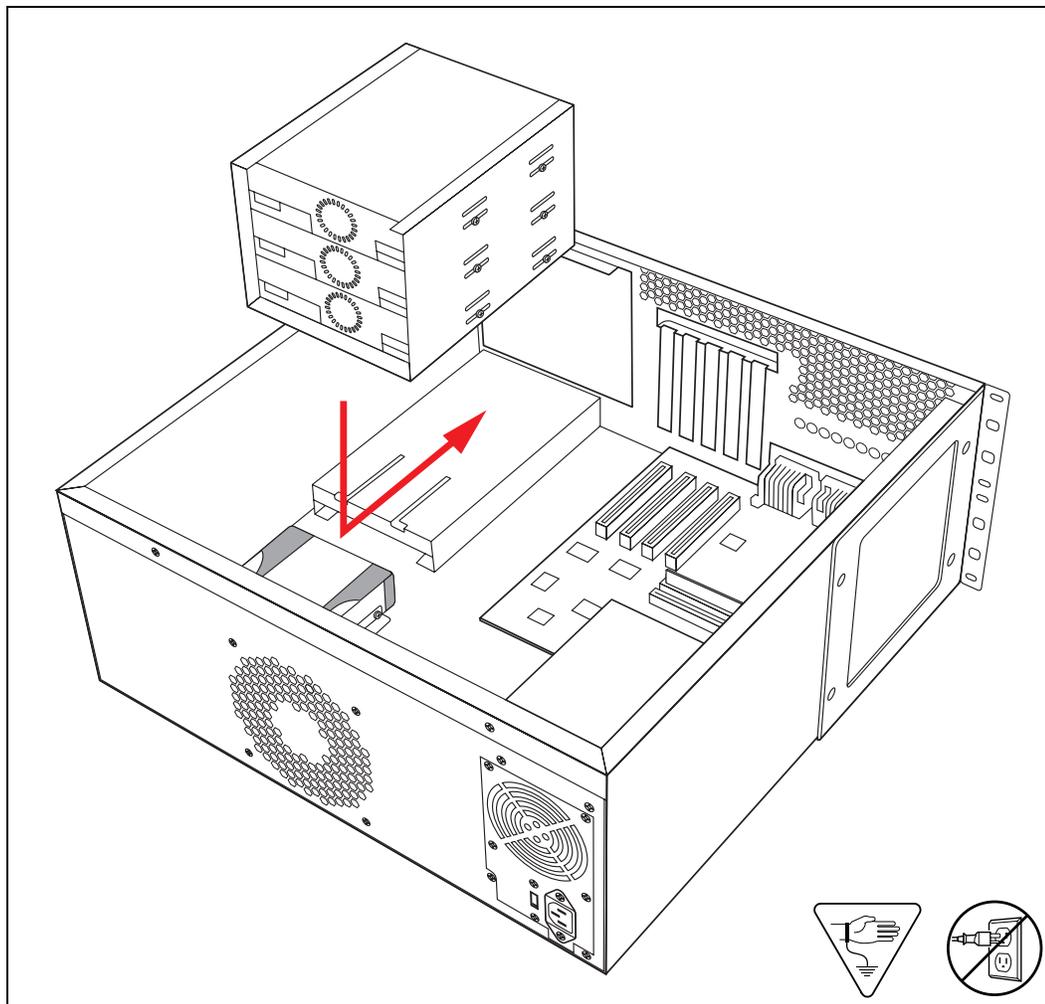
5. Slide the media bay module bracket forward until the bracket touches the front of the Enterprise Edge server.

6. Fasten the media bay module bracket to the Enterprise Edge server using the two screws.

7. Insert the power cables into the connectors on the media bay modules.

8. Insert the DS256 ribbon cables into the connectors on the media bay modules.

9. Replace the front cover.

   Note: If you are upgrading the Enterprise Edge server by adding a new EE-ASM 8, remove the cover plate from the front cover before replacing it.

10. Replace the cover.

11. If the Enterprise Edge server was in a rack, install the server back in the rack.

12. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

13. Plug the Enterprise Edge power cord into the ac outlet.

14. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Replacing a telephone 29

When the Enterprise Edge system in on, you can replace an existing telephone with a new telephone. A new telephone is one that was not previously in service within the system.

Replacing telephones of the same type

If you disconnect an existing telephone and connect a new telephone of the same type to the same jack (for example, replacing an M7310 telephone with a new M7310 telephone), the new telephone gets the programming and the extension number of the old telephone. Use this method to replace a damaged telephone.

Replacing telephones of different types

If you disconnect an existing telephone and connect a new telephone of a different type into the same jack (for example, replacing an M7310 telephone with an M7324 telephone), the new telephone keeps the old extension number. The new telephone receives a default profile for a telephone of its type. Refer to the *Enterprise Edge Feature Programming Guide*.

If the new telephone has less lines than the replaced telephone, automatic outgoing line selection may not work with the Handsfree/Mute feature. You must select a line manually.

Status of the replaced telephone

The replaced telephone loses its programming and internal number. The new telephone you plug into the jack gets the extension number and programming of the replaced telephone. The Enterprise Edge systems considers the replaced telephone (if operating) a telephone not previously in service.

Section VI - Enterprise Edge data networking hardware upgrades and replacements

- Overview of data networking hardware
- Replacing the modem card
- Replacing the LAN card
- Replacing the WAN card

Overview of data networking hardware 30

The data networking hardware connects the Enterprise Edge server to your data networks.

The Enterprise Edge data networking hardware includes:

- **Modem card** - This PCI card is compatible with the V.90 modem protocol. The modem card connects the Enterprise Edge server to the public switched telephone network.

- **LAN card** - This PCI card is a 10/100 Base T network interface card. The LAN card connects the Enterprise Edge server to the local area network.

- **AN card** - This PCI card connects the Enterprise Edge server to the wide area network.

The Enterprise Edge server contains three data networking cards: a modem card, a LAN card, and either a WAN card or a second LAN card.

Replacing the modem card

The modem card is a V.90 modem interface card. Use the modem card to connect to the Enterprise Edge server using the public switched telephone network.

You replace the modem card when it is damaged. To replace the modem card, you need to:

- Remove the modem card

- Install the modem card

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully

Remove the modem card

To remove the modem card:

1. Remove the connections from the EE-DTM and EE-CTM.

    Note: For more information, refer to Remove the connections on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to Shutdown the Enterprise Edge server on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to Remove the cover from the Enterprise Edge server on page 134.

6. Remove the front cover. From more information, refer to Remove the front cover on page 134.

7. Remove the slot cover lock. Refer to Figure 98 for the location of the slot cover lock.

Figure 98 Slot cover lock
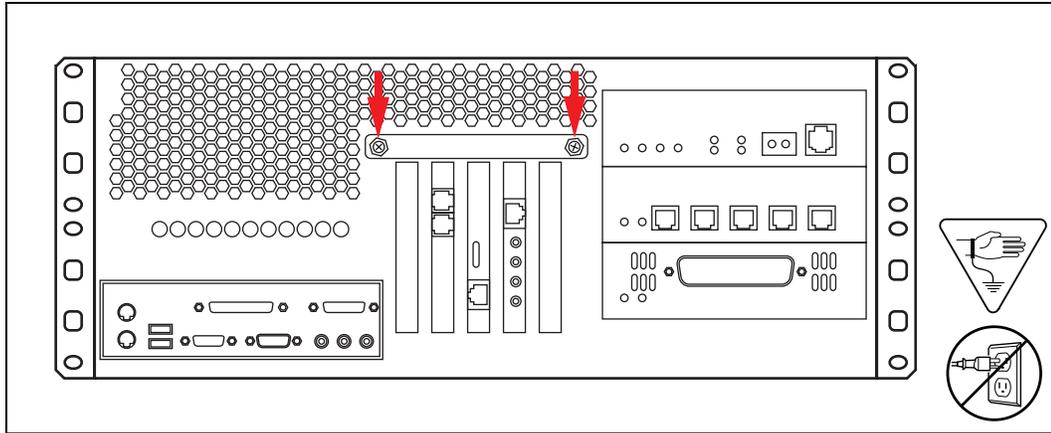
8. Remove the slot cover screw.

9. Use both hands to carefully hold the modem card along the top. Lift the modem card straight up and out of the module.

Install the modem card

1. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

2. Insert the card in the PCI slot.

3. Push the modem card down until it fits in position. The edge connector must be in the socket completely.

Figure 99 Install the modem card
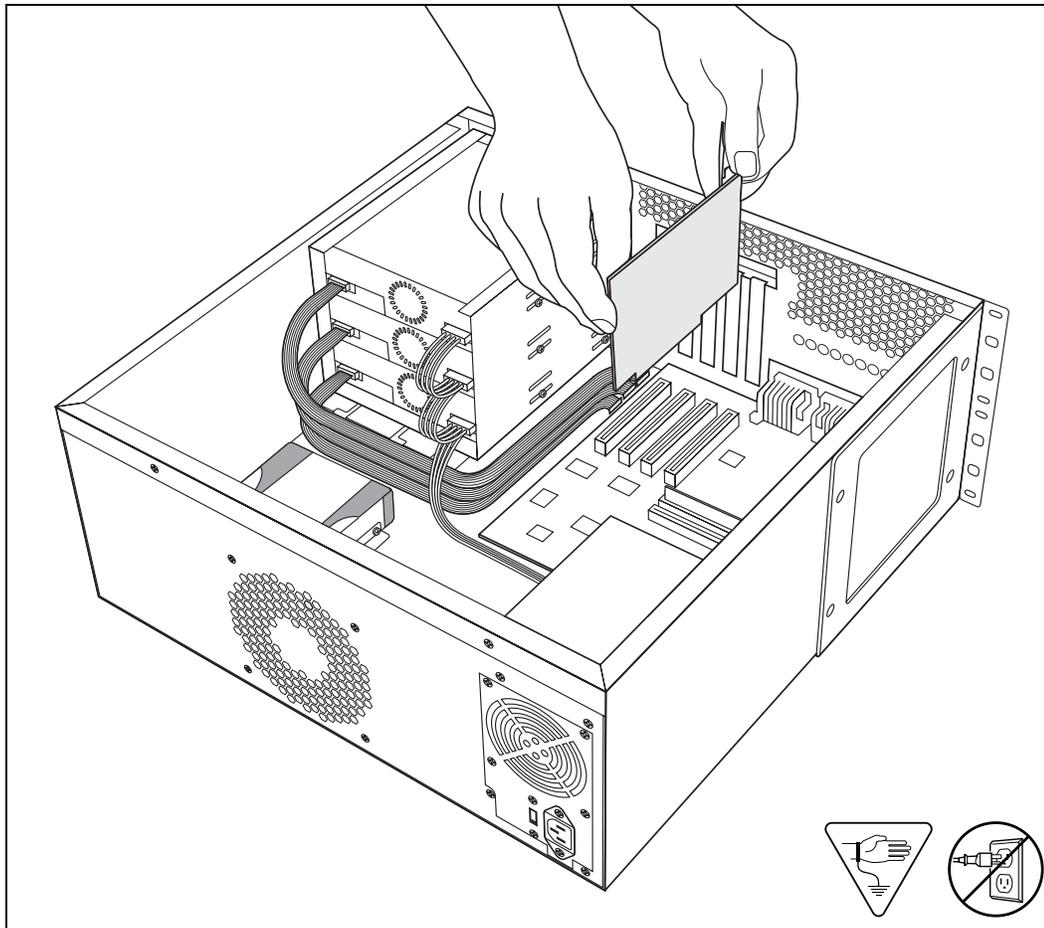
4. Fasten the slot cover screw in the modem slot cover.

5. Replace the slot cover lock.

6. Replace the front cover.

7. Replace the cover.

8. If the Enterprise Edge server was in a rack, install the server back in the rack.

9. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

10. Plug the Enterprise Edge power cord into the ac outlet.

11. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Replacing the LAN card

The LAN card connects the Enterprise Edge server to the local area network.

You replace the LAN card when it is damaged. To replace the LAN card, you need to:

- Remove the LAN card
- Install the LAN card

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully

Remove the LAN card

To remove the LAN card:

1. Remove the connections from the EE-DTM and EE-CTM.

    Note: For more information, refer to Remove the connections on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to Shutdown the Enterprise Edge server on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to Remove the cover from the Enterprise Edge server on page 134.

6. Remove the front cover. From more information, refer to Remove the front cover on page 134.

7. Remove the slot cover lock. Refer to Figure 100 for the location of the slot cover lock.

Figure 100 Slot cover lock
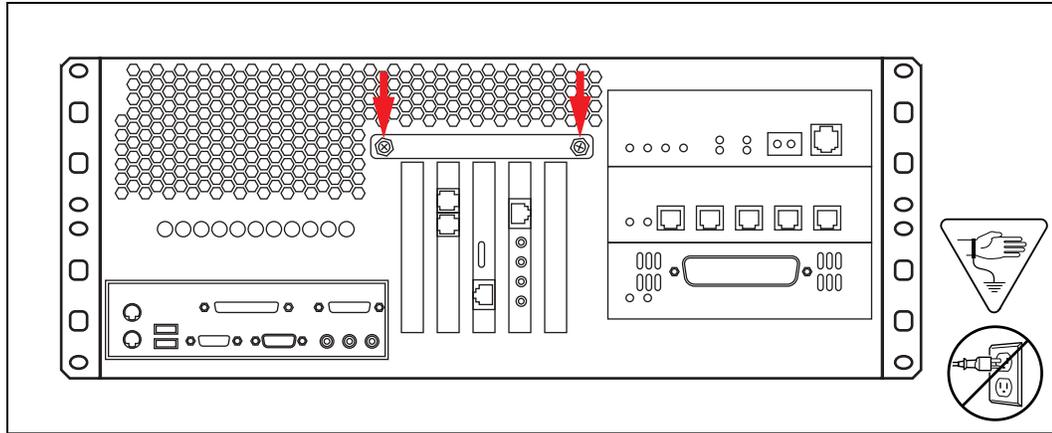
8. Remove the slot cover screw.

9. Use both hands to carefully hold the LAN card along the top. Lift the LAN card straight up and out of the module.

Install the LAN card

1. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

2. Insert the card in the PCI slot.

3. Push the LAN card down until it fits in position. The edge connector must be in the socket completely.

Figure 101 Install the LAN card
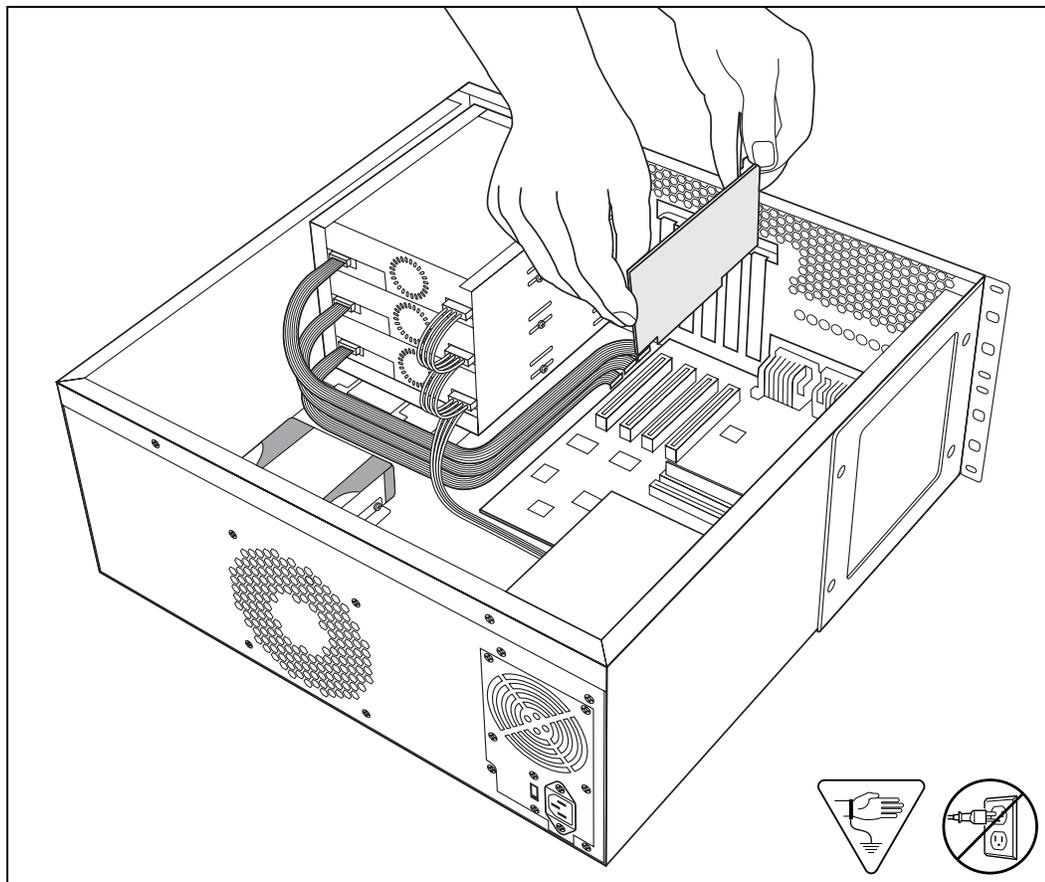
4. Fasten the slot cover screw in the modem slot cover.

