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**Nortel Communication Server 1000**

Nortel Communication Server 1000 Release 5.0

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# **Communication Server 1000E**

## Installation and Commissioning

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## Revision history

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## How to get help

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This section explains how to get help for Nortel products and services.

### Getting help from the Nortel Web site

The best way to get technical support for Nortel products is from the Nortel Technical Support Web site:

[www.nortel.com/support](http://www.nortel.com/support)

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. More specifically, the site enables you to:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

### Getting help over the telephone from a Nortel Solutions Center

If you don't find the information you require on the Nortel Technical Support Web site, and have a Nortel support contract, you can also get help over the phone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following Web site to obtain the phone number for your region:

[www.nortel.com/callus](http://www.nortel.com/callus)

## **Getting help from a specialist by using an Express Routing Code**

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

[www.nortel.com/erc](http://www.nortel.com/erc)

## **Getting help through a Nortel distributor or reseller**

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.

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## Finding the latest updates on the Nortel web site

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The content of this documentation was current at the time the product was released. To check for updates to the latest documentation and software for CS 1000 Release 5.0, click one of the links below.

Latest Software	Takes you directly to the Nortel page for CS 1000 Release 5.0 software.
Latest Documentation	Takes you directly to the Nortel page for CS 1000 Release 5.0 documentation.



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## System information

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This document is a global document. Contact your system supplier or your Nortel representative to verify that the hardware and software described are supported in your area.

### Subject

This document provides the information necessary to install and configure a Nortel Networks Communication Server 1000E system.



#### **WARNING**

Before a CS 1000E system can be installed, a network assessment **must** be performed and the network must be VoIP-ready.

If the minimum VoIP network requirements are not met, the system will not operate properly.

For information on the minimum VoIP network requirements and converging a data network with VoIP, refer to *Converging the Data Network with VoIP* (NN43001-260).

#### **Note on legacy products and releases**

This NTP contains information about systems, components, and features that are compatible with Nortel Communication Server 1000 Release 5.0 software. For more information on legacy products and releases, click the

**Technical Documentation** link under **Support & Training** on the Nortel home page:

[www.nortel.com](http://www.nortel.com)

## Applicable systems

This document applies to the Communication Server 1000E (CS 1000E) system.

**Note:** When upgrading software, memory upgrades may be required on the Signaling Server, the Call Server, or both.

## Conventions

In this document, the CS 1000E system is referred to generically as “system.”

## Related information

This section lists information sources that relate to this document.

### NTPs

The following NTPs are referenced in this document:

- *Converging the Data Network with VoIP* (NN43001-260)
- *ISDN Primary Rate Interface: Installation and Configuration* (NN43001-301)
- *Circuit Card: Description and Installation* (NN43001-311)
- *IP Peer Networking: Installation and Commissioning* (NN43001-313)
- *Signaling Server: Installation and Commissioning* (NN43001-312)
- *IP Peer Networking: Installation and Commissioning* (NN43001-313)
- *ISDN Basic Rate Interface: Installation and Configuration* (NN43001-318)
- *Features and Services* (NN43001-106)
- *Software Input/Output: Administration* (NN43001-611)

- *Element Manager: System Administration* (NN43001-632)
- *IP Line: Description, Installation, and Operation* (NN43100-500)
- *Telephones and Consoles: Description, Installation, and Operation* (NN43001-567)
- *IP Phones: Description, Installation, and Operation* (NN43001-368)
- *Software Input/Output: Maintenance* (NN43001-711)
- *ISDN Primary Rate Interface: Maintenance* (NN43001-717)
- *ISDN Basic Rate Interface: Maintenance* (NN43001-718)
- *Communication Server 1000M and Meridian 1 Large System Upgrade NTPs* (NN43021-458 – NN43021-475)

### **Other documentation**

The following documentation is referenced in this document:

- Nordex BIX documentation
- Krone documentation

### **Online**

To access Nortel documentation online, click the **Technical Documentation** link under **Support & Training** on the Nortel home page:

[www.nortel.com](http://www.nortel.com)

### **CD-ROM**

To obtain Nortel documentation on CD-ROM, contact your Nortel customer representative.



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# Safety instructions

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## Contents

This section contains information on the following topics:

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## Introduction

Safety issues associated with the installation of a CS 1000E are identified in this section. To avoid personal injury and equipment damage, review the safety instructions before handling the equipment.



### **WARNING**

Failure to follow the safety instructions in this chapter could result in personal injury.



### **CAUTION — Damage to Equipment**

Failure to follow the safety instructions in this chapter could result in damage to equipment.

## Lifting system equipment

Care should be exercised when lifting system components. If necessary, get assistance to lift a component or install a component in a rack. The weight of the system component can be found in the component profiles in “System components” on [page 39](#).

Before lifting or installing a component:

- Ensure that the planned location and the route to that location are free of obstacles and debris.
- Determine the weight of the components (see component profiles in “System components” on [page 39](#)).
- Get help with heavy components or components that are to be placed in the upper section of a rack.

## Handling circuit cards



### CAUTION WITH ESDS DEVICES

Static electricity can damage circuit cards. Wear an antistatic wrist strap when handling circuit cards or their components.

Follow these precautions when handling circuit cards:

- 1 Unpack or handle cards away from electric motors, transformers, or similar machinery.
- 2 Handle cards by the edges only. Do not touch the contacts or components.
- 3 Set cards on a protective antistatic bag. If an antistatic bag is not available, hold the card or set it in a card slot unseated.
- 4 Store cards in protective packing.
- 5 Do not stack cards on top of each other unless they are packaged.
- 6 Wear a properly connected antistatic wrist strap when you work on the equipment.

## Installing telephones

Follow these safety instructions when installing telephone equipment:

- Never install telephone wiring during a lightning storm.
- Never install a telephone jack in wet locations unless the jack is designed for wet locations.
- Never touch an uninsulated telephone wire or terminal unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

## Using telephones

These safety precautions are intended to reduce the risk of fire, electric shock, and personal injury. Always follow these basic safety precautions when using telephone equipment:

- Follow all warnings and instructions marked on the product.
- Before you clean a telephone, remove the plug from the wall outlet. Use a damp cloth for cleaning. Do not use liquid cleaners or aerosol cleaners.
- Do not use the telephone near water (for example, near a tub or sink).
- Do not place the telephone on a piece of furniture that is unstable. The telephone can fall, causing serious damage to the telephone.
- Slots in the Media Gateway and the telephone are for ventilation. These slots protect the equipment from overheating. Never block or cover these slots.
- Never block the openings on a telephone by placing it on a surface like a bed, sofa, or rug. Never place a telephone near or over a radiator or heat register. Do not place it in a built-in installation, unless there is correct ventilation.
- Only operate a telephone from the type of power source indicated on the marking label. If you are not sure of the type of power supply, check with your distributor.

- Some equipment has a three-wire grounding plug. This type of plug has a third grounding pin. As a safety feature, the plug only fits into an isolated ground outlet. If you cannot insert the plug completely into the outlet, contact your electrician to replace the outlet.
- Some equipment has a polarized line plug. This type of plug has one blade wider than the other. As a safety feature, this plug fits into the power outlet one way. If you cannot insert the plug completely into the outlet, try reversing the plug. If the plug still does not fit, contact your electrician to replace the outlet.
- Do not place objects on the power cord. Do not locate the product where persons can walk on the plug.
- Do not overload wall outlets and extension cords, as fire or electrical shock can result.
- Never push objects of any kind into the telephone through the slots. The objects can come in contact with dangerous voltage points. Also, parts can short out, causing the risk of fire or electrical shock.
- Never spill liquid of any kind on the product.
- To reduce the risk of electrical shock, do not disassemble a telephone product.
- Remove the telephone plug from the wall outlet and refer servicing to qualified personnel if:
  - the power supply cord or plug is damaged or worn
  - liquid has spilled into the telephone
  - the telephone has been exposed to rain or water
  - the telephone has been dropped or damaged
  - the product shows a distinct change in performance
  - the telephone does not function correctly under normal operating conditions
- Avoid using a telephone (except a type without a cord) during an electrical storm. There is a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the area of the leak.

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# Installation summary

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## Contents

This section contains information on the following topics:

<a href="#">Introduction</a> . . . . .	35
<a href="#">Installation tasks</a> . . . . .	36

## Introduction



### WARNING

Before a CS 1000E system can be installed, a network assessment **must** be performed and the network must be VoIP-ready.

If the minimum VoIP network requirements are not met, the system will not operate properly.

For information on the minimum VoIP network requirements and converging a data network with VoIP, refer to *Converging the Data Network with VoIP* (NN43001-260).

Before undertaking the installation, review the chapter entitled “Safety instructions” on [page 31](#).

See “System components” on [page 39](#) to review the profiles of the key system components. For information on the models of telephones compatible with

the CS 1000E system, see “Installing and configuring Nortel IP Phones” on [page 393](#).

## Installation tasks

Table 1 lists the tasks involved with the installation of a CS 1000E system.

**Table 1**  
**List of required installation tasks (Part 1 of 2)**

Task	Go to page
Rack-mounting the components	<a href="#">81</a>
Installing system grounds	<a href="#">91</a>
Connecting CS 1000E system components	<a href="#">101</a>
Installing software on the CS 1000E	<a href="#">113</a>
Installing the Signaling Server software	<a href="#">201</a>
Configuring a terminal and SDI ports	<a href="#">279</a>
Connecting an IR-8020M-101 Terminal Server	<a href="#">251</a>
Connecting an MRV LX8020S-102AC-R Terminal Server	<a href="#">265</a>
Configuring the MG 1000E ports	<a href="#">153</a>
Installing and configuring a Voice Gateway Media Card	<a href="#">317</a>
Installing the Main Distribution Frame	<a href="#">351</a>
Configuring an IP telephony node	<a href="#">363</a>
Installing Line cards and cross-connecting telephones	<a href="#">381</a>
Installing and configuring Nortel IP Phones	<a href="#">393</a>
Installing and cross-connecting a trunk card	<a href="#">287</a>

**Table 1**  
**List of required installation tasks (Part 2 of 2)**

<b>Task</b>	<b>Go to page</b>
Installing and cross-connecting a Power Fail Transfer Unit	<a href="#">441</a>
Installing and cross-connecting an external alarm from a PFTU	<a href="#">455</a>
Configuring MG 1000T survivability and alternate primary controller	<a href="#">461</a>
Basic system telephony configuration	<a href="#">477</a>
Configuring IP Peer Networking and managing the Gatekeeper database	<a href="#">485</a>



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# System components

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## Contents

This section contains information on the following topics:

Introduction . . . . .	40
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Media Gateway Controller . . . . .	58
MC32S Media Card . . . . .	59
Media Gateway . . . . .	61
Media Gateway Expander . . . . .	67
19-inch Rack Mount Kit . . . . .	70
BayStack 470 Switch . . . . .	71
BayStack 460 Layer 2 switch . . . . .	73
MRV Terminal Server . . . . .	73
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System cables . . . . .	75
Miscellaneous system components . . . . .	78
Uninterruptible Power Supply . . . . .	79

## Introduction

### Supported configurations

The following CS 1000E system configurations for CS 1000 Release 5.0 are supported:

- CS 1000E Standard Availability (non redundant)
- CS 1000E High Availability (redundant)
- CS 1000E CP PIV processor option
- CS 1000E Cabinet option

#### **CS 1000E Standard Availability (non redundant)**

The CS 1000E Standard Availability system consists of the following components:

- CP PM Call Server
- Signaling Server
- MC32S Media Card
- Media Gateway Controller
- DSP Daughterboard
- Media Gateway
- Media Gateway Expander
- BayStack 470 Switch
- MRV Terminal Server
- System cables

*Note:* You must order the power cord specified for your region.

The system uses the following customer-supplied components:

- BayStack 460 Layer 2 switch

- 19-inch rack
- Uninterruptible Power Supply (UPS)

### **CS 1000E High Availability (redundant)**

The CS 1000E High Availability system consists of the following components:

- Dual CP PM Call Servers
- Dual CP PM Signaling Servers
- MC32S Media Card
- Media Gateway Controller
- DSP Daughterboard
- Media Gateway
- Media Gateway Expander
- BayStack 470 Switch
- MRV Terminal Server
- System cables

*Note:* You must order the power cord specified for your region

The system uses the following customer-supplied components:

- BayStack 460 Layer 2 switch
- 19-inch rack
- Uninterruptible Power Supply (UPS)

### **CS 1000E CP PIV processor option**

The CS 1000E CP PIV system consists of the following components:

- Call Server
- Signaling Server
- Media Card
- Media Gateway

- Media Gateway Expander
- BayStack 470 Switch
- MRV Terminal Server
- System cables

The system uses the following customer-supplied components:

- BayStack 460 Layer 2 switch
- 19-inch rack
- Uninterruptible Power Supply (UPS)

*Note:* You must order the power cord specified for your region

### **CS 1000E Cabinet option**

The CS 1000E Cabinet system consists of the following components:

- Single or Dual CP PM Call Servers
- Single or Dual CP PM Signaling Servers
- MC32S Media Card
- Media Gateway Controller (DSP Daughterboards)
- Media Gateway
- Media Gateway Expander
- BayStack 470 Switch
- MRV Terminal Server
- System cables

*Note:* You must order the power cord specified for your region

The system uses the following customer-supplied components:

- BayStack 460 Layer 2 switch
- 19-inch rack
- Uninterruptible Power Supply (UPS)

**Note:** For all configurations, a COTS Signaling Server may be an option.

## CS 1000E Common Processor Pentium Mobile Call Server

The Common Processor Pentium Mobile (CP PM) is a high performance server that can act as either a Call Server or a Signaling Server in a CS 1000E system.

There are two CP PM types available for CS 1000 Release 5.0: NTDW61BA and NTDW66AAE5. The NTDW61BA is used in the MG 1000E as either a

Call Server or a Signaling Server, while the NTDW66AAE5 is used strictly as a Signaling Server in the CS 1000M SG or CS 1000M MG.

The CPPM Call Server delivers capacity improvements by providing flexible scaling of the CS 1000E from 0 to 22,500 sets. Release 5.0 also introduces a modification to the CS 1000E architecture that allows for single and redundant processors, an option for the processor type, and customer choice in form factor for the Media Gateway.

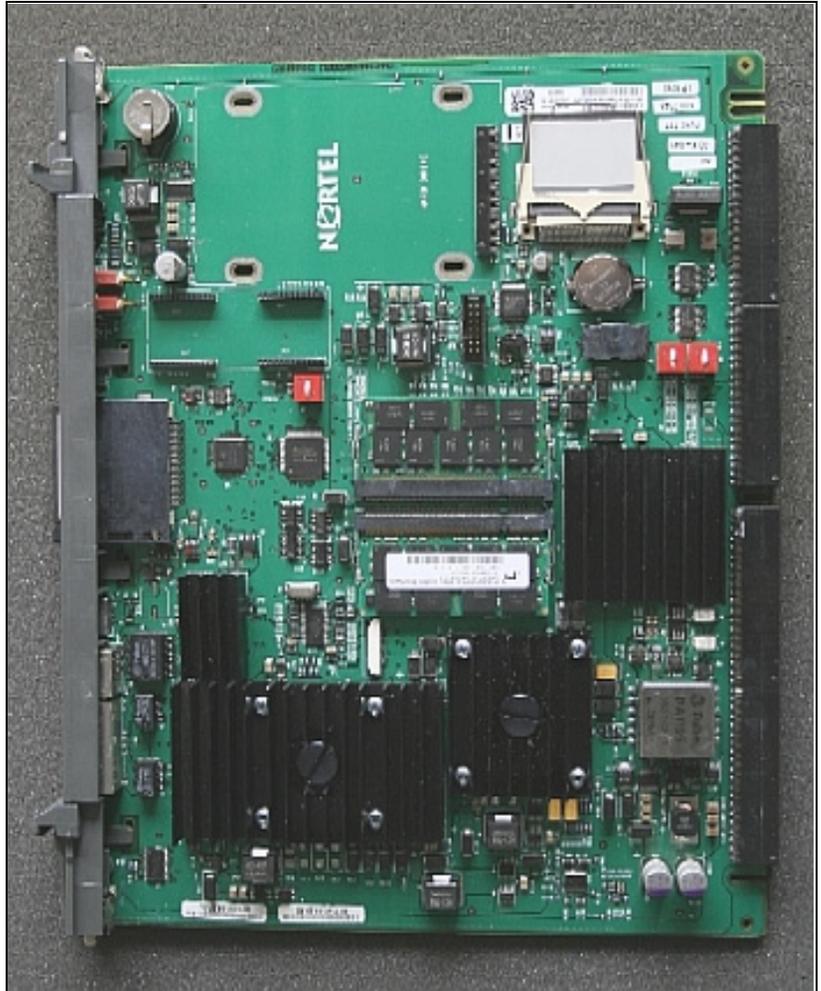
Customers may now deploy an existing or new Cabinet or Chassis as a MG 1000E. The CP PM may be deployed as a single call processor (Standard Availability CS 1000E) or in a redundant processor configuration (High Availability CS 1000E).

For more information about the CP PM Call Server, refer to *Circuit Card: Description and Installation* (NN43001-311).

**Figure 1**  
**CS 1000E CP PM Call Server**



**Figure 2**  
**CS 1000E CP PM Call Server (side view)**



### **Choosing the cabinet and slot location for the CP PM card**

An MG 1000E performs functions under the control of the CS 1000E Core CP PM Call Server. Traditionally, in CS 1000 Release 4.5, this core CP PM Call Server was a CP PII or CP PIV processor in its own Call Server chassis.