5. Replace the slot cover lock.

6. Replace the front cover.

7. Replace the cover.

8. If the Enterprise Edge server was in a rack, install the server back in the rack.

9. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8,
   LAN card, WAN card and modem card.

10. Plug the Enterprise Edge power cord into the ac outlet.

11. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The
Enterprise Edge server start up takes several minutes to complete.

Replacing the WAN card

The WAN card connects the Enterprise Edge server to the wide area network.

You replace the WAN card when it is damaged. To replace the WAN card, you need to:

- Remove the WAN card

- Install the WAN card

> ⚠️ **Risk of shock.**
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully

Remove the WAN card

To remove the WAN card:

1. Remove the connections from the EE-DTM and EE-CTM.

   Note: For more information, refer to Remove the connections on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to Shutdown the Enterprise Edge server on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

5. Remove the cover. For more information, refer to Remove the cover from the Enterprise Edge server on page 134.

6. Remove the front cover. From more information, refer to Remove the front cover on page 134.

7. Remove the slot cover lock. Refer to Figure 102 for the location of the slot cover lock.

Figure 102 Slot cover lock
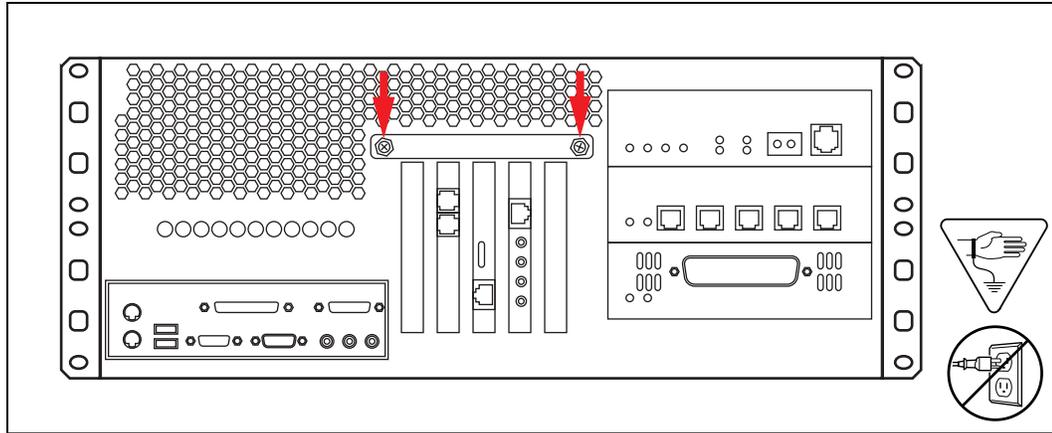
8. Remove the slot cover screw.

9. Use both hands to carefully hold the WAN card along the top. Lift the WAN card straight up and out of the module.

Install the WAN card

1. Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface.

2. Insert the card in the PCI slot.

3. Push the LAN card down until it fits in position. The edge connector must be in the socket completely.

Figure 103 Install the WAN card
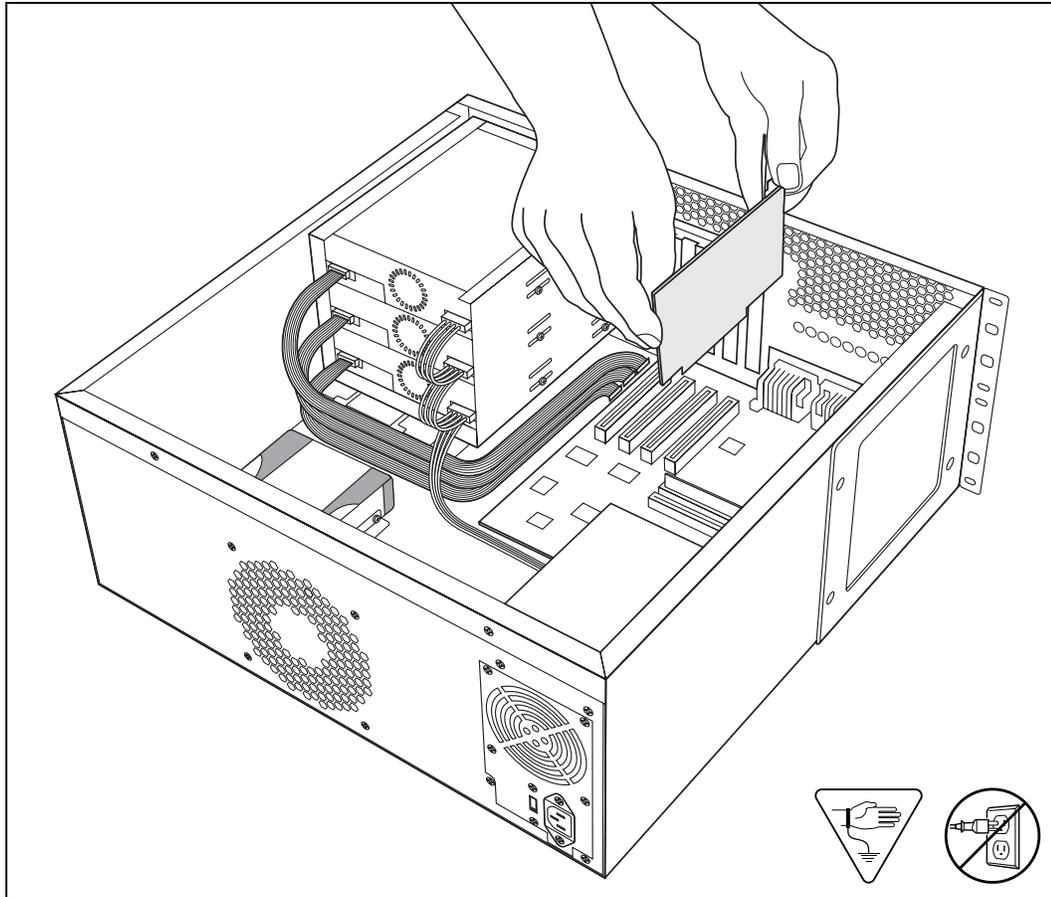
4. Fasten the slot cover screw in the modem slot cover.

5. Replace the slot cover lock.

6. Replace the front cover.

7. Replace the cover.

8. If the Enterprise Edge server was in a rack, install the server back in the rack.

9. Replace the connections to the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

10. Plug the Enterprise Edge power cord into the ac outlet.

11. Replace the connections to the EE-DTM and EE-CTM.

The Enterprise Edge server starts up when you connect the ac power cord. The Enterprise Edge server start up takes several minutes to complete.

Section VII - Troubleshooting and Maintenance

- Troubleshooting
- Maintenance

Troubleshooting 34

To fix the Enterprise Edge server, you need to determine the cause of the problem.

A problem can be the result of more than one component failure. To analyze a Enterprise Edge server problem, you need to determine the cause of the problem and if there is a damaged hardware component.

After you have corrected the problem, you must test the Enterprise Edge server to determine if the Enterprise Edge server is functioning correctly.

Determining the cause of the problem

A damaged component can cause the Enterprise Edge server to fail. This section describes the indications that the Enterprise Edge server has failed. The section describes problems related to hardware.

> ⚠ ***Risk of shock.***
> Disconnect the power cord, telephone cables and network cables before opening the computer.
>
> Read and follow installation instructions carefully

Hardware problems

Hardware problems appear as any of the following:

- Enterprise Edge server does not function at all.
- the emergency telephone does not function.
- Enterprise Edge ATA 2 does not function.

The Enterprise Edge server does not function at all

If there is no response from the Enterprise Edge server or the Feature Codes do not appear on the Enterprise Edge telephone display:

1. Make sure the:

- ac power cord is connected

- Enterprise Edge server is getting power from the ac outlet

   Note: The fan works when the Enterprise Edge server has power.

2. Disconnect the Enterprise Edge server and remove the cover. Check all of the ribbon cables and power supply connectors.

   Note: Attach one end of the grounding strap to your wrist and the other end to a grounded metal surface before you remove the cover.

3. Reseat the MSC. Check the ribbon cables connected to the MSC.

4. Replace the front cover and plug in the Enterprise Edge server.

Emergency telephone does not function

If the emergency telephone is connected to the system, use the following procedure:

1. Check the power LED on the EE-ASM 8 to check that the EE-ASM 8 is receiving power.

2. Check that the emergency telephone has dial tone.

3. Check that the external line and emergency telephone connections.

4. Ensure that the emergency telephone is not damaged by connecting the telephone directly to the external line and listening for dial tone.

5. Replace the MSC.

If the emergency telephone is connected to the EE-CTM, use the following procedure:

1. Check that the system has an EE-CTM installed in the Enterprise Edge server.

2. Check that there is no dial tone at the emergency telephone.

3. Replace the EE-CTM.

Enterprise Edge ATA 2 does not function

Make sure there is ac power connected to the Enterprise Edge ATA 2 unit.

Make sure that Enterprise Edge ATA 2 is in the Tones OFF mode. (For Data Applications only.)

Correctly configure the Enterprise Edge ATA 2 telephone port for data communication.

1. Allow enough start up time.

2. Assign the prime line.

3. Assign a ringing line if required (for example: auto-answer modems, FAX).

Check the wiring.

1. Enterprise Edge ATA 2 to the terminal: the resistance must be 200 ohms or less for data applications and 1,300 ohms or less for voice applications.

2. Enterprise Edge server to Enterprise Edge ATA 2: the wiring must be equivalent to 800 m. of 0.5 mm wire (2,600 ft of 24 AWG) or less. Do not use bridge taps and loading coils between the Enterprise Edge server and Enterprise Edge ATA 2.

3. External line to the Enterprise Edge server: correctly connect the external line to the Enterprise Edge server and make sure there is dial tone.

Check for dial tone at the Enterprise Edge ATA 2 unit.

1. Replace a single-line telephone for the data communication device.

If there is no dial tone at the Enterprise Edge ATA 2 unit:

1. Disconnect the line side of Enterprise Edge ATA 2. Connect an Enterprise Edge telephone to the Enterprise Edge ATA 2 port.

2. Check that the connection from Enterprise Edge ATA 2 to the Enterprise Edge server is functioning correctly (the telephone has dial tone).

If there is dial tone at the external lines assigned to the Enterprise Edge ATA 2:

1. Disconnect Enterprise Edge ATA 2 external line from the Enterprise Edge server and connect the data device directly to this external line.

2. Make a call. If the problem continues, the device or the external line is possibly at fault.

3. Plug the device into a different line. If the problem continues, the device is possibly at fault.

For more information about Enterprise Edge ATA 2, contact your customer service representative.

Preparing the Enterprise Edge server for travel

Perform the following if you are returning the Enterprise Edge server to the factory for service or are installing it in a new location.

1. Remove the connections from the EE-DTM and EE-CTM.

    Note: For more information, refer to <u>Remove the connections</u> on page 132.

2. Shutdown the Enterprise Edge server and disconnect the Enterprise Edge power cord from the ac outlet. For more information, refer to <u>Shutdown the Enterprise Edge server</u> on page 127.

3. Remove the connections from the EE-DSM 16, EE-DSM 32, EE-ASM 8, LAN card, WAN card and modem card.

4. If the Enterprise Edge server is in a rack, remove the server from the rack.

5. If you are returning the Enterprise Edge server for service, pack it in its original shipping container. If the container is not available, package the module with shock absorbing, insulating material.

Moving telephones

You can move an Enterprise Edge telephone to a new location within the system without losing its programmed settings. When you enable Set relocation (automatic telephone relocation), the internal numbers, autodial settings, and personal speed dial codes remain with the telephone when you disconnect the telephone. To move a telephone, disconnect the telephone and plug it in again at another location. The Enterprise Edge system can take 45 seconds identify the telephone. Automatic telephone relocation is disabled by default.

> **Tips**
> Move all of the telephones before you connect new telephones in their place. If you move the telephones first, the moved telephones keep their programmed settings. If you connect a new telephone before you move the old telephone, the new telephone gets the programmed settings. Also, the Enterprise Edge system cannot identify the old telephone.
>
> When changing a telephone's internal number (in programming), wait one minute after Automatic Telephone Relocation.
>
> When you move a telephone, the telephone must remain connected in the new location for at least three minutes. The programming relocation needs three minutes to complete. If you move the telephone again before the three minute period, the telephone can lose the programmed settings.

Running a Maintenance session to test a dead telephone

1. In Enterprise Edge Unified Manager under ̄aintenance ̄, ensure the that telephone is not disabled. For more information about Enterprise Edge Unified Manager, refer to the *Enterprise Edge Programming Operations Guide*.

   Note: If the telephone is not disabled, use the next two steps to disable and re-enable the port to which the telephone is connected.

2. Disable the port that the telephone is connected to using the heading Port/ D ̄tatu ̄.

3. Enable the port that the telephone is connected to using the heading Port/ D ̄tatu ̄.

Appendix A: BIX overview

This appendix provides a brief overview of BIX wiring conventions. The BIX tool section describes the BIX tool and includes information about how to make cuts and connections on a standard BIX block.

The BIX installation section provides industry-standard instructions for installing BIX panels. This section includes information about how to add additional panels to provide space for network growth.

The BIX cable connection section provides information about how to correctly terminate cables on BIX connectors.

The section on BIX labels shows how to insert blank labels and provides color-coding recommendations to quickly identify telephone and lines.

BIX tool

Figure 104 QTBIX16A BIX tool
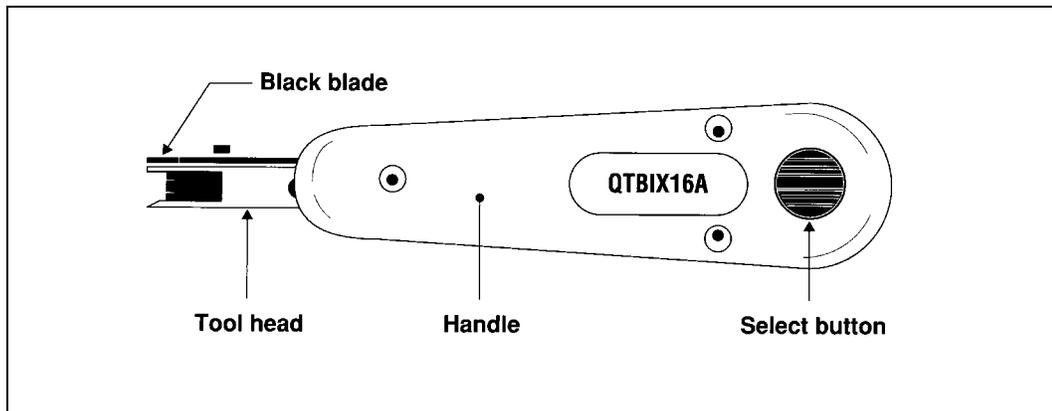
Operating the tool in the cut position

1. Point the black blade towards the wire end to cut off.

2. Insert the tool, on the connector, at a right angle and level.

3. Push the tool to seat the wire in the connector.

4. Release forward pressure to cut the wire.

Figure 105 How to set the BIX tool to the cut position
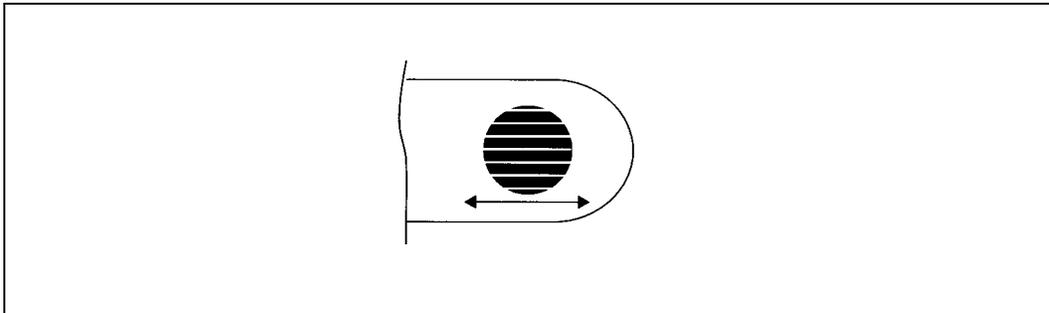
Figure 106 Operating the BIX tool in cut position
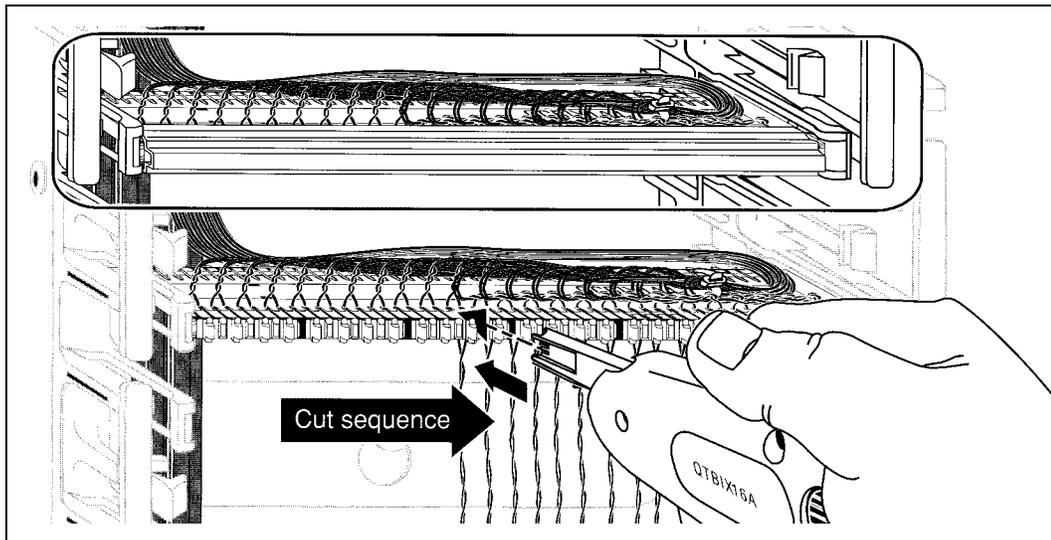
Operate the tool in the no cut position

1. Keep the tool level and at right angles to the connector.

2. Push the tool to seat the wire in the connector.

Figure 107 How to set the BIX tool to the no cut position.
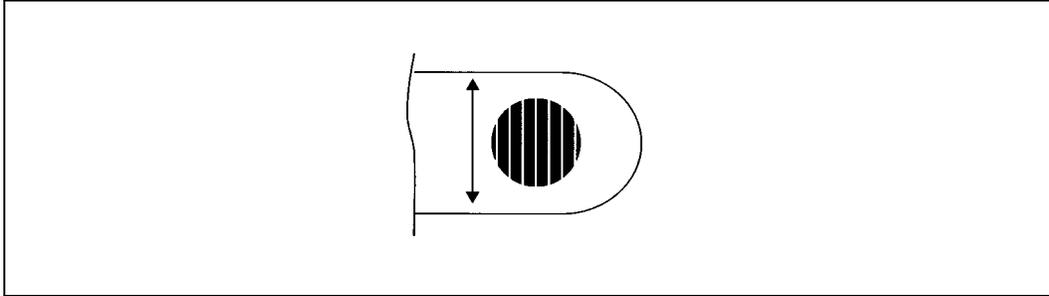
Figure 108 Operating the BIX tool in no cut position
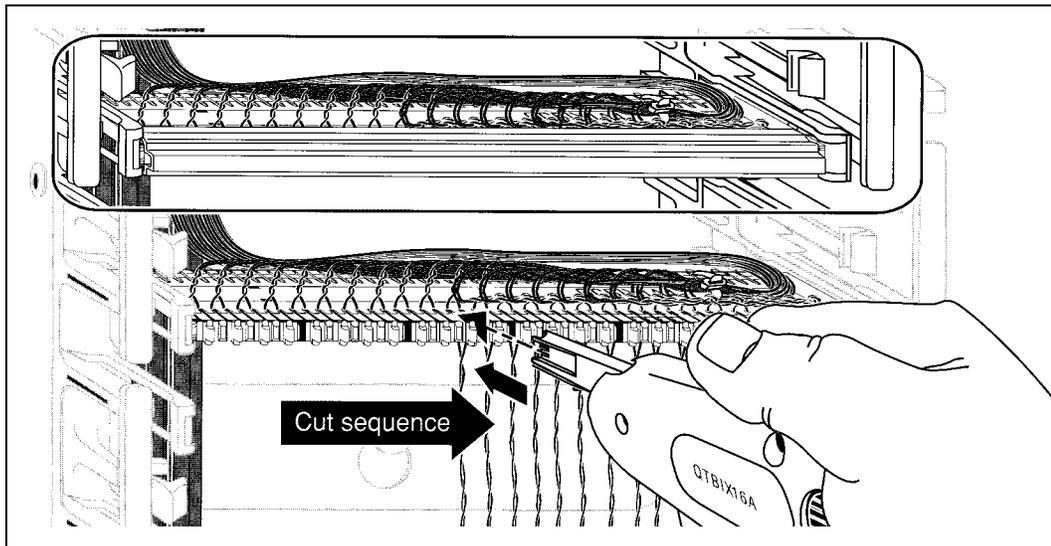
BIX mount installation

Note: Use the upper field for the equipment side and the lower field for the house side or telephone/switching center side.

Figure 109 Example of a single channel installation
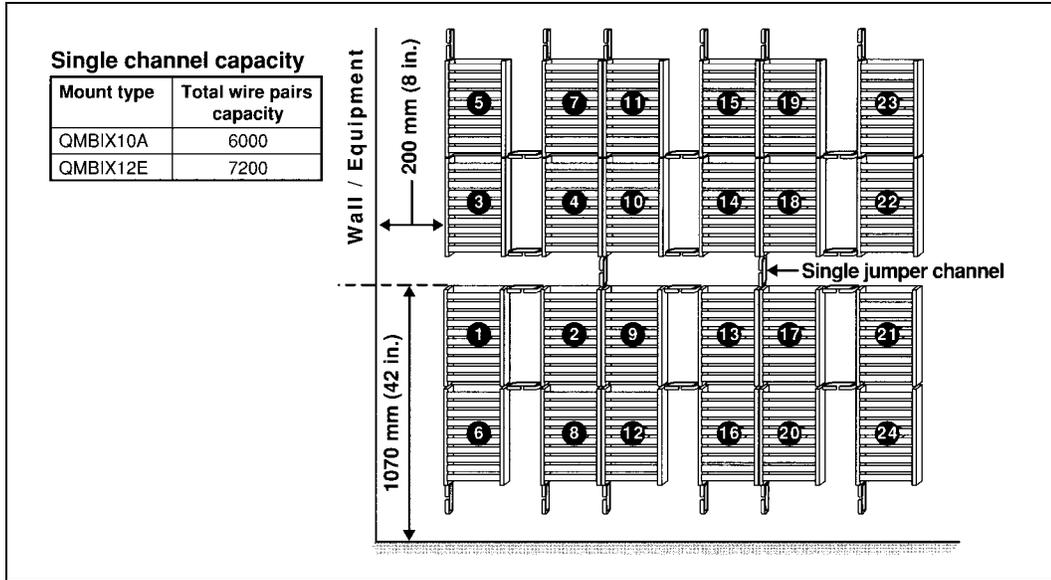
Draw vertical and horizontal reference lines on the wall mounting surface.

Figure 110 Clearances required for installing BIX panels on the wall
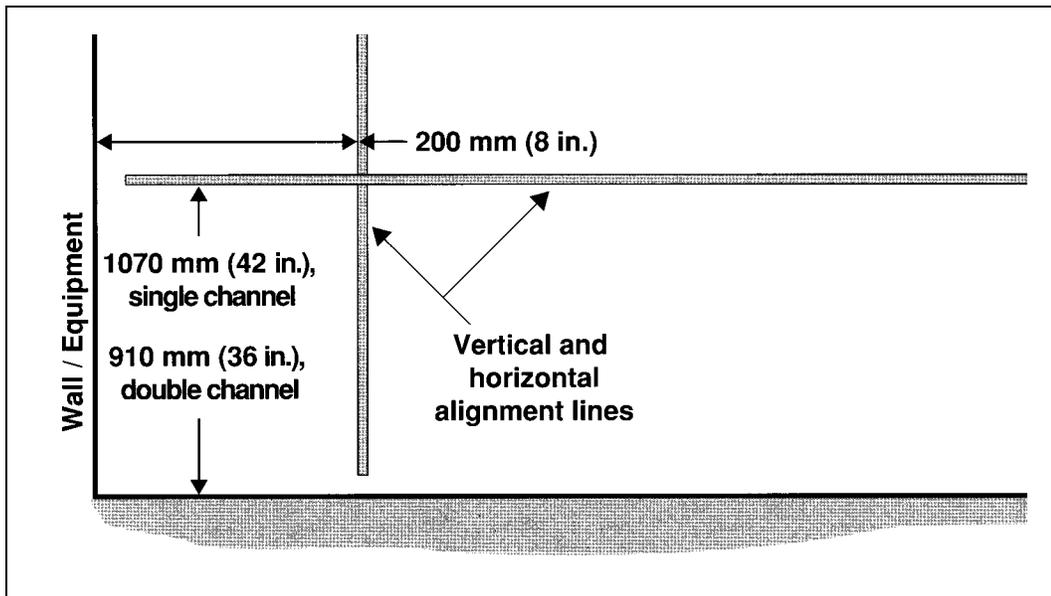
Figure 111 Install the first mount

Use key hole to ease mounting.
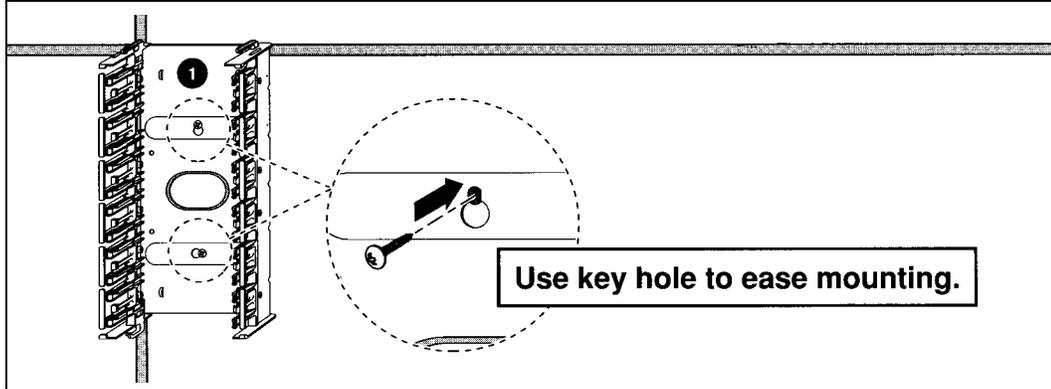
Figure 112 Install the second mount
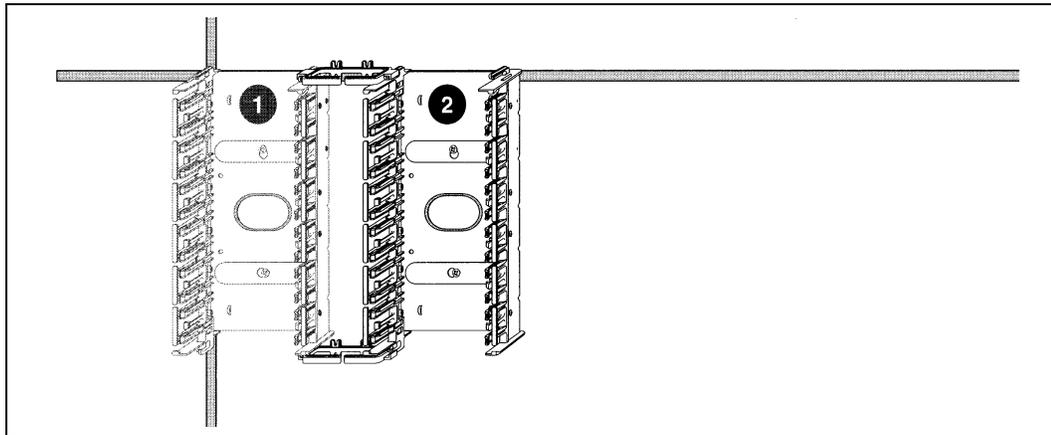
Figure 113 Install the third mount
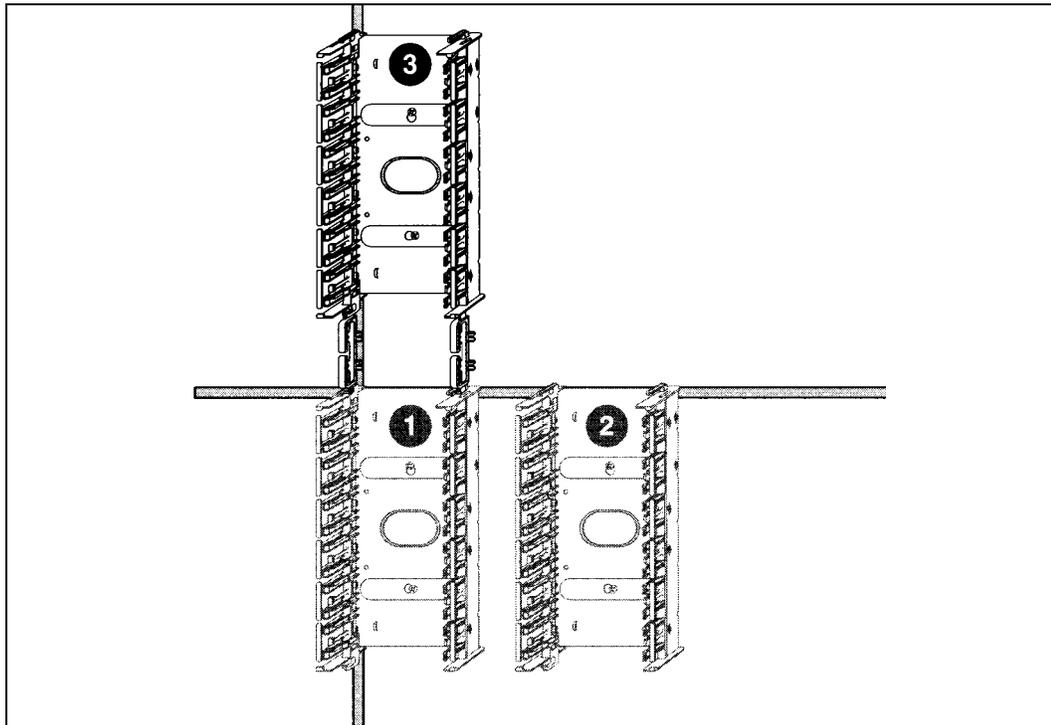
Figure 114 Install the fourth mount (optional)
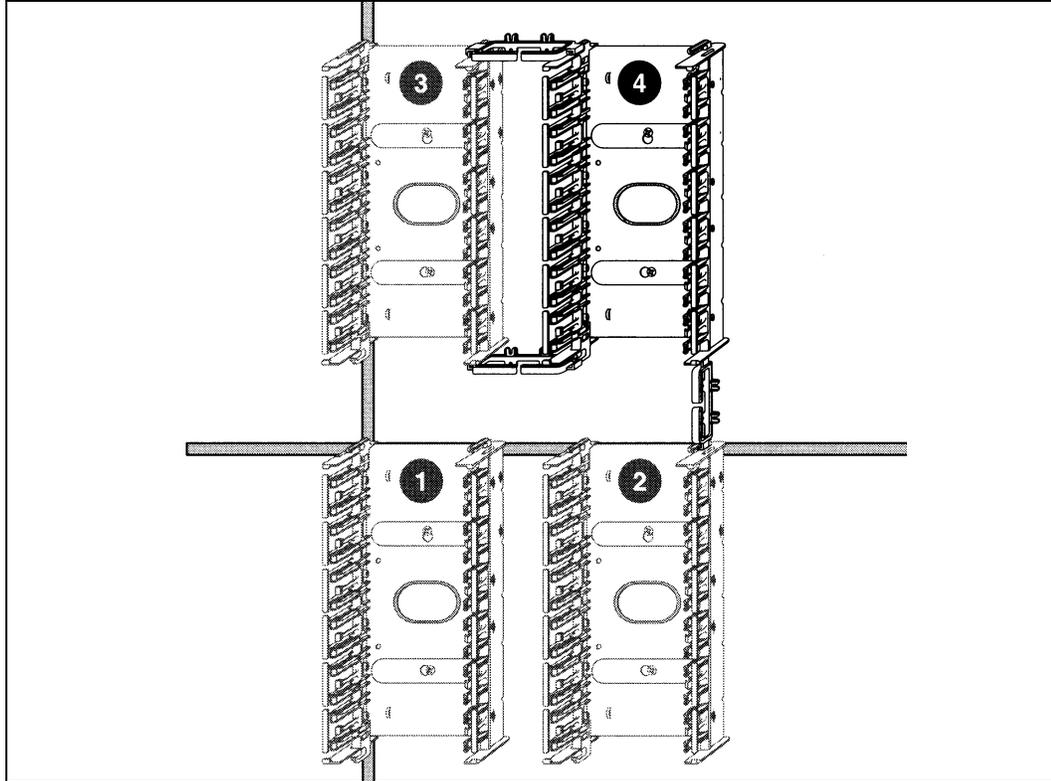
Figure 115 Install the distribution rings