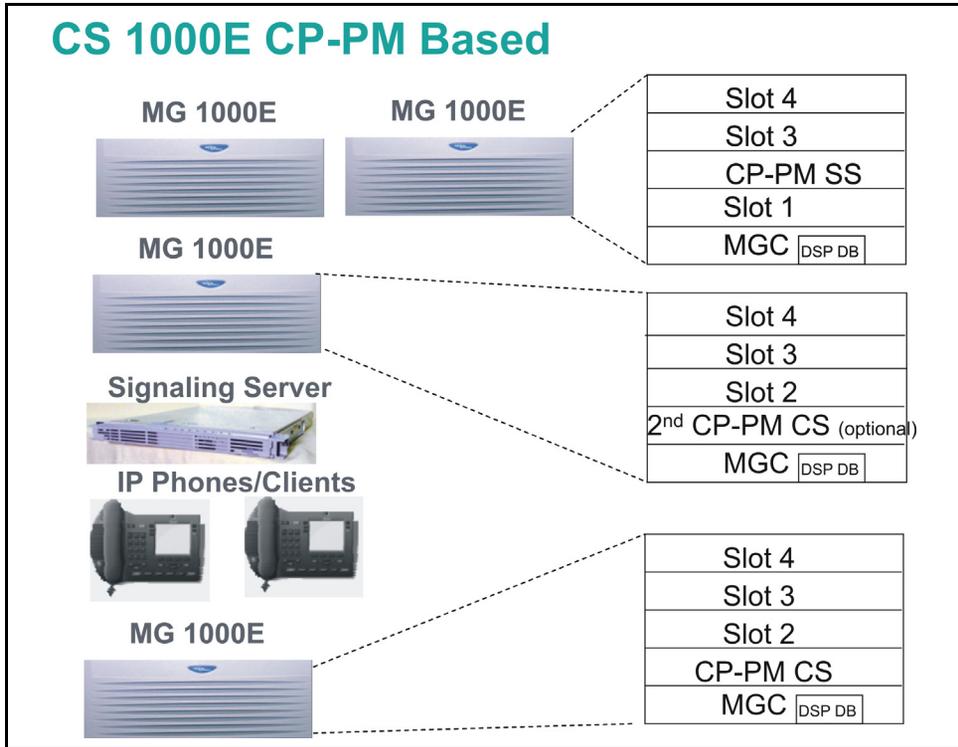
For CS 1000 Release 5.0, the CP PM call server processor sits in one of the slots in the MG1000E chassis.

The CP PM Call Server processor connects to the MG 1000E Media Gateway Controllers via Ethernet and therefore does not require backplane connectivity (other than power and slot ID). The following rules apply to the preferential placement of the CP PM call server in the MG 1000E:

- The CP PM call server processor must not be installed in slot 0 of any MG 1000E. This slot is reserved for the MG 1000E shelf controller card (the MGC or the SSC).
- To allow for ease of cabling, the CP PM call server processor can be installed in slot 1 next to the MGC or the SSC. The CP PM signaling server can be placed in slot 2.
- If utilizing the Campus Redundancy call server redundancy option, place the two CP PM call servers in separate MG 1000E cabinets to allow for increased survivability.

Figure 3 on [page 47](#) shows a CS 1000E CP PM Call Server system overview.

**Figure 3**  
**CS 1000E CP PM Call Server system overview**



## CP-PM Faceplate Components

The following section details the CP PM faceplate. Refer to Figure 4 on [page 50](#).

### Status LED

- Red: Hardware /BIOS
- Flashing Red: Bootrom and OS (before Sysload Phase1)
- Yellow: During Sysload Phase1
- Flashing Yellow: During Sysload Phase2

- Green: Normal Operation
- Flashing Green: SL1 Loading (on Active Core only)
- Off No Power

### **Call Server Redundancy LED**

- Green: Redundant Mode, Active
- Flashing Green: Split Mode, Active
- Yellow: Redundant Mode, Standby
- Flashing Yellow: Split Mode, Standby
- Red: Single Mode
- Off Not implemented

### **Ethernet Interface LEDs**

ELAN RJ45 left:

- Green: Link Up
- Blink Green: Link Up & Activity
- Off: No Link

ELAN RJ45 right:

- Off: 10 Mbps
- Yellow: 100 Mbps

HSP RJ45 left

- Green: Link Up
- Blink Green: Link Up & Activity
- Off: No Link

HSP RJ45 right

- Off: 10 Mbps
- Yellow: 100 Mbps
- Green: 1000 Mbps

### **Compact Flash/ Hard Disk LEDs**

- CF - Flashing Green shows activity on RMD
- HD/CF – Flashing Green shows activity on FMD (or HD for CP PM Signaling Server)

### **Faceplate Push Buttons**

- RST: Cold Start / SysLoad
- INI: Warm Start / INI

**Figure 4**  
**CS 1000E CP PM Call Server**



### **CP PM CS Serial Data Interface (SDI)**

The CP PM Call Server features two standard RS232 DTE serial ports, port 0 and port 1. These ports are accessible through a cable that attaches to the chassis or cabinet MDF port.

The TTY Settings are:

- Baud Rate: 9600
- Data bit: 8
- Stop bit: 1
- Parity: None
- Flow Control: None

## **CP PM Call Server Switch Settings**

The CP PM Call Server switch S5 must be set to position 1 to indicate that a CF card is used for the FMD.

The CP-PM Signaling Server switch S5 must be set to position 2 to indicate that a hard disk is used for the FMD.

## **CP PM Call Server software**

The CP PM Call Server software features the following enhancements for CS 1000 Release 5.0:

- software is large-system based
- uses the same machine type (711) as CP PII and CP PIV
- new system type (4021)
- new High Availability package (410)
- new menus for setting the Side, Loop and Shelf information. The Loop and Shelf refer to the IPMG Loop and Shelf where the CP PM CS is located.



### **IMPORTANT!**

The RMD used for installation must be created specifically for CP PM using the mkbootrmd utility provided in the CP PM Call Server install zip file. An RMD created using the CP PIV mkbootrmd utility will not work on a CP PM Call Server installation. CP PM hardware requires different bootrom.sys and nvram.sys files than CP PIV due to the differences in the processor chipset used on the two platforms.

## **CP PM Call Server Customer Database Transfer**

All CP PII databases must be copied from floppy disk to CF card using the existing Database Media Converter tool.

## **CP PM Call Server Keycode**

Keycode files reside in /keycode directory and have different names (no name restrictions) but the same extension '.kcd'. The following feature packages are required:

- 368 CPP\_CNI CP Pentium Backplane for Intel Machine
- 402 SOFT\_SWITCH
- 403 IPMG
- 390 SBO Branch Office
- 410 HIGH\_AVAIL High Availability

## **Signaling Server**

Multiple hardware versions of the Signaling Server are introduced for Release 5.0:

- 1U signaling servers
- CP PM Signaling Server

The existing ISPI100 Signaling Server is also supported for Release 5.0.

The ISP1100 Signaling Server, as shown in Figure 5 and described in Table 2, provides signaling interfaces to the network using software components that run on a real-time operating system. You can install ISP1100 Signaling Servers in a load-sharing redundant configuration for higher scalability and reliability.

The ISP1100 Signaling Server is equipped with several software components:

- IP Phone Terminal Proxy Server (TPS)
- H.323 Signaling Gateway (virtual trunk)
- H.323 Gatekeeper
- SIP
- Network Routing Service
- Element Manager web server

**Figure 5**  
**ISP1100 Signaling Server**



**Table 2**  
**ISP1100 Signaling Server profile (Part 1 of 3)**

Property	Description
Order Code	<ul style="list-style-type: none"> <li>• NTDU27</li> </ul>
Height	<ul style="list-style-type: none"> <li>• 1 U (1 U = 1 3/4 inch or 4.4 cm)</li> </ul>

**Table 2**  
**ISP1100 Signaling Server profile (Part 2 of 3)**

<b>Property</b>	<b>Description</b>
Power	<ul style="list-style-type: none"><li>• Power status indicator (green LED) is located on the unit's faceplate.</li><li>• Power cord connector is located on the left-hand corner on the back of the unit.</li><li>• Power On/Off switch is on the faceplate.</li><li>• Power supplies are factory installed and not customer replaceable.</li><li>• Unit is AC powered (100-240 VAC); DC input is not supported.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• Forced air cooling with front-to-back air flow.</li><li>• The fan runs whenever the unit is on.</li></ul>
Card slots	<ul style="list-style-type: none"><li>• None</li></ul>

**Table 2**  
**ISP1100 Signaling Server profile (Part 3 of 3)**

Property	Description
Connectors (front)	<ul style="list-style-type: none"> <li>• The DB-9 serial port, the CD-ROM and floppy drives are located on the unit's faceplate.</li> <li>• The DB-9 serial port can support a login session for Command Line Interface (CLI) management.</li> <li>• See Figure 6 on <a href="#">page 56</a>.</li> </ul>
Connectors (rear)	<ul style="list-style-type: none"> <li>• The TLAN network interface (P2) connects the unit to a TLAN network interface on a Layer 2 Switch.</li> <li>• The ELAN network interface (P1) connects the unit to an ELAN network interface on a Layer 2 Switch.</li> <li>• The DB-9 serial port can support a login session for Command Line Interface (CLI) management.</li> <li>• There are three ports not used for any CS 1000E system function. Do not plug any device into these ports.</li> <li>• See Figure 7 on <a href="#">page 57</a>.</li> </ul>

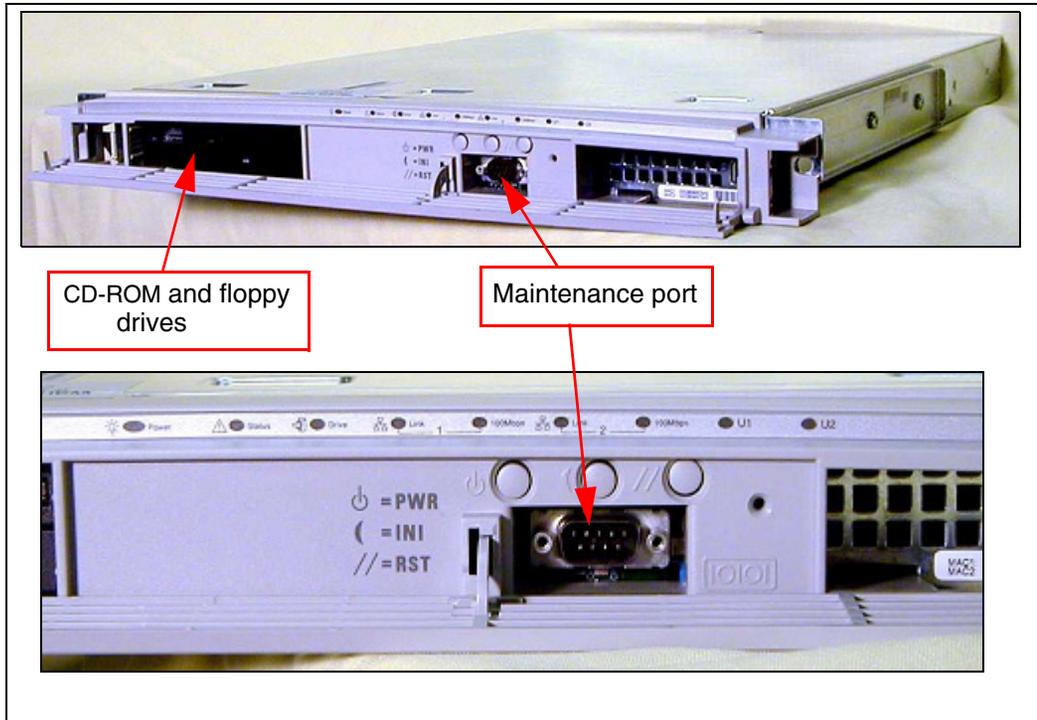


**CAUTION — Service Interruption**

Do not connect maintenance terminals or modems to the faceplate and I/O panel DB-9 male serial maintenance port at the same time.

For detailed information about the ISP1100 Signaling Server, refer to *Signaling Server: Installation and Commissioning* (NN43001-312).

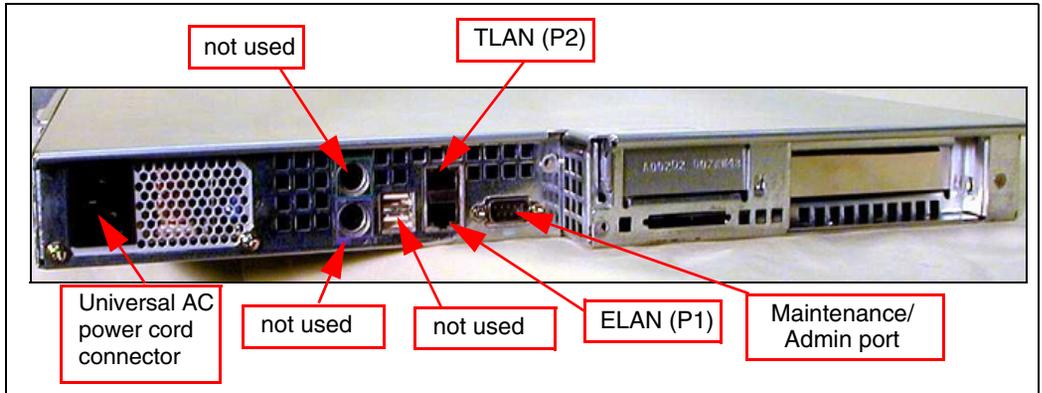
**Figure 6**  
**Connectors on the front of the ISP1100 Signaling Server**



CD-ROM and floppy drives

Maintenance port

**Figure 7**  
**Connectors at the back of the ISP1100 Signaling Server**



## CP PM Signaling Server

The CP PM Signaling Server is in the form of a circuit card and comes in two distinct models, NTDW61 and NTDW66. The NTDW61 model is designed for use in a CS 1000E system and the NTDW66 model is designed for use in a CS 1000M system.

### **IMPORTANT!**

There are several switches on CP PM circuit cards. All switch settings must be factory defaults except for the switch labelled "S5". Switch S5 must be set to position 2 to support the internal hard drive used on the CP PM Signaling Server circuit cards only.

### **Installation in a CS 1000E system**

The NTDW61 model of the CP PM Signaling Server circuit card can be inserted into any slot of an IPMG (MG 1000E or MG 1000B) or 11C cabinet in a CS 1000E system, except slot 0. Slot 0 is reserved for an SSC or an MGC.

Keying will prevent the NTDW61 circuit card from being inserted into this slot.



**CAUTION — Equipment Damage**

Do not insert the NTDW61 model of the CP PM Signaling Server circuit card into any slot of an IPE cube. Doing so may cause electrical shorts on adjacent circuit cards.

For detailed Signaling Server information, see “Installing a Signaling Server” on [page 163](#).

## Media Gateway Controller

The Media Gateway Controller (MGC) Card is designed to replace the gateway functionality of the SSC. It does not function as a Call Server, requiring a separate Pentium based Call Server to handle call processing requests. The MGC Card replaces the SSC in the CPU card position of an Option 11C cabinet or an MG 1000E chassis, both for upgrades and new installations. The MGC Card Supports legacy backplane interfaces (DS30x, CEMUX). Key features include:

- Increased Processing Power (10x over SSC)
- Increased memory capacity (128Meg vs SSC 32Meg)
- Standard Compact Flash used for permanent storage
- 2 PMC/PTMC Expansion Daughter board sites available
- Embedded L2 Switch supports enhanced dual homing
- Enables co-resident applications (Voice Gateway and Media Gateway Controller)

## DSP Daughterboards (optional)

Two optional DSP Daughterboards are introduced for the MGC Card, the NTDW62AA 32-port DSP daughterboard and the NTDW64AA 96-port DSP

daughterboard. These daughterboards provide DSP resources for connecting IP and TDM devices, eliminating the need for installing Voice Gateway Media Cards on the CS 1000E Media Gateways. However, Voice Gateway Media Cards are still supported in CS 1000E.

## MC32S Media Card

The MC32S is a 32-channel Voice Gateway Media Card that provides 32 Digital Signal Processor (DSP) ports to facilitate connectivity between IP and TDM devices.

This media card replaces the existing 32-port Voice Gateway Media Card and enables Secure Real Time Protocol (SRTP) to encrypt the IP media path to and from all DSP channels on the MC32S. The MC32S also provides improved echo performance over the existing media card.

## Media Card

The Media Card, described in Table 3 and shown in Figure 8, connects an IP and circuit-switched device using Digital Signal Processors (DSPs) for either line or trunk applications. The DSPs, enabled by a Voice Gateway application, performs media transcoding between IP voice packets and circuit-switched devices.

The Media Card also provides echo cancellation and compression/decompression of voice streams.