Note: Secure open-ended rings with one screw.
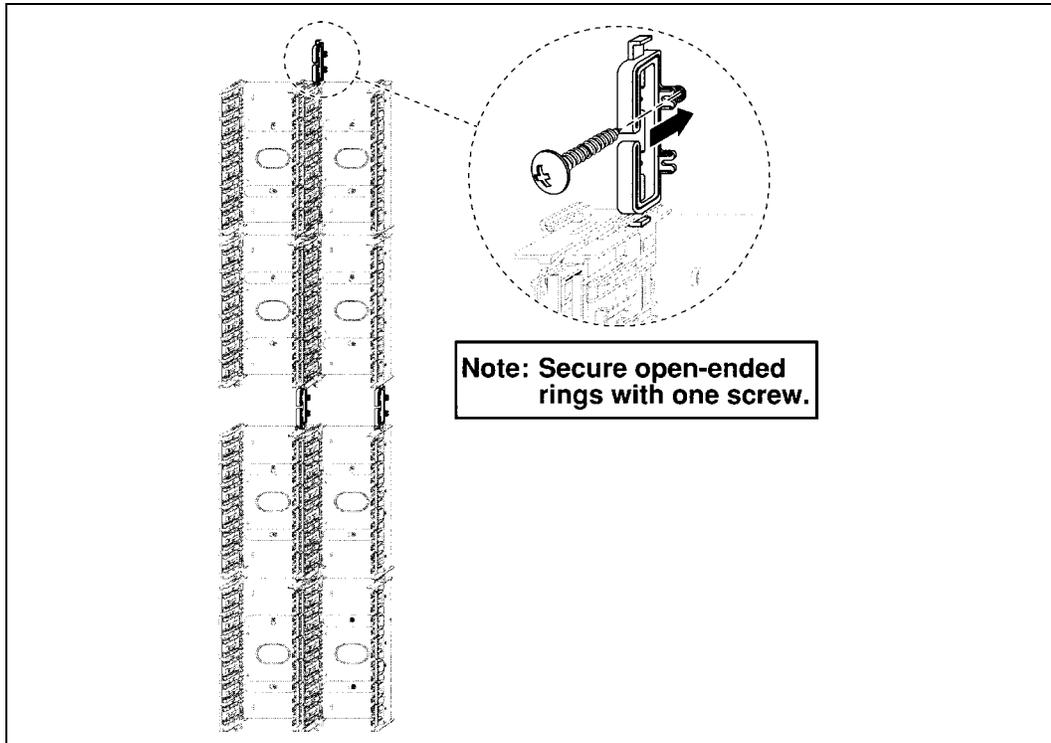
BIX cable connection

Figure 116 Route incoming cables for connection on the BIX panel
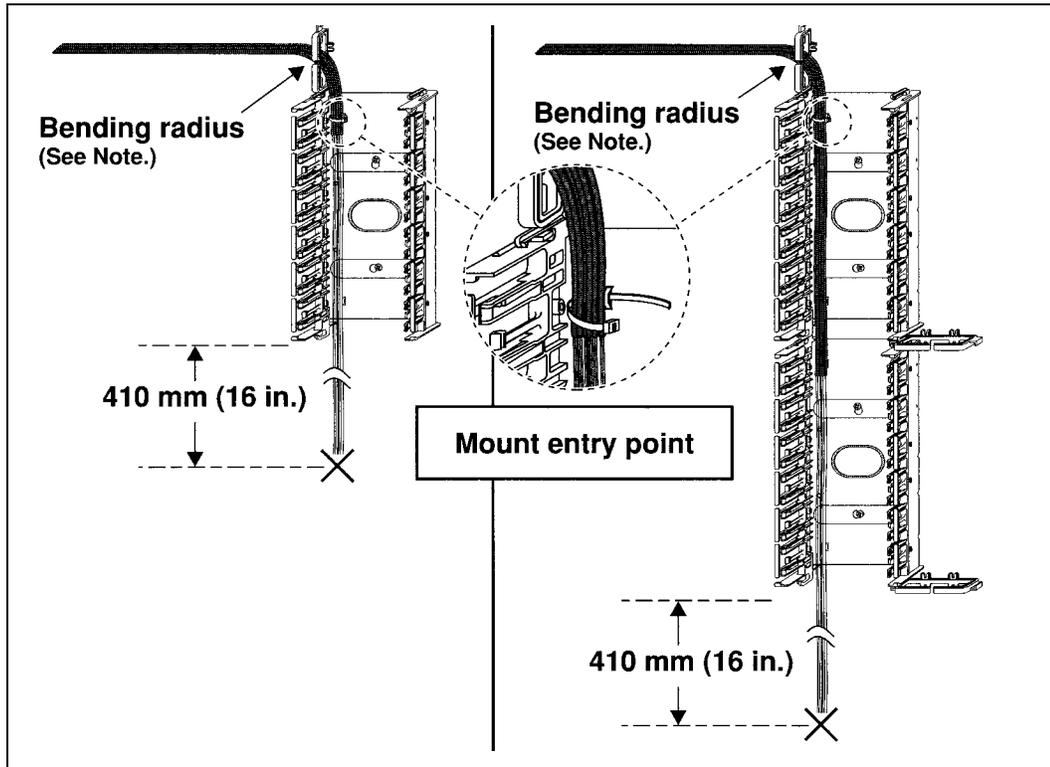
Note: The bending radius is four times the cable diameter for four-pair cables. For multi-pair cables, the bending radius is 10 times the cable diameter.

Figure 117 How to insert the upper and lower BIX connectors
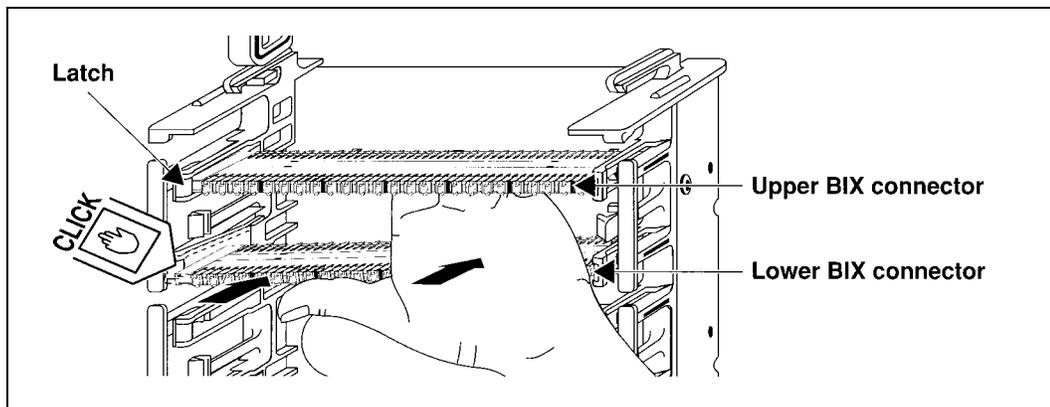
Figure 118 How to remove the BIX connectors
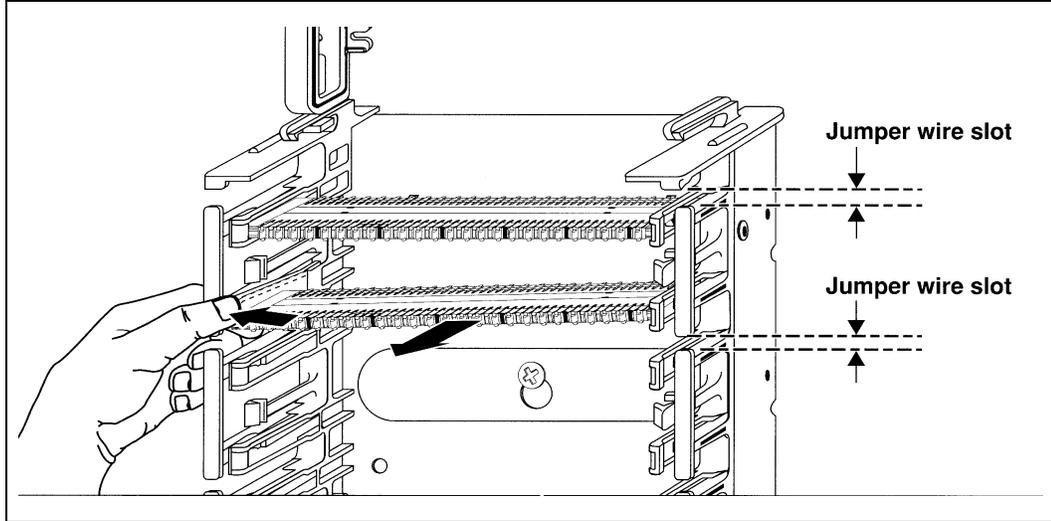
Figure 119 Fasten the cable to the upper connector
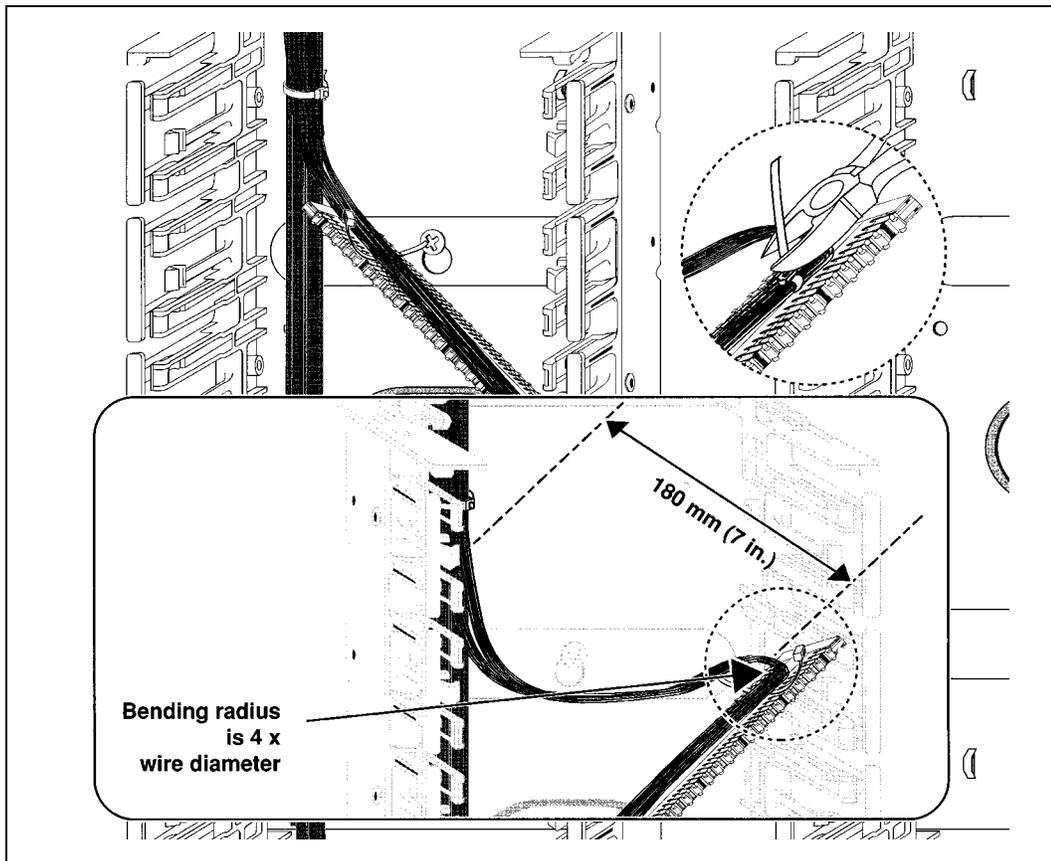
Figure 120 Insert the BIX connector in the lower connector position
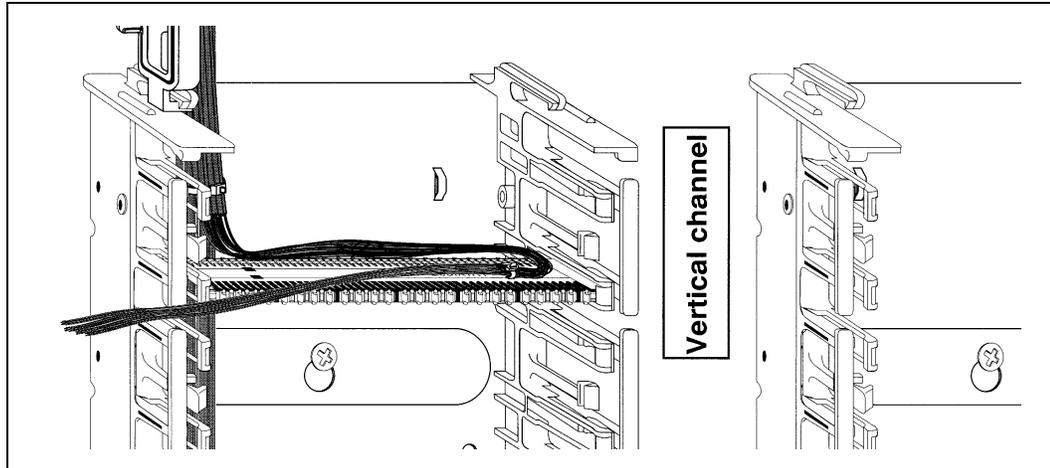
Figure 121 Insert the wire pairs on the connector
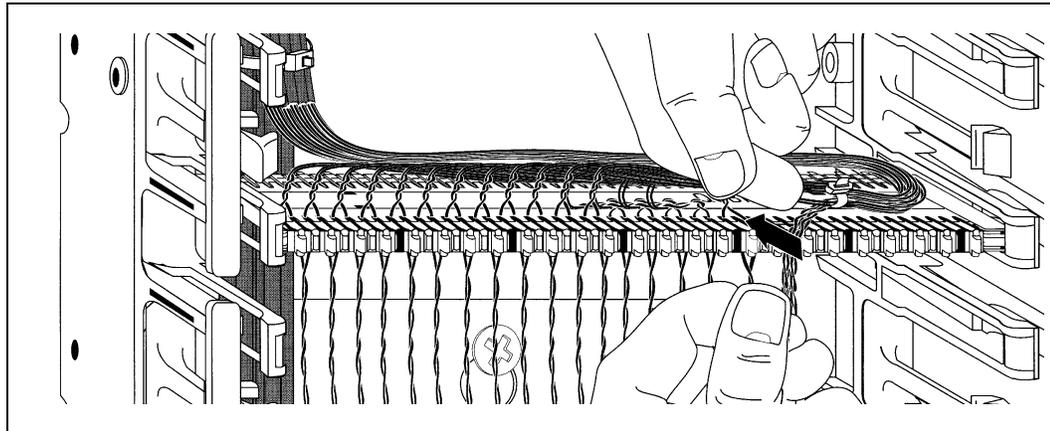
Tip
Insert the white/blue, blue/white wire pair into the first position on the left end of the connector. Insert the violet/slate, slate/violet wire pair into the last position on the right end of the connector.

See Table 28 for a summary of the wiring pattern for BIX connectors.