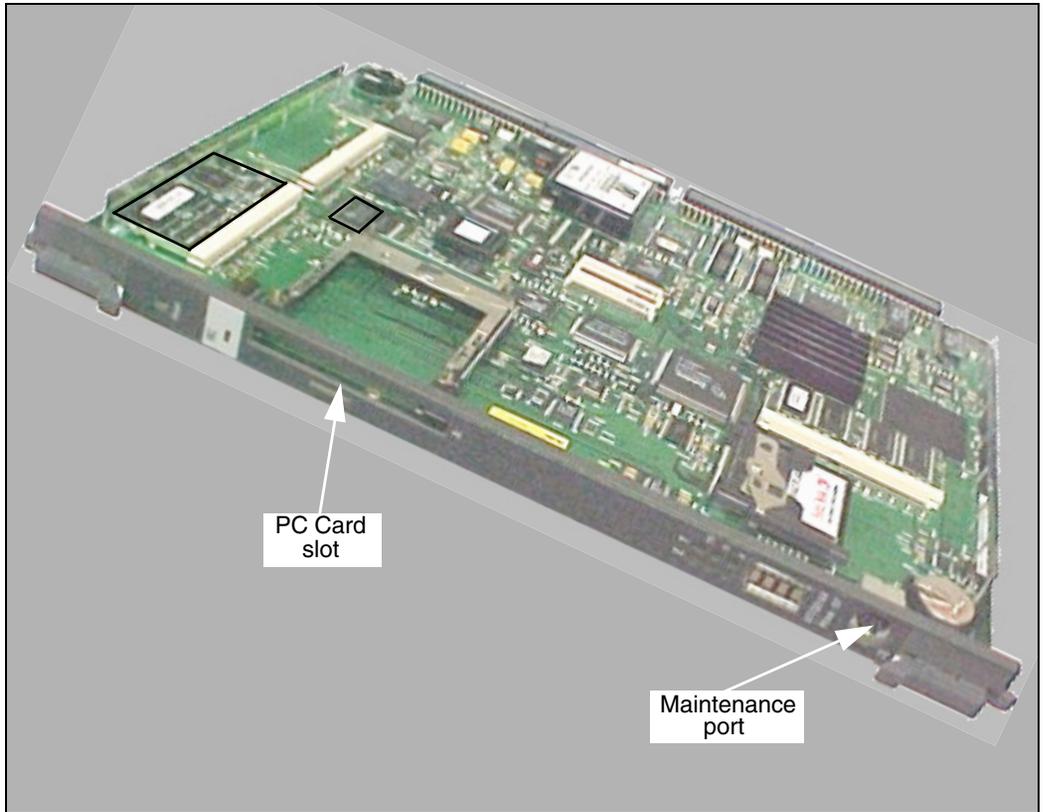
**Table 3**  
**Media Card profile (Part 1 of 2)**

Property	Description
Product Code	<ul style="list-style-type: none"> <li>NTDU41DA Media Card 32 Port IP Line 3.1/Voice Gateway</li> <li>NTDU41DB Media Card 8 Port IP Line 3.1/Voice Gateway</li> </ul>
Power	<ul style="list-style-type: none"> <li>Powered through a Media Gateway or a Media Gateway Expander.</li> </ul>

**Table 3**  
**Media Card profile (Part 2 of 2)**

<b>Property</b>	<b>Description</b>
Cooling	<ul style="list-style-type: none"><li>• Provided by the Media Gateway or Media Gateway Expander.</li></ul>
Connectors (front)	<ul style="list-style-type: none"><li>• The PC Card slot can be used to deliver software or for additional storage.</li><li>• The maintenance port provides access to the card for OA&amp;M purposes.</li></ul>
Connectors (back)	<ul style="list-style-type: none"><li>• The Shielded 50-pin to Serial/ELAN/TLAN adapter provides connections to the card through the connector labelled Card 1, Card 2, Card 3, or Card 4 that corresponds to the card location.</li><li>• See Figure 24 on <a href="#">page 108</a>.</li></ul>

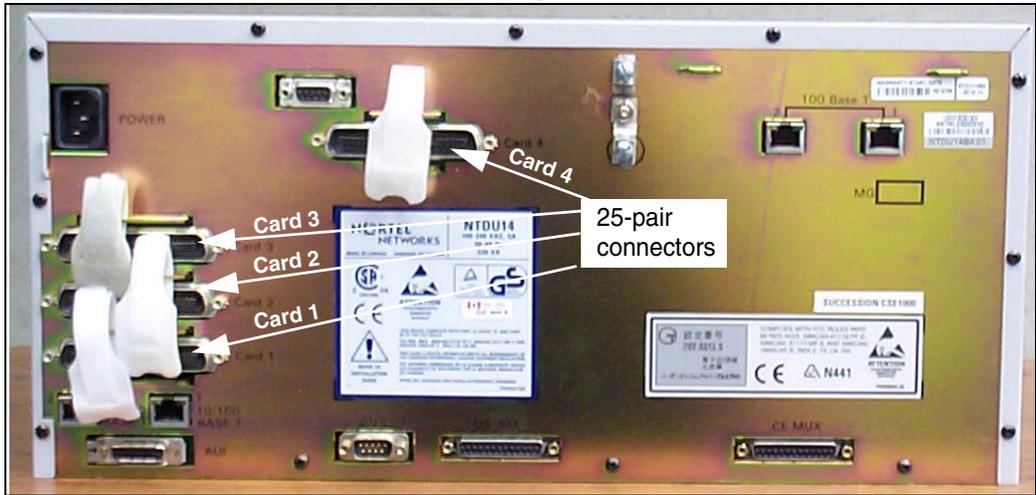
**Figure 8**  
**Media Card**



## Media Gateway

The media gateway is shown in Figure 9 on [page 62](#) and described Table 4 on [page 62](#).

**Figure 9**  
**5-pair Cable Connectors on the Media Gateway**





**CAUTION — Damage to Equipment**  
 Do not block equipment ventilation openings.

**Table 4**  
**Media Gateway profile (Part 1 of 3)**

Property	Description
Product Code	<ul style="list-style-type: none"> <li>NTDU14</li> </ul>
Height	<ul style="list-style-type: none"> <li>less than 5 U (1 U = 1 3/4 inch or 4.4 cm)</li> </ul>

**Table 4**  
**Media Gateway profile (Part 2 of 3)**

Property	Description
Power	<ul style="list-style-type: none"> <li>• Power status indicator (Nortel logo) is located on the unit faceplate.</li> <li>• Power cord connector is located on the right rear when viewed from the front.</li> <li>• Power On/Off switch is located behind the faceplate. See Figure 10 on <a href="#">page 66</a>.</li> <li>• Power supplies are factory installed and not customer replaceable.</li> <li>• Unit is AC powered (100-240 VAC); DC is not supported.</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Forced air cooling with side-to-side air flow.</li> <li>• The fans are temperature controlled. The fans run at a reduced speed at room temperature.</li> <li>• Ensure that equipment ventilation openings are not blocked.</li> </ul>
Card slots	<ul style="list-style-type: none"> <li>• Four usable universal card slots: 1 to 4.</li> <li>• Slot 0 is dedicated to the NTDK20FA or later SSC.</li> <li>• Slots 1 to 4 support: <ul style="list-style-type: none"> <li>— Digital Line cards (maximum four)</li> <li>— Analog Line cards (maximum four)</li> <li>— Analog Trunk cards (maximum four)</li> <li>— Digital Trunk cards (maximum four)</li> </ul> </li> </ul> <p><b>Note:</b> Each MG 1000T with digital trunks must have a clock controller.</p> <ul style="list-style-type: none"> <li>— Media Cards (maximum four)</li> <li>— Application cards (maximum four)</li> </ul>

**Table 4**  
**Media Gateway profile (Part 3 of 3)**

Property	Description
Connectors (rear)	<ul style="list-style-type: none"> <li>• The 25-pair cable connectors at the back panel (see Figure 9 on <a href="#">page 62</a>) provide access to the cross-connect terminal (Main Distribution Frame).</li> <li>• The AUX port connects a Power Failure Transfer Unit (PFTU) to the Media Gateway.</li> <li>• The MG 1000T link ports connect the MG 1000T Expansion to the MG 1000T Core. Port 1 and Port 2 correspond with bulkhead connectors 1 and 2, shown in Figure 10 on <a href="#">page 66</a>.</li> <li>• The ELAN network interface connects the MG 1000T Core SSC to the ELAN subnet. Port 2 is not used.</li> <li>• The Attachment Unit Interface (AUI) is used with earlier version SSC which require a Media Access Unit (MAU).</li> <li>• The SDI connector in the Media Gateway provides an interface for a three-port SDI cable. The three-port cable is used in an MG 1000T to break out into TTY0, TTY1, and TTY2. For MG 1000E this cable is not used unless a maintenance access using TTY0 is desired.</li> <li>• The DS-30X and CE-MUX cables connect the Media Gateway to the Media Gateway Expander.</li> </ul>
DIP switches	<ul style="list-style-type: none"> <li>• DIP switches are available to set the ringing voltages, ringing frequencies, and message waiting voltages. See Figure 10 on <a href="#">page 66</a>.</li> </ul>

**Figure 7**  
**Connectors at the back of the Media Gateway**

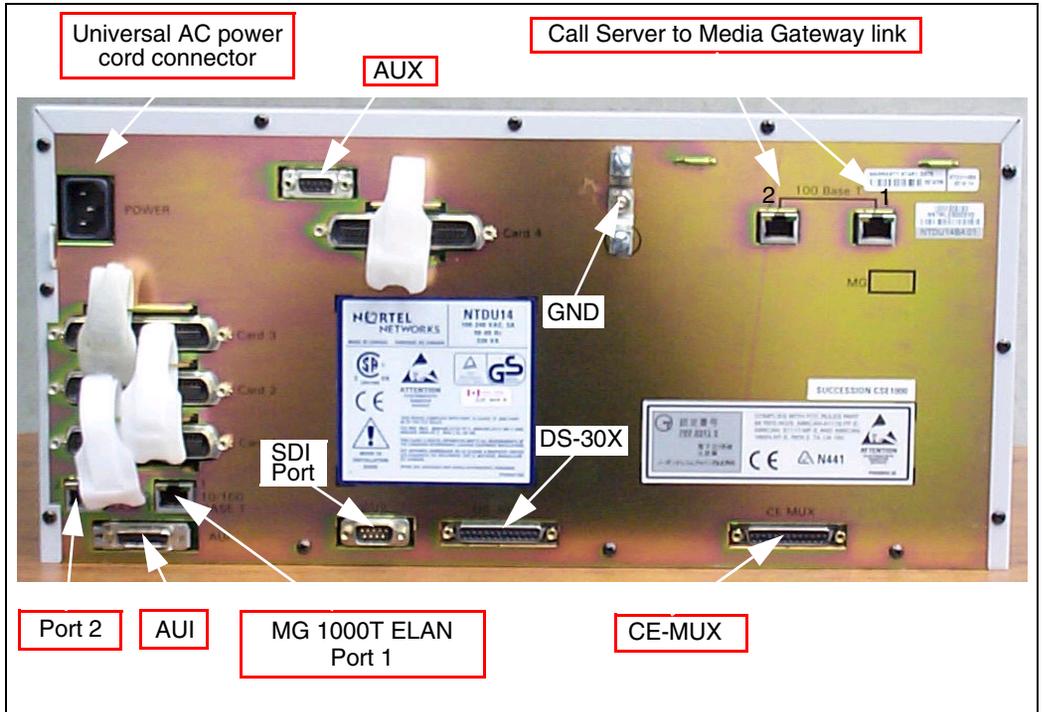
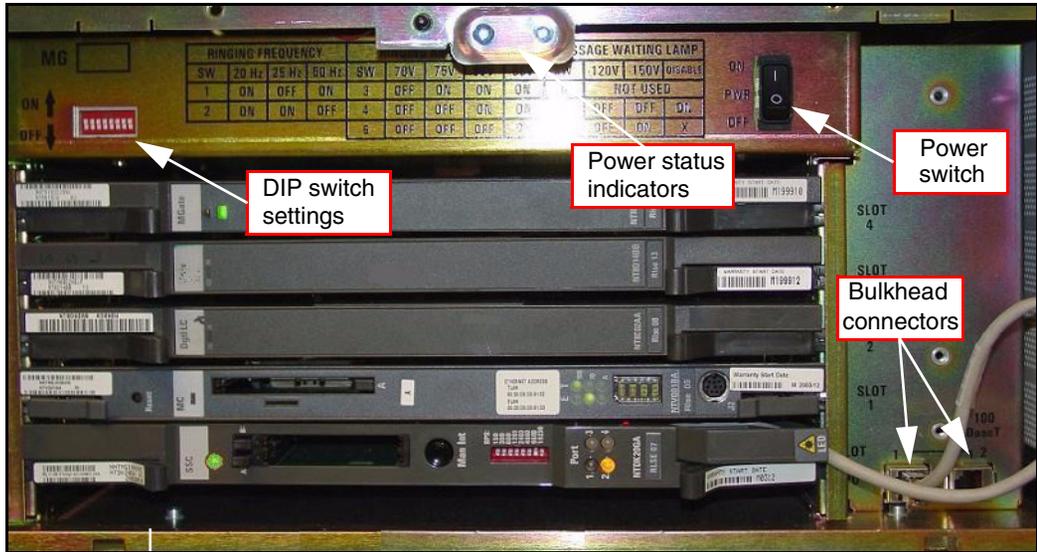


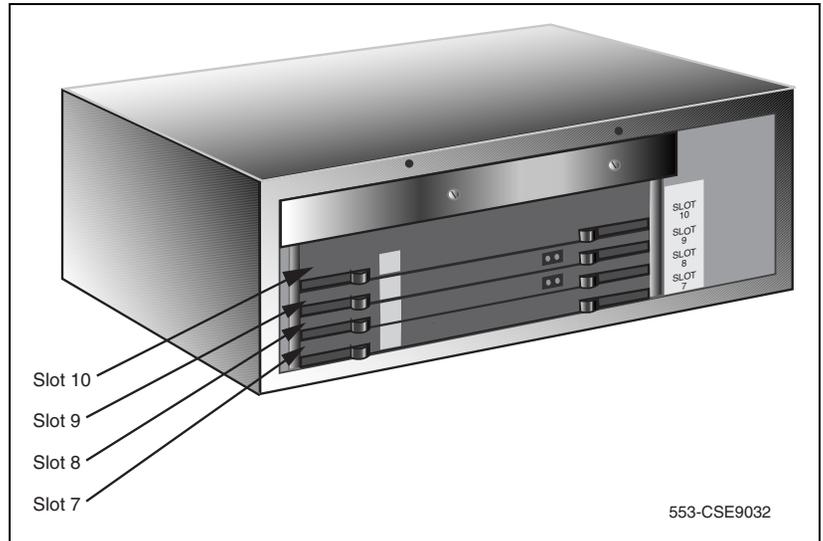
Figure 10  
Front of the Media Gateway



## Media Gateway Expander

Figure 11 on [page 67](#) shows the Media Gateway Expander and Table 5 on [page 67](#) describes the expander.

**Figure 11**  
**Media Gateway Expander**



**Table 5**  
**Media Gateway Expander profile (Part 1 of 3)**

Property	Description
Order Code	<ul style="list-style-type: none"> <li>NTDU15</li> </ul>
Height	<ul style="list-style-type: none"> <li>less than 5 U (1 U = 1 3/4 inch or 4.4 cm)</li> </ul>

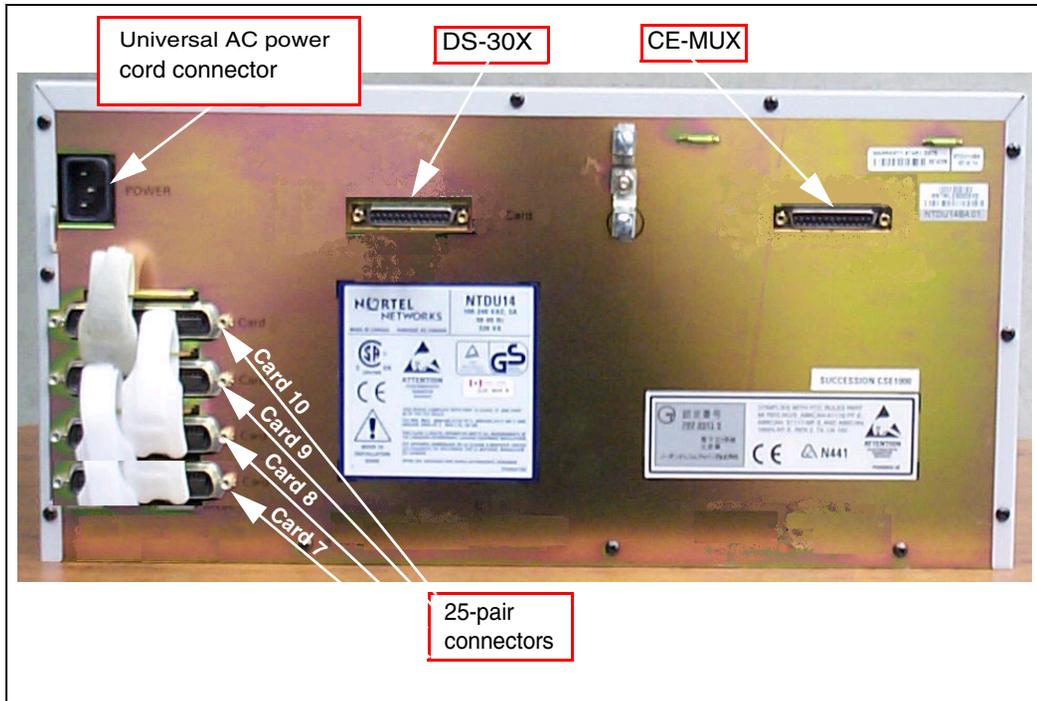
**Table 5**  
**Media Gateway Expander profile (Part 2 of 3)**

<b>Property</b>	<b>Description</b>
Power	<ul style="list-style-type: none"><li>• Power status indicator (Nortel logo) is located on the unit's faceplate.</li><li>• Power cord connector is located on the right rear when viewed from the front.</li><li>• Power On/Off switch is located behind the faceplate. See Figure 10 on <a href="#">page 66</a>.</li><li>• Power supplies are factory installed and not customer replaceable.</li><li>• Unit is AC powered (100-240 VAC); DC is not supported.</li></ul>
Cooling	<ul style="list-style-type: none"><li>• Forced air cooling with side-to-side air flow.</li><li>• The fans are temperature controlled. The fans run at a reduced speed at room temperature.</li><li>• Ensure that equipment ventilation openings are not blocked.</li></ul>