Table 28 Color code for 25 pair cable

Pair No.	TIP Body/Band	RING Body/Band
1	White/Blue	Blue/White
2	White/Orange	Orange/White
3	White/Green	Green/White
4	White/Brown	Brown/White
5	White/Slate	Slate/White
6	Red/Blue	Blue/Red
7	Red/Orange	Orange/Red
8	Red/Green	Green/Red
9	Red/Brown	Brown/Red
10	Red/Slate	Slate/Red
11	Black/Blue	Blue/Black
12	Black/Orange	Orange/Black
13	Black/Green	Green/Black
14	Black/Brown	Brown/Black
15	Black/Slate	Slate/Black
16	Yellow/Blue	Blue/Yellow
17	Yellow/Orange	Orange/Yellow
18	Yellow/Green	Green/Yellow
19	Yellow/Brown	Brown/Yellow
20	Yellow/Slate	Slate/Yellow
21	Violet/Blue	Blue/Violet
22	Violet/Orange	Orange/Violet
23	Violet/Green	Green/Violet
24	Violet/Brown	Brown/Violet
25	Violet/Slate	Slate/Violet

Figure 122 Terminate the cable and cut off the ends of the wires
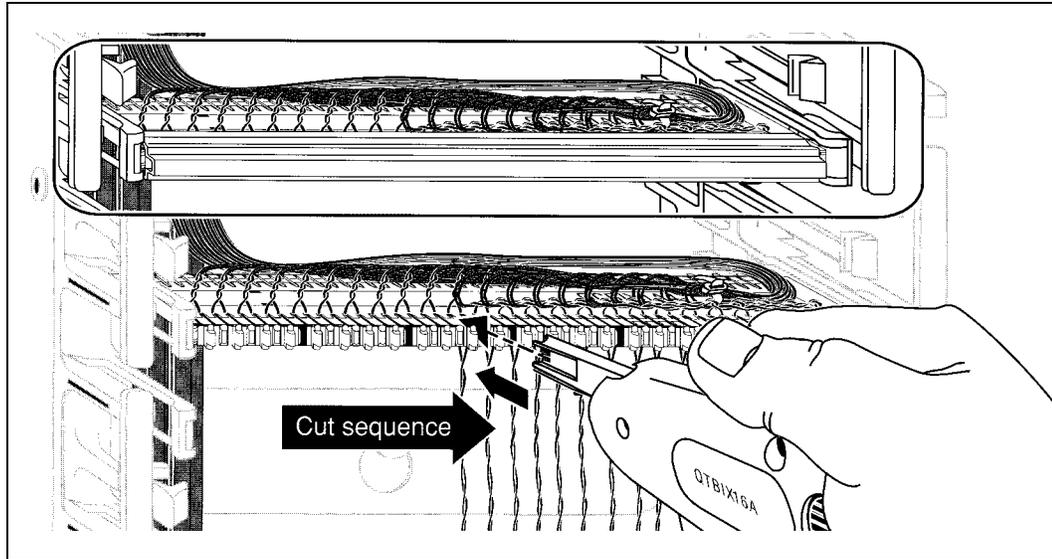
Figure 123 Insert the connector into the upper connector position
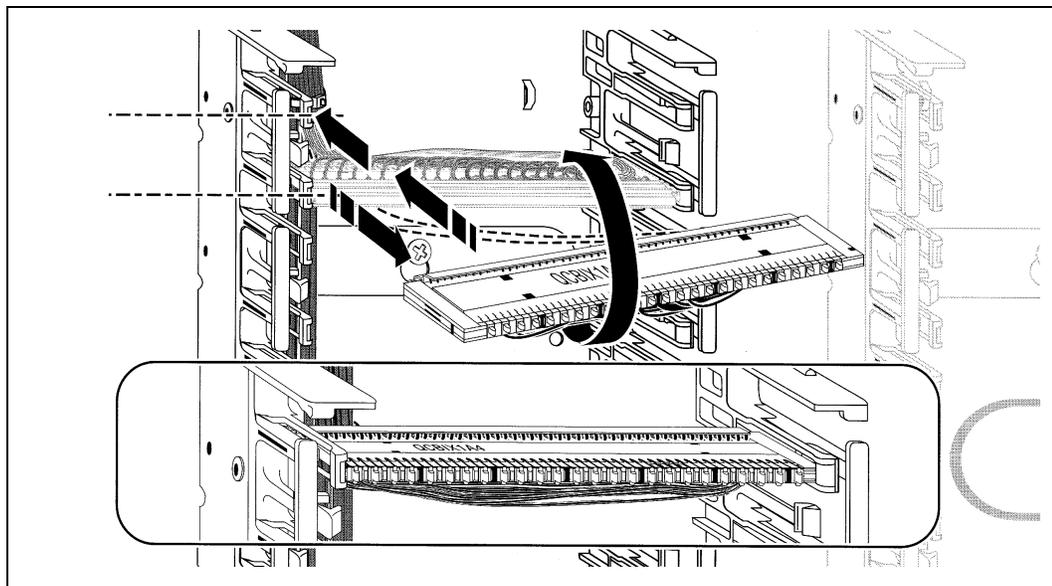
> *Tip*
> Insert the white/blue, blue/white wire pair into the first position on the
> left end of the connector.

Figure 124 Fasten the lower connector cable wire
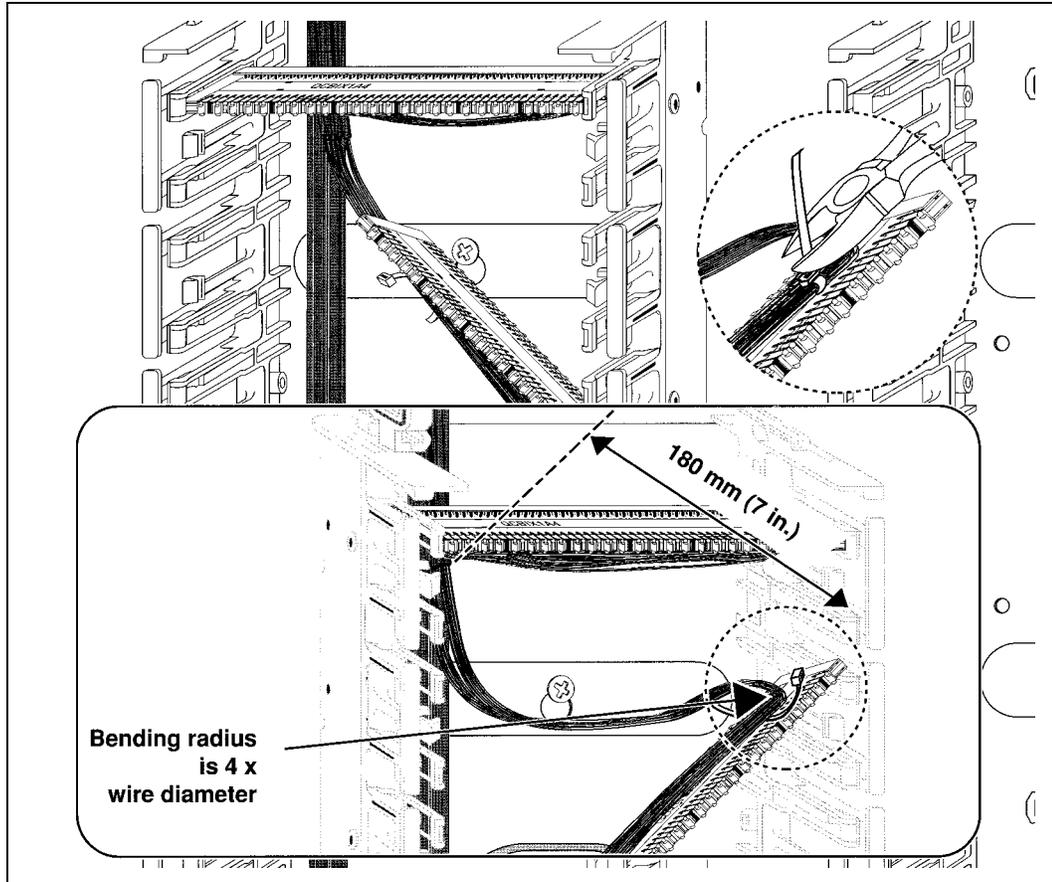
Figure 125 Insert the BIX connector into the upper connector pair in the No. 2 position
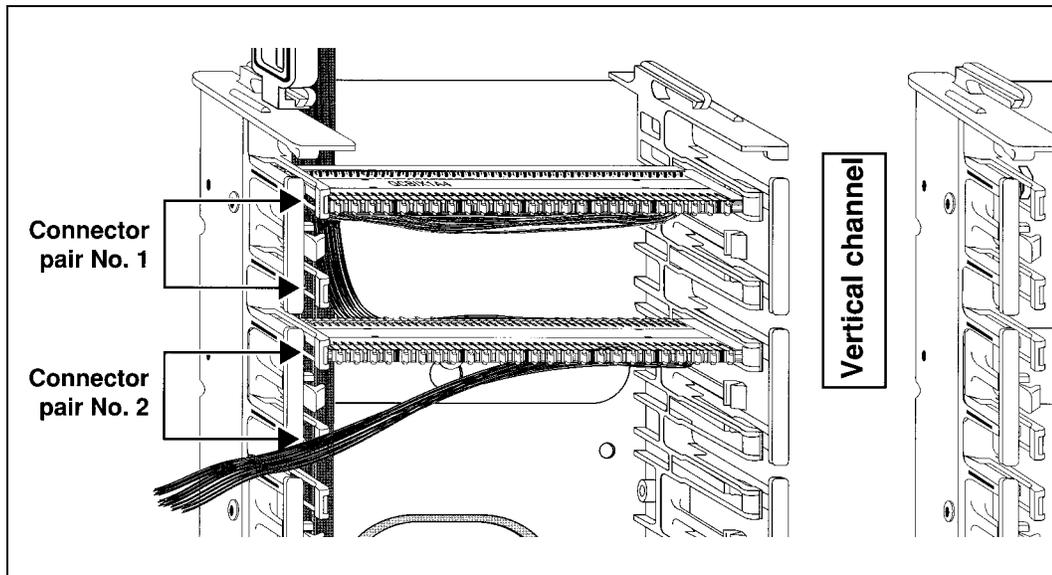
Figure 126 Insert the wire pairs on the connector
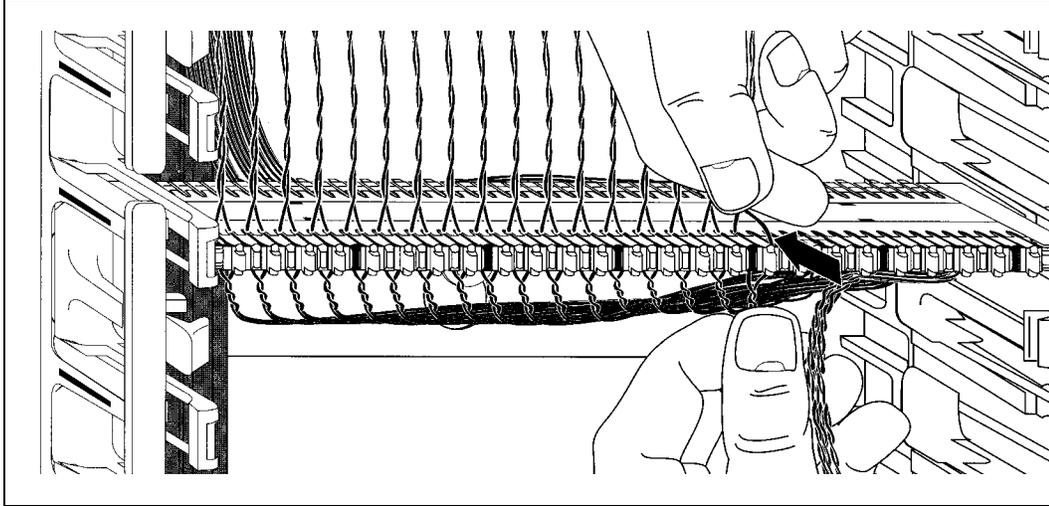
> *Tip*
> Insert the white/blue, blue/white wire pair into the first position on the left
> end of the connector. Insert the violet/slate, slate/violet wire pair into the
> last position on the right end of the connector.

Figure 127 Terminate the cable and cut off the ends of the wires
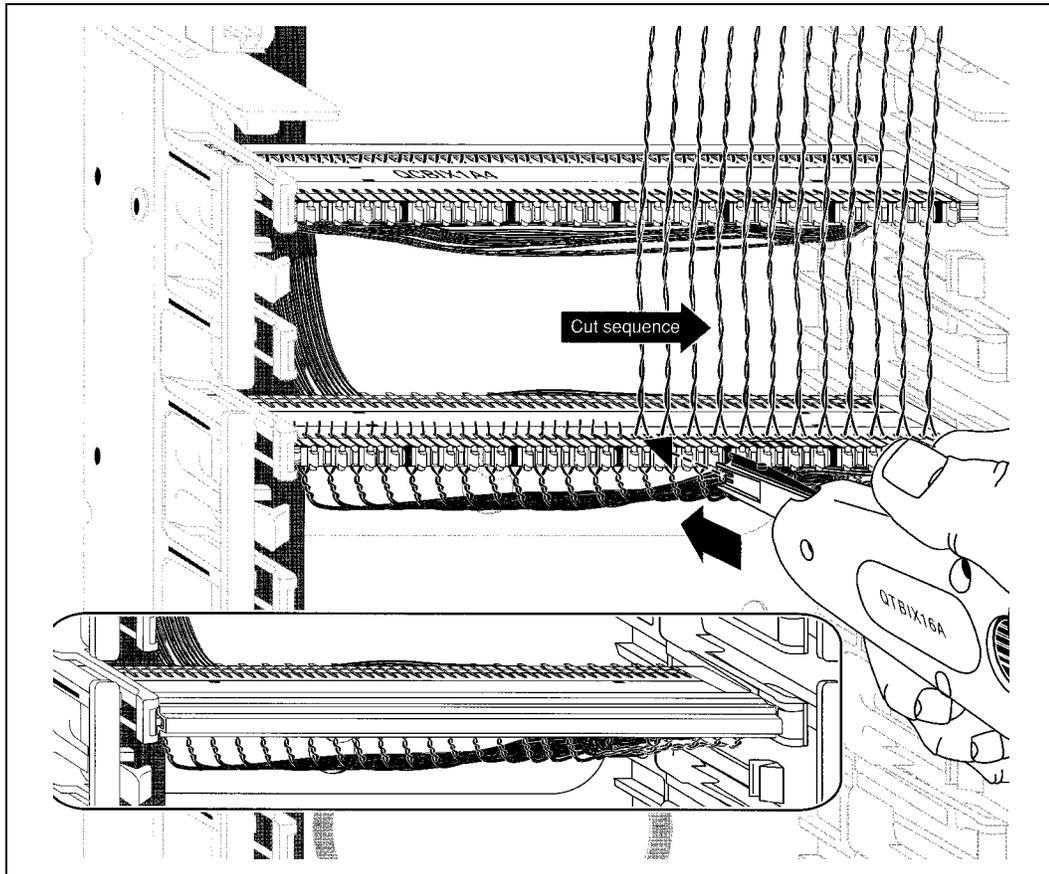
Note: Using the wire retainer shown at the bottom of the figure is optional.

Figure 128 Insert the connector into the lower connector position
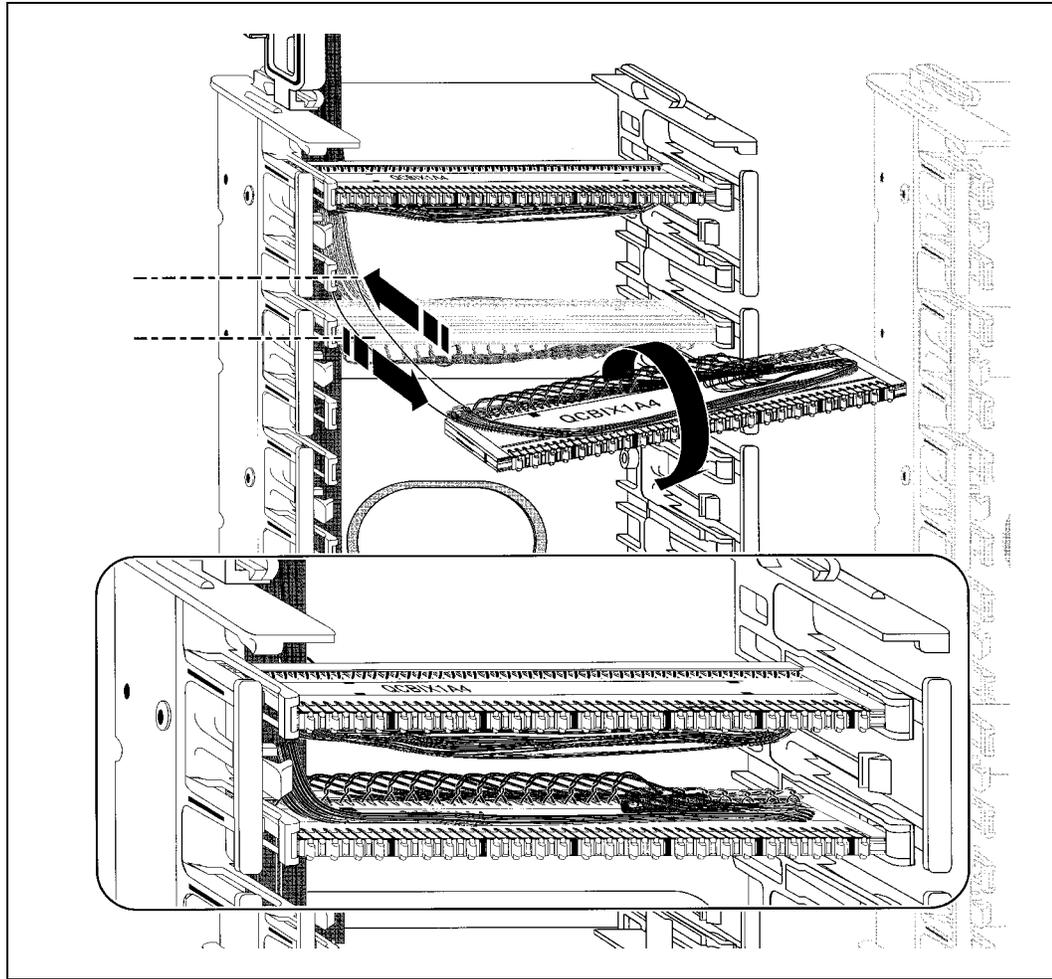
---

> ⬢ **Tip**
> Insert the white/blue, blue/white wire pair into the first position on the left
> end of the connector.