**Table 5**  
**Media Gateway Expander profile (Part 3 of 3)**

Property	Description
Card slots	<ul style="list-style-type: none"> <li>• Four usable universal card slots: 7 to 10. See Figure 11 on <a href="#">page 67</a>.</li> <li>• Logical slots 5 and 6 are not supported.</li> <li>• Slots 7 to 10 support:               <ul style="list-style-type: none"> <li>— Analog Trunk cards (maximum four)</li> <li>— Analog Line cards (maximum four)</li> <li>— Digital Line cards (maximum four)</li> <li>— Media Cards (maximum four)</li> <li>— Application cards (maximum four)</li> </ul> </li> </ul>
Connectors (rear)	<ul style="list-style-type: none"> <li>• The 25-pair cable connectors at the back of the unit (see Figure 12 on <a href="#">page 70</a>) provide access to the cross-connect terminal (Main Distribution Frame). A Shielded 50-pin to Serial/ELAN/TLAN adapter can also be used.</li> <li>• The AUX port connects a Power Failure Transfer Unit (PFTU).</li> <li>• The DS-30X and CE-MUX cables connect the Media Gateway to the Media Gateway Expander.</li> </ul>

**Figure 12**  
**Connectors at the back of the Media Gateway Expander**



## 19-inch Rack Mount Kit

A 19-inch Rack Mount Kit (NTTK09AA) is available for mounting a Media Gateway and Media Gateway Expander in a 19-inch rack. It is described in Table 6 on [page 70](#)

**Table 6**  
**NTTK09AA installation**

Order Code	Description	Qty
P0904844	Left Rack Mount Bracket	1
P0904845	Right Rack Mount Bracket	1

**Table 6**  
**NTTK09AA installation**

Order Code	Description	Qty
P0906672	Left Shelf Mounting Bracket U/O	1
P097F813	Screw, .216- 24 X .500 STL 289A	8
P0719943	Sems, Ext Tooth Washer Pan Head, CR Type1A, 0.164- 32 X	4
P0906671	Right Shelf Mounting Bracket U/O	1
P0719587	Sems, Ext Tooth Washer Pan Head, CR Type 1A, 0.138- 3	4

## BayStack 470 Switch

The BayStack 470 Switch, described in Table 7 on [page 71](#), provides policy-enabled networking features to optimize consistent performance and behavior of network traffic. The Differentiated Services (DiffServ) network architecture offers varied levels of service for different types of data traffic. DiffServ lets you designate a specific level of performance on a per-packet basis.

**Table 7**  
**BayStack 470 Switch profile (Part 1 of 2)**

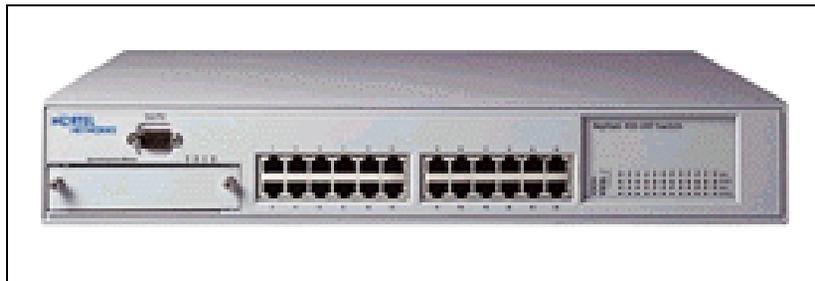
Property	Description
Height	<ul style="list-style-type: none"> <li>1 U (1 U = 1 3/4 inch or 4.4 cm)</li> </ul>
Power	<ul style="list-style-type: none"> <li>Power status LED indicator on the left side of the unit's faceplate.</li> <li>Power cord connector is located at the left rear of the unit.</li> <li>Power supplies are factory installed and not customer replaceable.</li> <li>Unit does not support DC input.</li> </ul>

**Table 7**  
**BayStack 470 Switch profile (Part 2 of 2)**

Property	Description
Cooling	<ul style="list-style-type: none"><li>Forced air cooling with side-to-side air flow.</li><li>The three fans run whenever the unit is on.</li></ul>
Card slots	<ul style="list-style-type: none"><li>None</li></ul>
Connectors (front)	<ul style="list-style-type: none"><li>Unit is DCE for serial port connection to PC; requires null modem for Terminal Server connection.</li><li>Console port default settings: 9600 baud with 8 data bits, 1 stop bit, and no parity as the communications format, with flow control set to enabled.</li><li>10BaseT/100BaseTX RJ-45 (8-pin modular) port connectors.</li></ul>

For additional information, refer to *Using the BayStack 470 Switch*.

**Figure 13**  
**Ethernet switch**



A third-party data network switch can be used with the system. For more information, refer to *Converging the Data Network with VoIP* (NN43001-260).

## BayStack 460 Layer 2 switch

The BayStack 460 Layer 2 switch, shown in Figure 14 on [page 73](#), adds power in addition to data communications over standard Category 5 LAN drops for powering the IP Phones. The LAN power system eliminates the need to connect each telephone to an AC power outlet saving in desktop wiring and also allowing centralized UPSs for power backups. Using a Power over LAN unit eliminates the need to use separate power transformers for each IP Phone.

**Figure 14**  
**Power over LAN unit**



## MRV Terminal Server

The Terminal Server, described in Table 8 on page 74, provides the dedicated rlogin service used to establish serial connection between a CS 1000E and various serial devices. The IP-based Terminal Server provides standard serial ports for applications that use a serial port interface. These applications include billing systems that analyze Call Detail Recording (CDR) records, Site Event Buffers (SEB) that track fault conditions, and various legacy applications such as Property Management System (PMS) interface and intercept Computer applications. In addition, serial ports are used to connect maintenance terminals and modems for support staff.

The Terminal Server is configured to automatically log in to the active Core CP PM Call Server upon start-up. It always connects to the Active CPU IP address.

The CS 1000E can configure up to 16 serial ports for applications within the configuration Data Block. Ports can be configured by using:

- login userid of "PTY $nn$ " – TTY ports are specified where  $nn$  is the PTY port number configured for a particular TTY within LD 17. If a "PTY $nn$ " userid is specified and that port is busy because of another login, an error message will be produced (on the maintenance consoles, in the report log, or as SNMP alarms).
- nouserid or the OTM userid – the highest available PTY port number is selected

The Terminal Server has the following attributes:

- support "rlogin" protocol on local access mode
- support transparent, or binary mode, on "rlogin" connection
- support port speed up to 115kbps
- support auto rlogin connection and auto-retry after being disconnected
- support BOOTP
- support DHCP
- rack mounted to a 19-inch rack
- provide configurable username for each port

**Table 8**  
**MRV IR-8020M Terminal Server profile (Part 1 of 2)**

Property	Description
Product Code	NTVW00AB
Height	<ul style="list-style-type: none"><li>• 1 U (1 U = 1 3/4 inch or 4.4 cm)</li></ul>

**Table 8**  
**MRV IR-8020M Terminal Server profile (Part 2 of 2)**

Property	Description
Power	<ul style="list-style-type: none"> <li>Power cord connector is located on the left-hand corner on the unit's backplane.</li> <li>Power supplies are factory installed and not customer replaceable.</li> <li>Unit is AC powered (120 V AV @ 1.58 amps).</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>Forced air cooling with side-to-side air flow.</li> <li>The fans run at a single speed.</li> <li>Ensure that equipment ventilation openings are not blocked.</li> </ul>
Card slots	<ul style="list-style-type: none"> <li>None</li> </ul>
Connectors	<ul style="list-style-type: none"> <li>Twenty console ports for modular RJ-45 connectors</li> <li>One RJ-45 (10BaseT) network interface</li> </ul>

## 19-inch rack

All CS 1000E system components are mounted in a customer-supplied 19-inch rack. Ground the rack and equipment to the NTDU6201 Ground Bar.

## System cables

Table 9 on [page 76](#) lists the cables required with the CS 1000E system.

The base marketing package NTHU53AA provides an NTRC17 crossover cable to connect the LAN2 ports of the two core CP PM Call Servers. It also contains two MRV Terminal Server cables (NTDU6302) to connect from COM port 1 of both core CP PM Call Servers to the MRV Terminal Server.