Figure 129 Fasten the upper connector cable wire
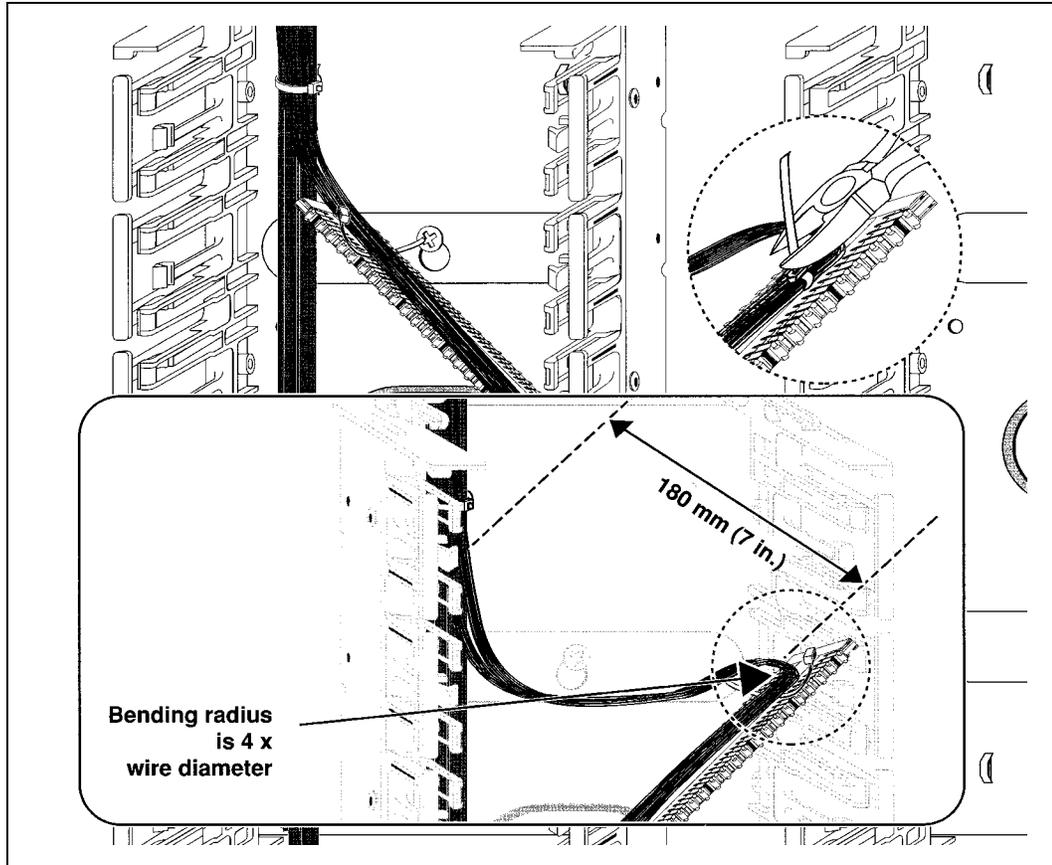
Figure 130 Insert the BIX connector in the lower connector position
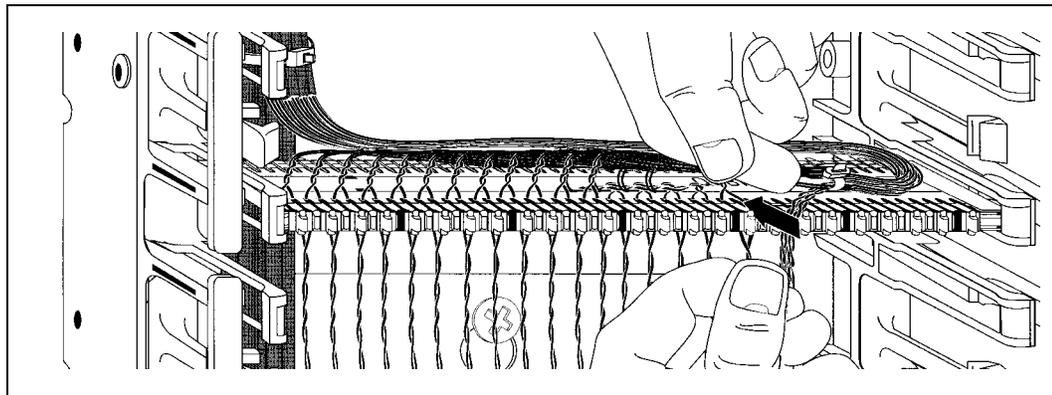
Figure 131 Insert the wire pairs on the connector
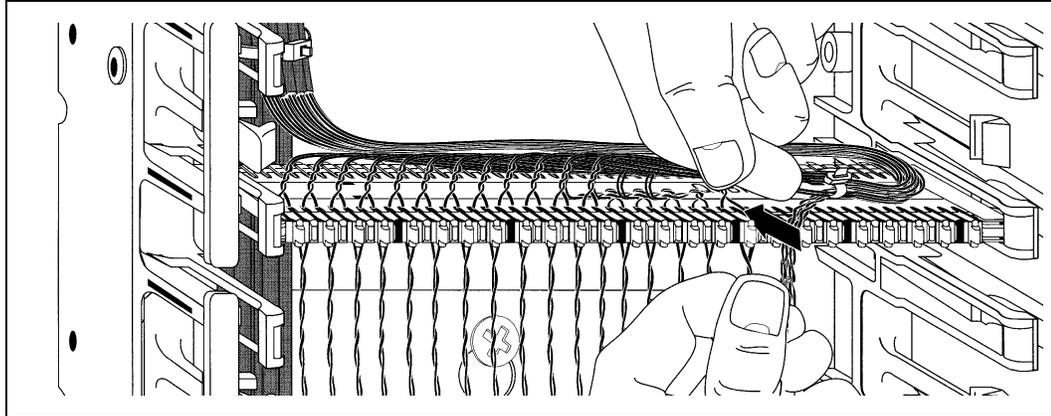
See Table 28 for a summary of the wiring pattern for BIX connectors

> *Tip*
> Insert the white/blue, blue/white wire pair into the first position on the left end of the connector. Insert the violet/slate, slate/violet wire pair into the last position on the right end of the connector.

BIX label strips

Use the blank label strips to label wiring on BIX connectors.

Figure 132 BIX label strips

553-0466T
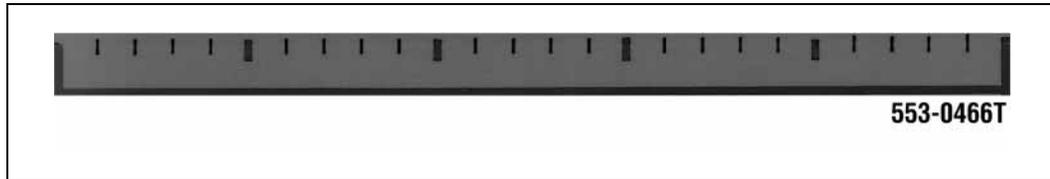
Before you install the blank label strips, refer to your work order/installation plan for the correct position of blank labels.

Nortel Networks recommends the following color-coding guidelines:

- Use blue for telephone connections
- Use blue or green for riser cable
- Use green for incoming trunk connections
- Use silver for multiplying connectors
- Use yellow for other connections

Figure 133 How to install the designation strips on the BIX mount
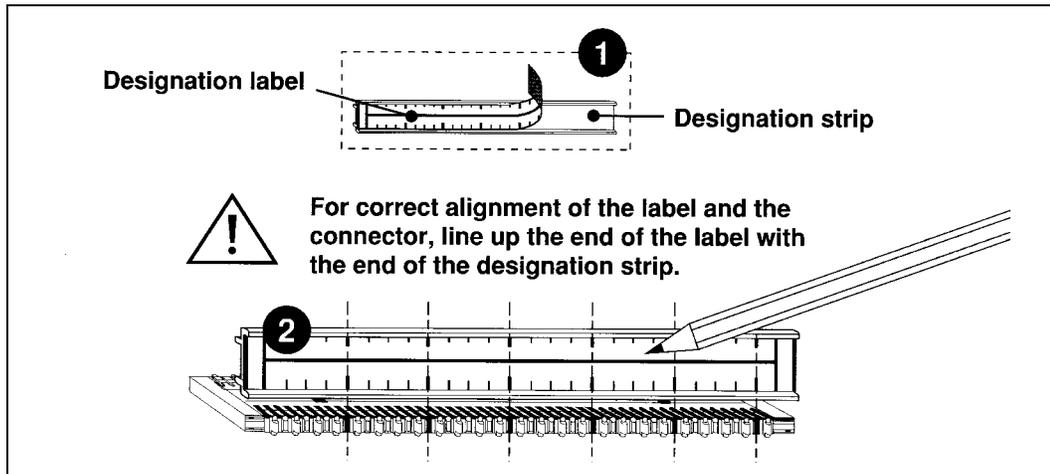
Figure 134 How to remove the designation strips from the BIX mount
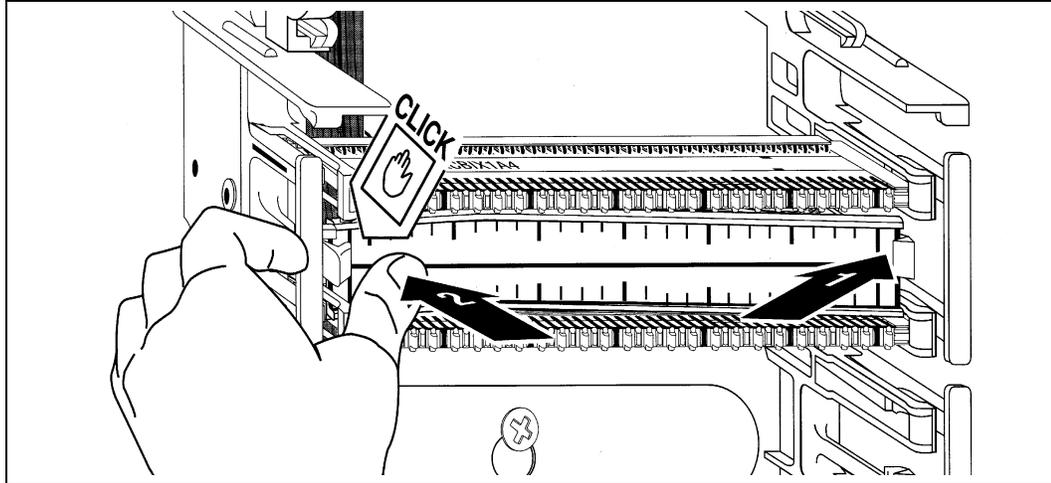
Appendix B: Virtual network computing (VNC)

You perform most of the administration for the Enterprise Edge system using Enterprise Edge Unified Manager. However, for some tasks you need to access desktop applications on the Enterprise Edge server.

VNC allows you to access desktop applications on the Enterprise Edge server from another computer on the network.

To use VNC, you need to install the VNC viewer and a telnet client on your PC.

Installing the VNC viewer

The VNC viewer is in the E:\Utils directory on the Enterprise Edge system.

Note: Only administrators can access the E:\Utils drive. This drive is shared as E$.

To install the VNC viewer program:

1. From your computer, access the **E:\Utils** directory on the Enterprise Edge server.

2. Double click the **Vnc** directory.

3. Double click the **Install** directory.

4. Double click the **Setup** icon and then follow the instruction on the display.

Installing the telnet client

If your computer has the telnet client included with Windows (telnet.exe), you do not need to install the telnet client from the Enterprise Edge server.

The telnet client is in the E:\Utils directory on the Enterprise Edge system.

Note: Only administrators can access the E:\Utils drive. This drive is shared as E$.

To install the telnet client program:

1. From your computer, access the **E:\Utils** directory on the Enterprise Edge system.

2. Double click the **TlntClnt** directory.

3. Copy **telnetc.exe** to your computer.

Using VNC

To use VNC you must:

- start the VNC application on the Enterprise Edge server
- access the Enterprise Edge server desktop

Starting the VNC application

To start the server application:

1. Start the telnet client on your PC.

2. Enter the host name or IP address of the Enterprise Edge server.

3. Log on using the administrator account.

4. Type **net start winvnc** and press **Enter**.

Accessing the Enterprise Edge server desktop

There are two methods to access the desktop:

- using a web browser
- using the VNC client

Using a web browser

1. Enter the host name or IP address for the Enterprise Edge server and the port number for WinVNC. The port number for WinVNC is 5800.
   For example: **http:// . . . :   .**

2. Enter the password for the Enterprise Edge server.

   Note: You cannot use a proxy to access the Enterprise Edge server.

Using the VNC viewer

1. On your computer, click the **Start** button, point to **Program Files**, point to **VNC**, and then click **VNC Viewer**.

2. Enter the host name and display number (0) for the Enterprise Edge server.

   Note: You can enter an IP address instead of the host name. For example, 10.10.10.1:0 selects the default IP address (10.10.10.1) and the default display number (0).

3. Enter the user name and password for the Enterprise Edge server.

Client access requirements

To access the Enterprise Edge server desktop using the VNC client, your computer must use one of the following operating systems:

- Windows NT 4.0
- Windows 95
- Windows 98

To access the Enterprise Edge server desktop using the web browser, your computer must have:

- one of the following operating systems
  - Windows NT 4.0
  - Windows 95
  - Windows 98
- Java Virtual Machine (JVM) version 5.0 (build 5.0.0.3167 or greater)
- one of the following web browsers
  - Netscape Communicator 4.5 or greater
  - Internet Explorer 4.0 or greater

If you are using Netscape Communicator, you must set the following preferences:

- Advanced - Enable Java: On
- Cache - Cached document comparison: Every Time

If you are using Internet Explorer, you must set the following Internet options:

- General - Check for new versions: Every visit
- Advanced - Java JIT compiler enabled: On

Quitting VNC

When you finish accessing the Enterprise Edge server desktop, quit the VNC application that is running on the Enterprise Edge server.

To quit VNC application:

1. Start the telnet client on your PC.

2. Enter the host name or IP address of the Enterprise Edge server.

3. Log on using the administrator account.

4. Type **net stop winvnc** and press **Enter**.

Glossary

A

AbsorbLength

A setting that determines how many of the digits in a destination code the system does not dial. You assign the AbsorbLength under Destination codes in Services.

access code

Different sequences of characters used to gain access to the features: Line pools, Call park, external lines, Direct-Dial telephone and Auto DN.

alarm code

A number that appears on a telephone display when the system detects a fault.

Analog Terminal Adapter

A device that permits the connection of analog telecommunication devices such as fax machines, answering machines, and single line telephones to the Enterprise Edge system.

ANSI

American National Standards Institute.

Answer button

A telephone button with an indicator you use to monitor another telephone. The answer button indicates incoming calls for the other telephone. A person working at a telephone with answer buttons (an attendant, for example) can receive all ringing and visual indication of incoming calls for other telephones. This person can answer those calls when necessary.

One telephone can have up to four Answer buttons. When you assign an Answer DN to a telephone, the system assigns an Answer button to that telephone.

Answer DN

The internal or directory number (DN) of a telephone that is monitored by an Answer button. You can assign up to four Answer DNs to a telephone under Line Access in Terminals and Sets programming.

Application

A computer program that performs a wide range of tasks. Examples of application programs include word processing packages, spreadsheet packages and accounting packages.

Autobumping

A feature that determines how the system handles new Call Log items when your Call Log is full. When Autobumping is on, the system deletes the oldest entry when there is a new log entry. If Autobumping is off, your system does not log calls when your log is full.

autodial button

A memory button that provides one-touch dialing of external or internal numbers.

autolog options

A feature that allows you to select the type of calls that are stored in your Call Log. You can log calls that were not answered by any person within the system, calls that were not answered at this telephone but answered in the system, all calls answered and not answered at this telephone, or no calls.

Automatic Dial

A feature that allows you to dial without having to lift the receiver or select a line. You must have a prime line to use Automatic Dial. Assign Automatic Dial under Dialing options in Terminals and Sets programming.

Automatic Handsfree

A feature which automatically activates Handsfree operation when you make or answer a call. Assign Automatic Handsfree under Handsfree in Terminals and Sets programming.

Automatic Hold

A feature that automatically places an active call on hold when you select another line. Assign Automatic Hold (Full AutoHold) in Lines programming.

Automatic Privacy

See Privacy.

Automatic Daylight Savings Time

A feature that switches the system to standard or daylight savings time at programmed times.Assign Automatic Daylight Savings Time under Daylight time in System programming.

Automatic Telephone Relocation

A feature that lets a telephone keep its personal and system programming when you move the telephone to a different modular jack. Enable Automatic Telephone Relocation under Set relocation in System programming.

auxiliary ringer

A separate external telephone ringer or bell which rings when a line or a telephone rings. You can program an auxiliary ringer to ring when the system is in a selected schedule. Enable the auxiliary ringer under Capabilities in Terminals and Sets programming. Program an auxiliary ringer in Services programming.

AWG

American wire gauge.

B

B channel (Bearer channel):

An ISDN standard transmission channel used for voice or data transmission.

Background Music:

A feature that lets you hear music from the speaker of your telephone. Background Music is available when you attach a music source to the system and enable the feature under Feature settings in System programming.

Back up

To make a duplicate copy of data files so that you can store the originals in a safe place. Back up your original files to protects the files from damage if a hardware failure occurs.

Base Station

A Companion component you install on walls and ceilings to provide a radio link to an area where you use Companion portable telephones. Each Base Station contains two radios that allow portable telephones to send and receive calls through the Enterprise Edge server.

Baud rate

A unit of measurement of data transmission speed. Baud rate is approximately equivalent to Bits Per Second (BPS). Typical baud rates are 300, 1200, 2400, 4800, and 9600.

Bearer channel

See B channel.

BERT

See bit error rate test.

BIOS (Basic Input Output System)

A program contained in Read Only Memory (ROM) that acts as the interface between software programs and the computer hardware.

Bit

An abbreviation for Binary Digit. A bit is the smallest unit of information identified by the computer. A bit has one of two values (0 or 1) to indicate off or on.

bit error rate test:

A test that checks the transmission of data across the voice and data channels between the system and any telephone.

BPS (Bits Per Second)

The speed of data transmission between two computers.

Bus

A collection of communication lines that carry electronic signals between components in the system.

busy lamp field (BLF):

A device with a liquid crystal display (LCD) panel of indicators that shows the status of up to 24 telephones in the system.

Byte

The amount of space required to store a single character. One byte is equal to eight bits.

C

Call Duration timer

A feature that lets you check long you were on your last call or how long you have been on your present call.

Call Forward

A feature that forwards all the calls arriving at your telephone to another telephone in your system. To have calls forwarded outside the system, use Line Redirection.

Call Forward No Answer

A feature that forwards all calls arriving at your telephone to another selected telephone in your system. The system transfers the calls after a specific number of rings. Assign Call Forward No Answer under Capabilities in Terminals and Sets programming.

Call Forward On Busy

A feature that forwards all calls at your telephone to another selected telephone if your telephone is busy. Assign this feature under Capabilities in Terminals and Sets programming.

Call Forward Override

An automatic system feature that lets you call another user and ask that user to stop forwarding their calls to you.

Call Information

Call Information allows you to display information about incoming calls. For external calls, you can display the caller's name, telephone number and the line name. For an internal call, you can display the name of the caller and their internal number. You can receive information about ringing, answered, or held calls.

Call Log

Enter your Call Log to view a record of incoming calls. The log can contain the following information for every call: sequence number in the Call Log, name and number of caller, long distance indication, call answered indication, time and date of the call, number of repeated calls from the same source, and name of the line that the call came in on. See Autobumping, Autolog options, and Call Log for more information.

Call Park

With this feature you can place a call on hold so that another user can retrieve it from another telephone in the system. The user retrieves the call by selecting an internal line and entering a retrieval code.

The retrieval code appears on the display of your telephone when you park the call. You can park up to 25 calls on the system at one time.

Call Park Callback

See Callback.

Call Park prefix

The first digit of the retrieval code of a parked call. This digit cannot conflict with the first digit of any existing DNs, Line Pool access codes, the Direct-dial digit, or the external line access code. The default Call Park prefix digit is "1". To disable Call Park, set the Call Park prefix to none. Assign the Call Park prefix under Access codes in System programming.

Call Pickup Directed

A feature that lets you answer a call ringing at any telephone by entering the internal number of that telephone. Enable Call Pickup Directed under Feature settings in System programming.

Call Pickup Group

See Pickup Group.

Call Queuing

If you have several calls waiting at your telephone, you can activate the Call Queuing feature to answer the calls in order of priority. The order of priority is: incoming calls, callback calls and camped calls.

Callback

If you park, camp, or transfer a call to another telephone and no one answers the call, the call rings again at your telephone. You set how long the system waits before Callback under Feature settings in System programming.

Camp-on

A feature that lets you reroute a call to a telephone when all the lines on that telephone are busy. To answer a camped call, use Call Queuing or select a line if the camped call appears on your telephone. Queued calls get priority over camped calls.

Camp timeout

The length of a delay before a camped call returns to the telephone that camped the call. Set the length of delay under Feature settings in System programming.

Central answering position (CAP)

An M7324 telephone that you assign as a CAP under CAP assignment in System programming. Use the CAP for backup answering and to monitor the telephones within a system.

Central answering position (CAP) module

A module connected to an M7324 telephone and provides 48 additional buttons. You can connect a maximum of two CAP modules to a single M7324 telephone.

Channel Service Unit (CSU)

A device on the Digital Trunk Interface that is the termination point of the T1 lines from the T1 service provider. The CSU collects statistics on the quality of the T1 signal. The CSU ensures network compliance with FCC rules and protects the network from harmful signals or voltages.

Class of Service (COS)

The set of features and lines available to the user for a call. The restriction filters and remote access packages, assigned to the telephone in Lines programming, determine the Class of Service for a call. You can change the Class of Service for a call by entering a six digit Class of Service password. (Internal users cannot change their access to features with a COS password, only their restriction filters.) Assign the Class of Service and Class of Service passwords in Passwords programming. See Remote Access.

Class of Service password

A six digit code that lets you switch from your current Class of Service to one that lets you dial numbers prevented by your current Class of Service.

cold start

A cold start occurs when you lose all system programming. You can lose system programming after a major event such as an extended power failure.

Companion Wireless

The name for the communication systems which use radio technology to transmit and receive signals between its components and the Enterprise Edge server. Companion Wireless provides mobility in your office. Calls that used to ring just at your telephone set can appear and ring at your portable.

Companion portable telephone

Hand held wireless telephones that allow complete mobility within the reach of Companion Base Stations or an external antenna. Portable telephones provide many but not all standard system features and share some of the same programming as desk telephones.

Conference

A feature that allows you to establish a three person call at your telephone.

COS

See Class of Service.

D

D channel (Data channel)

An ISDN standard transmission channel which is packet-switched, and used for call setup, signalling and data transmission.

Data channel

See D channel.

Defaults

The settings for all features when you first install the system. You change the settings from their defaults in programming.

Delayed Ring Transfer (DRT) to prime

After a programmed number of rings, this feature transfers an unanswered call on an external line to the prime telephone related to that line. Activate this feature under Feature settings in System programming.

destination code

A two to seven digit number that the system reads and then translates into the digits that you want dialed out. Assign both the code and its related dialed digits under Routing service in Services programming.

dialing restriction

See Restriction filter.

DIMM

Dual In-line Memory Module. The Enterprise Edge server is equipped with two DIMM that provides 128 MB of SDRAM. The memory can be increased by replacing the DIMMs.

Direct-dial

A feature that lets you dial an assigned telephone in your system with a single digit. You can assign as many as five direct dial sets. Each telephone in the system has to one direct-dial telephone. There is a single, system wide digit for calling the assigned direct-dial telephone of any telephone. Assign direct-dial telephones in System programming. Assign telephones to a direct-dial telephone under Capabilities in Terminals and Sets programming.

Direct-dial

A digit used system-wide to call the Direct-dial telephone. Assign the digit under Access codes in System programming.

Direct-dial number

The digit used to call the direct-dial telephone.

directed pickup

See Call Pickup Directed.

Directory number (DN)

A unique number that the Enterprise Edge system assigns to every telephone or data terminal. You use the DN, also referred to as an internal number, to identify a telephone when you assign settings during programming.

Disconnect Supervision

A setting that enables the system to detect if an external caller hangs up. After an external caller hangs up, the system can disconnect its line. Enable Disconnect Supervision under Trunk/Line data in Lines programming.

Disk drive

A mass storage device that searches, reads and writes data on a disk.

Display

A one line or two line screen on an Enterprise Edge telephone that shows commands and options.

Display buttons

The three buttons that appear below an Enterprise Edge two line LCD display.

Display options

The options available to a user that appear on the Enterprise Edge two line display. Select the options on the display using the display or dial pad buttons.

DN

See Directory number.

Do Not Disturb

A feature that stops calls from ringing at your telephone. Only Priority Calls will ring at your telephone. A line button flashes when you receive a call, but the call does not ring.

Driver (Device)

A program that allows a hardware peripheral, such as a NIC, to communicate with the Enterprise Edge server.

DTMF

See Dual tone multifrequency.

dual tone multifrequency

Two distinct telephone signaling tones used for dialing.

E

Emergency 911 dialing

The capability to access a public emergency response system by dialing the digits 9-1-1. State and local requirements for support of Emergency 911 Dialing service by Customer Premises Equipment vary. Ask your local telecommunications service provider about compliance with applicable laws and regulations.

emergency telephone

A single-line telephone (also referred to as a 500/2500 telephone) that becomes active when there is no power to the Enterprise Edge server.

Ethernet

A Local Area Network (LAN) protocol that is the original Carrier Sense Multiple Access/Collision Detect (CSMA/CD) LAN that lets PCs and Enterprise Edge servers listen for pauses before they communicate. Ethernet LANs use coaxial cable or twisted pair wiring for connecting computers.

evening schedule

See Schedules and Services.

event message

The system stores event messages in the system log and displays these messages during a Maintenance session. They record many different events and activities in the system.

exceptions

See Overrides.

Extended Data-Out (EDO)

Extended Data-Out (EDO) is a type of Dynamic Random Access Memory (RAM) where storing data to and reading data from the memory is faster.

external call

A call to a destination outside the system.

external code

The number you dial to get an external line. By default it is 9, but you can change this number under Access codes in System programming. You do not always need an external code. The external code supports the M7100 telephone and single line telephones connected to an Analog Terminal Adapter.

external line

A line on your telephone used for making calls to destinations outside the system.

external music source

See Music source.

external paging

A feature you can use to make voice announcements over an externally installed loudspeaker connected to the Enterprise Edge server. The customer supplies the external speaker. The external speaker is not an Enterprise Edge component.

F

FAX

FAX works with Enterprise Edge Voice Messaging. FAX allows a caller to send a fax document to a voice mailbox.

Feature Code

A unique code used to access Enterprise Edge features and options.

File

A collection of related information stored on a disk under a given name. Each application program that you use saves the data you create in files. The operating system and application programs identify files by a file name and optional extension.

File name

A name that identifies a file and has one to eight characters.

Forward

See Call Forward.

Full Autohold (on idle line)

When this feature is on, Full Autohold automatically puts the current line on hold when you select another line. Enable Full Autohold under Trunk/Line data in Lines programming.

Full Handsfree

See Handsfree.

Fully Qualified Domain Name (FQDN)

The combination of host name and domain name. For example mycomputer.nortelnetworks.com is a Fully Qualified Domain Name.

G

Ground Start trunk

Ground start trunks provide the same features as loop start trunks. Use these type of trunks when the local service provider does not support disconnect supervision for the digital loop start trunks. By configuring lines as ground start, the system can identify when a caller hangs up the telephone at the far end. Ground start trunks are only available on a Digital Trunk Interface (DTI).

Group Listening

A feature that allows you to have other persons in your office hear a caller through your telephone speaker. The caller hears you when you speak into the receiver and cannot hear other persons in the office.

You can cancel Group Listen for the current call. Group Listen cancels automatically when you hang up the Group Listen call.

H

Handsfree

A feature you can use to make calls without using the telephone receiver. Activate Full Handsfree under Capabilities in Terminals and Sets programming. When you activate handsfree, a Handsfree/Mute button is automatically assigned to the telephone.

Handsfree (HF) Answerback

This feature automatically turns on the microphone at a telephone that receives a Voice Call so that the person receiving the call can respond without lifting the receiver. Activate Handsfree Answerback under Capabilities in Terminals and Sets programming.

Handsfree/Mute button

See Handsfree.

Hard disk drive

A data storage device that uses rigid magnetic disks that you cannot remove from the computer. Hard disk drives work faster and store more data than disk drives do for diskettes.

Hardware

The physical components of the Enterprise Edge system.

Headset

A head-mounted or ear-mounted telephone receiver that you use instead of the hand-held receiver. Headsets are not Enterprise Edge system components. The customer must supply the headsets.

Held (Line) Reminder

A telephone rings and displays the message `On hold: LINENAM` when you place an external call on hold for programmed period of time. Set the Held Line Reminder feature and Remind delay under Ftr settings in System programming.

HF Answerback

See Handsfree Answerback.

Hold button

Use this button to interrupt calls so that you can perform another task without disconnecting the caller.

Hook Switch Flash

See Link time.

Host Name

In networking, the name of a computer that provides services, such as database access, to other computers or Enterprise Edge servers in the domain. Computers with a host name also have a unique IP address. Because the Enterprise Edge server has a unique IP address, the Enterprise Edge server qualifies as a host.

Host system signaling

Also referred to as end-to-end signaling. Telephones can access a remote system or dial a number on an different carrier by using host feature activation, such as Link, Pause and Run/Stop.

Hotline

This feature automatically calls a pre-assigned number when you lift the telephone receiver or press the Handsfree/Mute button. A Hotline number can be an internal or external number. Assign Hotline under Capabilities in Terminals and Sets programming.

Hz (hertz)

A unit of measure for indicating frequency in cycles per second.

I

I/C

An abbreviation of intercom.

Initialization

The steps required to prepare hardware or software for operation.

Install

To set up for operation. For example, install the hardware by attaching it to the appropriate connectors or sockets either inside or outside the Enterprise Edge server.

Integrated Services Digital Network (ISDN)

A digital telephone service that allows for a combination voice and data connection over a single, high-speed connection. ISDN service can operate over the same copper twisted-pair telephone line as analog telephone service.

intercom button

A button that provides access to internal lines used for calls within a Enterprise Edge system. These buttons also provides access to external lines through a line pool or external code. You can assign telephone zero to eight intercom buttons under Line access in Terminals and Sets programming.

intercom keys

See Intercom button.

Interface

An information interchange path that allows communication between computer parts.

internal line

A line on your telephone dedicated to making calls to destinations inside your system. An internal line can connect you with an external caller if you use it to access a line pool. Also, you can answer an external caller using the call handling features such as Call Park or Call Pickup Directed.

internal number

A number (also referred to as a Directory Number or DN) that identifies a telephone or device.

internal user

A person using an Enterprise Edge telephone within the system.

Internet

A global TCP/IP network linking millions of computers for communications purposes.

IRQ (Interrupt Request)

A signal sent by a hardware device to the microprocessor requesting its immediate attention. For example, every communications port has an interrupt request line for telling the microprocessor when data is received or transmitted.

IRQ Conflict

An IRQ conflict occurs when two hardware devices have same IRQ. When an IRQ conflict occurs, the user must configure the IRQ settings to solve the conflict.

ISDN

See integrated services digital network.

ISDN DN

A directory number (DN) used by ISDN terminal equipment connected to the system. The Enterprise Edge system uses a maximum of 30 ISDN DNs.

K

Kbyte

The abbreviation for kilobyte. A kilobyte is equal to 1024 bytes.

L

Last Number Redial

A feature that allows you to redial the last external number you dialed.

Least cost routing

See Routing service.

line

The complete path of a voice or data connection between one telephone (or other device) and another.

Lines

A programming section that lets you assign settings to each trunk and external line.

Line number

A number that identifies an external line. The total number of lines depends on the number and type of trunk media bay modules installed.

Line Pool

A group of lines used for making external calls. Line pools provide an efficient way of giving a telephone access to external lines without taking up many line buttons. Assign a line to be part of a line pool under Trunk/Line data in Lines programming.

Line Redirection

A feature that allows you to redirect all calls on an incoming line to a destination outside the system. After you redirect a line you cannot answer the line within the system. You can set up the system to give a brief ring when a call comes in on a redirected line, under Capabilities in Terminals and Sets programming.

This feature is different from Call Forward in two ways. Line redirection only redirects external calls (not internal calls) and redirects calls to destinations outside the system. Call forward redirects calls only to destinations inside the system. See Call Forward.

Link

If you connect the Enterprise Edge system to a Private Branch Exchange (PBX), you can use a Link signal to access special features. You can include the Link signal as part of a longer stored sequence on an External Autodial button or in a Speed Dial code. The Link symbol uses two of the 24 spaces in a dialing sequence.

Local Area Network (LAN)

A group of computers or Enterprise Edge servers connected so they can communicate and work together.

Long Tones

A feature that lets you control the length of a tone so that you can signal devices such as fax or answering machines. These device require tones longer than the standard 120 milliseconds.

Lunch schedule

See Schedules, and Services.

M

Maintenance

A type of programming you use to analyze and repair problems in the Enterprise Edge system. Maintenance requires no programmable settings.

Mailbox

A storage place for voice messages on Enterprise Edge Voice Messaging.

message

A feature that allows you to send a message to another system user. The Message feature also lets you know if you have any messages waiting and maintains a Message Waiting List. The Message Waiting List keeps a record of your internal messages and your (external) voice messages.

MHz

The abbreviation for megahertz which is a unit of measure indicating frequency in millions of cycles per second.

Microprocessor

A electronic component that is the center of all activity inside the Enterprise Edge server. The microprocessor controls the operation of the computer and is responsible for executing program commands. It is also referred to as the Central Processing Unit (CPU).

Modem

A communications device that allows computers to exchange data over telephone lines. A modem uses electronic processes called modulation and demodulation. The modem changes (modulates) the data into tones to send to another modem and also converts (demodulates) tones when receiving from another modem.

Move Line buttons

A feature that allows you to move external lines to different buttons on your telephone.

Music source

You can connect a radio or other source of music to the system to provide music for the Music on Hold and Background Music features. A music source is not part of the Enterprise Edge system. The customer must supply the music source.

M7100 telephone

The Enterprise Edge model M7100 telephone that has a single line display and one programmable button without an indicator.

M7208 telephone

The Enterprise Edge model M7208 telephone that has a single line display and eight programmable buttons with indicators.

M7310 telephone

The Enterprise Edge model M7310 telephone that has a two line display with three display buttons, 10 programmable buttons with indicators and 12 dual programmable buttons without indicators.

M7324 telephone

The Enterprise Edge model M7324 telephone that has a two line display with three display buttons and 24 programmable buttons with indicators.

N

Names

You can assign names to System Speed Dial numbers, external lines, telephones, mailboxes, ACD Queues and service schedules in programming. You can use up to sixteen characters to name a System Speed Dial number, 13 characters for mailbox and ACD Queue names, and seven characters to name a telephone, line, or schedule. If a you do not assign a name, the line number or DN appears on the display instead of a name.

Network

Two or more computers linked electronically to share programs and exchange data. To join computers over a network, you must add specialized hardware and software to every computer.

Network DN

A number supplied by the ISDN network service provider for ISDN terminal equipment.

Network Interface Card (NIC)

An adapter card contains the hardware necessary to connect an Enterprise Edge server to a local area network.

Night schedule

See Schedules, and Services.

O

On hold

A setting that controls if external callers hear music, tones, or silence when you place the call on hold. Program On hold under Feature settings in System programming.

Operating system

The disk based software that manages the operation of the Enterprise Edge server. An operating system controls the flow of information between the computer hardware. Windows® NT is the operating system that manages the Enterprise Edge server.

OPX

Off premises extension.

overlay

See Programming overlay.

overflow

A setting in Routing Service that allows users to decide which path an outgoing call takes if all the lines used in a selected route are in use.

Overrides

One component of a restriction filter. Overrides are numbers you can dial when they are not allowed by a more general restriction. See Restrictions.

P

Page

A feature you can use to make announcements over the Enterprise Edge system. You can make page announcements over the telephone speakers and/or external speakers.

Page Time out

A setting that controls how long a Page Announcement can last. Assign the Page Time out under Feature settings in System programming.

Page zone

An area in the office that receives internal page announcements that other areas of the office do not hear.

A number identifies every page zone. Assign telephones to page zones under Capabilities in Terminals and Sets programming.

Parallel port

A port that transfers data through multiple wires. A parallel port transmits eight bits (one byte of data) at the same time. Parallel ports normally use a 25-pin interface that transmits and receives data using a separate data line for every bit.

Park prefix

See Call park prefix.

Park timeout

The time before an unanswered parked call returns to the telephone that parked it. Park timeout is under Feature settings in System programming.

Password

A four-digit to eight-digit number you enter using the dial pad. You use a password to open mailboxes or perform configuration tasks.

Pause

A feature that enters a 1.5 second delay in a dialing sequence on an external line. You require a pause for signaling remote devices, such as answering machines, or when reaching through to PBX features or host systems. The Pause symbol uses one of the 24 spaces in a dialing sequence.

PBX

Private Branch Exchange.

Peripheral Component Interconnect (PCI) Slot

Socket on the Enterprise Edge server main printed-circuit board that connect to the Enterprise Edge cards.

Personal Speed Dial

Two-digit codes (71-94) you program to dial external telephone numbers. You program Personal Speed Dial numbers for each telephone. You can access Personal Speed dial numbers only at the telephone on which they are programmed.

Pickup Group

You can place a telephone into one of nine call pickup groups. You can pickup a call ringing at a telephone within a pickup group from any telephone within the same pickup group. Assign a telephone to a pickup group under Capabilities in Terminals and Sets programming.

Pin-1

An indicator on the first pin in a or electronic component. You use this indicator to help you correctly align the component when attaching or installing it.

Pool

See Line pool.

Port

A connector on the Enterprise Edge server that allows data exchange with other devices, such as a printer or mouse.

portable telephone

See Companion portable telephone

Pre-dial

A feature that allows you to enter a number and check it on your telephone display before it is dialed. If the number is incorrect, you can edit the number. The number is dialed when you lift the receiver or select a line.

Prime line

The line the system selects for your telephone when you lift the receiver, press the Handsfree/Mute button or use an external dialing feature. Assign a Prime Line to a telephone under Line access in Terminals and Sets programming.

Prime Set (prime telephone)

A telephone that provides backup answering for incoming calls on external lines. The prime telephone for a line will ring for any unanswered calls on that line. Assign a prime telephone to a line under Trunk/Line data in Lines programming.

Priority Call

If you get a busy signal when you call a person in your office, you can interrupt that person for an urgent call. Enable this feature for a telephone under Capabilities in Terminals and Sets programming.

Privacy

This feature determines if a system user can select a line in use at another telephone and join an established call. Enable Privacy under Trunk/Line data in Lines programming. User can turn this feature on and off during separate calls.

Private line

See Private to.

Private network

A telephone network including owned or leased telephone lines used to connect different offices of an organization separately from the public network.

Private to

This feature lets you select the telephone that uses the line only. The line cannot appear on another telephone, except the prime telephone for that line. You cannot place Private lines cannot into line pools. Assign Private lines under Trunk/Line data in Lines programming.

programming

Setting the way the Enterprise Edge system works. Programming includes system-wide settings and separate telephone and line settings.

Protocol

A set of rules and procedures for exchanging data between computers or Enterprise Edge servers on a network or through the Internet.

Power cable

A cable that connects the Enterprise Edge server to a power source.

public line

An external line that you can assign to any telephone and to many telephones. Assign a line as Public under Trunk/Line data in Lines programming.

public network

The normal telephone network that connects most homes and businesses.

pulse/tone dialing

An external line setting for pulse or tone dialing. Pulse is the traditional method of dialing used by rotary-dial or push-button single-line telephones. Tone dialing allows telephones to communicate with other devices such as answering machines. You require tone dialing to access the features that PBX systems can provide or to use another system remotely.

R

RAM (Random Access Memory)

Computer memory that stores data temporarily. RAM stores the data used by the microprocessor as it executes instructions. The contents of RAM are erased when the Enterprise Edge server is turned off or restarted.

recall

See Link time.

receiver

The handset of a telephone.

Regression Code

This feature restores the previous system security number so that previously applied UTAM Activation Codes and Portable Credit Codes can be reentered to restore full system operation. Also required in cases of system recovery. You cannot reuse this code cannot.

Remind delay

A feature that causes a telephone to beep and display the message
`On hold: LINENAM` when a call has been on hold for a programmable period of time.
This period is the Remind delay.

Remote access

The ability to dial into an Enterprise Edge system from outside the system and make
use of selected features. The lines, features, and dialing capabilities available to a
remote user are determined by the Class of Service.

remote access dial restriction

See Remote restriction.

Remote capability

A subset of Enterprise Edge features that are available to users connected through
remote access.

Remote monitoring

A feature that lets an off-site technician with a PC call in and troubleshoot your
system through the built-in modem.

Remote paging

This feature allows remote users to use the system paging feature. Access to this
feature is governed by the Class of Service for the call. See Remote Access and
Class of Service.

Remote restriction

A restriction filter applied to a line in order to control which digits can be dialed
during an incoming remote access call. It is the equivalent of a set filter for a remote
user.

remote user

Someone who calls into an Enterprise Edge system from a telephone outside that
system and uses system features or lines. See Remote Access.

Restriction filter

Through a combination of restrictions and overrides, restriction filters prevent
certain telephone numbers or feature codes from being dialed. Restriction filters can
be applied to lines, sets, specific lines on a set, and to Class of Service passwords.

Restriction service

A Services section that allows you to assign alternate dialing filters to lines,
telephones, lines on a particular telephone, and alternate remote filters to lines at
specified times of the day and on specified days.

restrictions

One component of a Dialing filter. Restrictions are numbers you cannot dial when that dialing filter is in effect. See Exceptions.

Ring Again

A feature that can be used when you cannot get through to someone on your system because their telephone is busy or there is no answer. Ring Again instructs the system to inform you when they hang up or next use their telephone.

ring group

A setting under Services that lets you assign a number of different telephones to ring during one of the schedules. Up to 20 ring groups can be programmed by an installer or a system coordinator plus.

ring type

A feature that allows you to select one of four distinctive rings for your telephone.

ring volume

A feature that allows you to set the volume at which your telephone rings.

ringing service

A Services section that allows you to make additional telephones ring at specified times of the day and on specified days.

Rls button

Ends a call in the same way that hanging up the receiver does.

ROM (Read Only Memory)

Memory that stores data permanently. ROM contains instructions that the Enterprise Edge server needs to operate. The instructions stored in ROM cannot be changed and are used by the Enterprise Edge server each time it is turned on or restarted.

Routing

The path a message takes from its point of origin to its destination on a network or the Internet.

Routing service

A programming section that allows outgoing calls to be directed automatically based on the numbers a caller dials. For Enterprise Edge servers linked in a network, routing can create a transparent or coordinated dialing plan. It can also be used to direct calls to the least expensive lines according to a Services schedule (sometimes called least cost routing).

Run/Stop

A feature that creates a break point in a programmed external dialing sequence. When you press a programmed key, the system dials the number up to the run/stop. When you press it again, the system dials the digits following the run/stop.

S

SAPS

See station auxiliary power supply.

Saved Number Redial

A feature that allows you to save the number of the external call you are on (providing you dialed the call) so that you can call it again later.

Schedules

Any of six different sets of services that can be applied to your system. See Services.

Selective line redirection

See Line Redirection.

Serial port

A port that sends and receives data one bit at a time. This port can be used to connect the Enterprise Edge server to a printer, external modem or mouse. Serial port connector has nine pins and are designated by software with the letters COM and a single digit, such as COM1.

Service modes

See Services.

Services

A programming section that lets you assign which telephones ring, which restrictions apply, and which call routing is used during any of six different schedules. There are three services: Ringing service, Restriction service and Routing service, all found in Services programming.

set

A telephone.

Set Copy

A programming section that allows you to copy programmable settings from one telephone to another of the same type. Set Copy provides two options: duplicating System Data and User Data, or duplicating System Data only. Set Copy does not provide the same copy capability as COPY, which is more selective of the settings that can be duplicated.

Set filter

See Restriction filter.

Set lock (telephone lock)

This feature allows you to limit the number of features that may be used at a telephone. Full set lock allows very few changes or features, Partial set lock allows some changes and features, and No set lock allows any change to be made and any feature to be used. Set lock is assigned under Capabilities in Terminals and Sets programming.

Set relocation

See Automatic Telephone Relocation.

Software keys

A programming section used to enable the optional Remote monitoring feature. One setting provides a System ID, which an installer or system coordinator plus then uses to request three password keys from the Nortel Networks Customer Response Center. Once these three passwords have been entered, the system will permit Remote monitoring.

Startup programming

When an Enterprise Edge system is first installed and powered up, Startup programming must be performed before any programming can be done. Startup initializes the system programming to defaults.

Station

An individual telephone.

Station Auxiliary Power Supply (SAPS)

A device which provides power to a telephone that is connected more than 300 m (975 ft.) and less than 1200 m (3900 ft.) from the server, or to a CAP module.

Station set test

A series of diagnostic tests for these components of a telephone: display, buttons, handset, speaker, and power.

system data

An option in the Set Copy function. System Data refers to the programmable system settings that apply to all telephones and lines.

System programming

A programming section that lets you assign and maintain certain settings on the Enterprise Edge system.

System speed dial code

A two-digit code (01 to 70) that can be programmed to dial a telephone number up to 24 digits long. System speed dial codes are programmed for the entire system under the System Speed programming heading.

System Startup

See Startup programming.

T

T1

Digital carrier system or line that carries data at 1.544 Mbps.

Target lines

Lines used to answer incoming calls only. A target line routes a call according to digits it receives from an incoming trunk. They are referred to by line numbers in the same way as physical lines.

TE

See Terminal equipment.

TEI

See Terminal Endpoint Identifier.

Telco features

A programming section that lets you specify the external telephone numbers that are dialed by the Message feature to retrieve voice messages, or to set up CLASS (CMS) services for lines and telephone. Telco features are accessed by an installer or a system coordinator plus.

Terminal Endpoint Identifier

A digit used to identify devices which are using an ISDN connection for D-channel packet service.

Terminal equipment (TE)

A generic term for devices that connect to an ISDN network. Examples of ISDN TE are ISDN telephones, computers equipped with ISDN cards and video terminals.

Terminals and Sets

A programming section that lets you assign and change settings that apply to the telephones and other devices connected to the Enterprise Edge server. Terminals and Sets programming is performed by an installer or a system coordinator.

Time and date

A programming section that lets you manually change time or date.

Tone dial telephone

A push button telephone that emits DTMF tones.

Transfer

A feature that lets you redirect a call to another telephone in your Enterprise Edge system, over a network or outside your system.

Transfer Callback

If a transferred call is not answered after a specific number of rings, the call will return to the telephone that made the transfer. The number of rings is assigned under Feature settings in System programming. Transfer Callback does not apply to calls transferred externally.

Transmission Control Protocol/Internet Protocol (TCP/IP)

A language governing communication among all computers on the Internet.

TCP protocol checks packets of information for errors, submits requests for re-transmission in the event of errors and returns multiple packets of a message into the proper original sequence when the message reaches its destination.

IP dictates how packets are sent out over networks and has a packet addressing method that lets any computer on the Internet forward a packet to any other computer that is a step or more closer to the packet's recipient.

Trunk

The physical connection between the Enterprise Edge system and the outside world using either the public telephone system or a private network.

Trunk Answer

A feature you can use to answer a call on any line that has an active Ringing service Service Mode, even if that line does not appear on your telephone. Trunk Answer is enabled in Services programming.

U

Unsupervised line

A line for which disconnect supervision is disabled. If an external caller hangs up, the system does not detect the disconnection and does not hang up its line. See Disconnect Supervision.

User Data

User Data is an option in the Set Copy feature. User Data refers to the personal settings that are unique to an individual telephone, and are not programmed for the system. User Data is programmed at each telephone.

These settings, for example, include Personal Speed Dial and the assignment of programmable memory buttons.

User Filter

See Restriction filter.

User Preferences

A programming section that lets you assign autodialers, user speed dial codes, display contrast, and other settings to a specific telephone or person. You do not have to program these settings at the person's telephone. User preferences are assigned in Terminals and Sets programming.

User Speed Dial

Two-digit codes (71-94) can be programmed to dial external telephone numbers. User Speed Dial numbers are programmed for each telephone, and can be used only at the telephone on which they are programmed.

V

V.90

A data transmission standard used by the modem installed in the Enterprise Edge server. This standard allows data to be transmitted to the modem at 56 Kbps and transmitted from the modem at 33 Kbps.

Voice Call

A feature you can use to make an announcement or begin a conversation through the speaker of another telephone in the system. The telephone you call will not ring. Instead, the person you call will hear a beep and then your voice. Their telephone will beep periodically to remind them that their microphone is open.

Voice Call deny

A feature that prevents your telephone from receiving Voice Calls.

Voice message center

If you have subscribed to Call Display services you can receive visual Voice Message Waiting Indication, providing your telephone has a display. If you have Voice Message Waiting Indication, you can program the telephone numbers required to access up to five different Voice Message Centers. You can also program which of the five Centers is to be accessed by each specific line.

W

Wait for dial tone

A feature that causes of sequence of numbers to pause until dial tone is present on the line before continuing to dial. The Wait for dial tone symbol (■▪) uses two of the 24 spaces in a dialing sequence. This feature requires a Services or Combo Cartridge.

Wide Area Network (WAN)

A collection of computers or Enterprise Edge servers connected or networked to each other over long distances, typically using common carrier facilities.

wireless

See Companion.

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