**Note:** Order the proper power cord for your region.

**Table 9**  
**CS 1000E cables (Part 1 of 3)**

Component Descriptions	Cable Kits	Cables & Accessories	Quantity
Qty of 2 MRV Terminal Server cables for connecting COM port 1 of the CP PM Call Server to the Terminal Server		NTDU6302	2
HS cross-over cable used to connect the two call processors for redundancy.		NTRC17BA	1
<i>Media Gateway/Media Gateway Expander</i>			
Media Gateway cable kit	NTDU25BA		
PC Maintenance Cable for accessing media card from the faceplate		NTAG81CA	1
Three-Port SDI cable for connecting MG 1000T to administration and maintenance ports. Can be used for MG 1000Es during initial configuration.		NTBK48AA	1
AUX cable for Power Failure Transfer if required		NTAK1104	1
25 pin M-F adapter, can be used with the NTBK48AA cable for interconnecting to TTY ports		A0601396	1
25 pin F-F adapter, can be used with the NTBK48AA cable for interconnecting to TTY ports		A0601397	1
Wrist strap		A0783105	1
25 pin F-F Null modem adapter, can be used with the NTBK48AA cable for interconnecting to TTY ports		A0378652	
25 pin M-F Null modem adapter, can be used with the NTBK48AA cable for interconnecting to TTY ports		A0381016	
RJ45 ethernet cable, used to connect dual and single port 100BT daughter cards from the SSC to the Media Gateway bulk head		NTDU0606	
Expansion cable kit	NTDK89AA		

**Table 9**  
**CS 1000E cables (Part 2 of 3)**

Component Descriptions	Cable Kits	Cables & Accessories	Quantity
Expansion cable to connect the Media Gateway DS-30 and CE-MUX to the Media Gateway Expander.		NTDK95AA	2
Disposable wrist strap		A0783105	1
100BaseT Cross Over Cable, for connecting MG 1000Ts point to point		NTTK34AA	1
100BaseT Connection			
Signaling Servers, Layer two switch (BS 470), Carrier Cards, ELAN on Gateways		CAT5 Cables	
<i>MRV Terminal Server</i>			
RJ45 to 9-pin female RS232, 25 feet long, for connecting terminal equipment to the MRV Terminal Server		NTVW01iX	
Terminal server cable kit for interfacing with various terminal ports (that is, Signaling Server, Baystack or Gateway using BK48 cable)	NTDU6303		
MRV Terminal Server cable for connecting various Terminal Equipment to the Terminal Server		NTDU6302	1
9-pin male to 9-pin female Null Modem adapter for use where connecting to DCE connections		N0007485	1
25 to 9-pin male adapter to interface with NTBK48AA cable if desired		N0007488	1
<i>Power cords</i>			
North American power Cord		NTTK14AB	
UK power cord		NTTK18AB	
Euro power cord		NTTK16AB	

**Table 9**  
**CS 1000E cables (Part 3 of 3)**

Component Descriptions	Cable Kits	Cables & Accessories	Quantity
ANZ power cord		NTTK15AA	
Swiss power cord		NTTK17AB	
Denmark power cord		NTTK22AB	

## Miscellaneous system components

Table 10 contains a list of miscellaneous items that can be used with the CS 1000E system installation.

**Table 10**  
**Miscellaneous components**

Order Code	Description	Purpose
QUA6A	Power Failure Transfer Unit	To transfer trunk lines during a power failure
NTBK80BA	Ground bar	Ground Bar Option 11C for same room AC Cabinets (1 per system and 2 or more cabinets)
NTDU6201	Ground bar	Ground Bar/LRE - Large
NT6D5304	Ground bar	Ground Bar/LRE - Small
NTAK92BA	External Protection Device	Protects up to four off-premises analog (500/2500-type) telephones
NT1R20BA	Extended Line card Off-Premises	Connects up to eight off-premises analog (500/2500-type) telephones

## Uninterruptible Power Supply

Use an Uninterruptible Power Supply (UPS) to provide a backup power supply for:

- CS 1000E (Core CP PM Call Server 0 and Core CP PM Call Server 1)
- Media Gateway
- Media Gateway Expander
- Signaling Server
- MRV Terminal Server
- BayStack 470-24T
- BayStack 470-48T
- BayStack 460 with Power over LAN

A UPS provides a continuous AC power supply. Refer to *Communication Server 1000E: Planning and Engineering* (NN43041-220) for calculating power consumption requirements.

Install the UPS unit according to the manufacturer's instructions.



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# Rack-mounting the components

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## Contents

This section contains information on the following topics:

<a href="#">Introduction . . . . .</a>	81
<a href="#">Lifting system components . . . . .</a>	82
<a href="#">Guidelines for component placement in a rack . . . . .</a>	83
<a href="#">Rack-mounting a Media Gateway or Media Gateway Expander . . . . .</a>	84
<a href="#">Rack-mounting a Terminal Server . . . . .</a>	90
<a href="#">Rack-mounting a BayStack 470 Switch . . . . .</a>	90
<a href="#">Rack-mounting a BayStack 460 Power over Ethernet unit . . . . .</a>	90

## Introduction

All CS 1000E system components are installed in a customer-supplied, 19-inch rack. Also refer to the equipment layout plan and card slot assignment plan for additional information.

Component air circulation is either from front to back or from side to side. Therefore, components can be mounted immediately above or below an installed component. The rack's u pattern provides adequate clearance between components. For example, a Media Gateway Expander could be installed in the next 5u pattern of mounting holes below an already installed Media Gateway. The Media Gateway Expander would be approximately 1/4 in from the Media Gateway.

**Note:** In the 5u pattern, a “u” is equal to 1.75 in. and includes three holes spaced at 5/8 in. + 5/8 in. + 1/2 in.

Other data communications equipment can be installed in a rack with CS 1000E system components.

**IMPORTANT!**

Ensure that the unit’s power cord is appropriate for the area’s electrical service. Do not modify or use the supplied AC power cord if it is not the correct type.

This chapter contains the following procedures:

- Procedure 1: "Removing the cover" on [page 84](#)
- Procedure 2: "Rack-mounting a Media Gateway or Media Gateway Expander" on [page 86](#)

## Lifting system components

Exercise care when lifting system components. If necessary, get assistance to lift a component or install components in a rack. Table 11 on page 82 lists the CS 1000E system components provided by Nortel and the weight of each component. Consult the manufacturer’s documentation for the weight of other components installed during the CS 1000E system installation.

**Table 11**  
**Weight of CS 1000E system components (Part 1 of 2)**

Component	Lbs	Kg
ISP1100 Signaling Server	23	10.5
Media Gateway without cards		
— with 4 cards	26	12
	30	13.5

**Table 11**  
**Weight of CS 1000E system components (Part 2 of 2)**

Component	Lbs	Kg
Media Gateway Expander		
— without cards	26	12
— with 4 cards	30	13.5
BayStack 470 Switch	14.7	6.7
BayStack 460 Power over Ethernet Switch	12.76	5.8
MRV Terminal Server	11	5

## Guidelines for component placement in a rack

When installing equipment, the Layer two switches should be in a central location to allow for easy access of all LAN cabling. The Media Gateways and Media Gateway Expanders must be mounted together vertically, and they must be powered from the same power rail. Typical vertical power bars in equipment racks are rated at 15/20 amps @ 120 volts. Ensure that the equipment load does not exceed the power bar rating. Refer to *Communication Server 1000E: Planning and Engineering* (NN43041-220) for information on power consumption. Do not place redundant equipment on the same electrical circuit.

There are no thermal concerns about equipment placement.

**Note 1:** Leave wall space for the cross-connect terminal.

**Note 2:** Position the rack so that you have access to both the front and rear.

## Rack-mounting a Media Gateway or Media Gateway Expander

References to the Media Gateway in this section also apply to the Media Gateway Expander. The Media Gateway Expander can be mounted either above or below the Media Gateway.

The following items are required to mount each Media Gateway or Media Gateway Expander in a 19-inch rack:

- equipment layout plan
- 8 – #10-32 machine screws
- 19-Inch Rack Mount Kit (NTTK09)

The 19 Inch Rack Mount Kit (NTTK09) contains the following accessories:

- 1 – left guide bracket
- 1 – right guide bracket
- 1 – left ear bracket
- 1 – right ear bracket
- 4 – #8-32 machine screws

Follow Procedure 1 on [page 84](#) to remove the cover on a Media Gateway or a Media Gateway Expander.

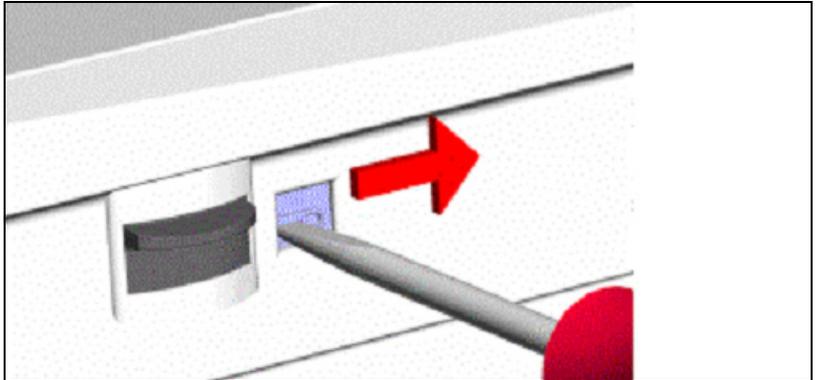
### **Procedure 1** **Removing the cover**

- 1 If the cover lock latches are in their locked position:
  - a. Use a flat screwdriver to slide the icon away from the latch. Refer to Figure 15 on [page 85](#).
  - b. Slide both spring-loaded latches simultaneously down toward the bottom of the Media Gateway, and pull forward. Then lift the cover

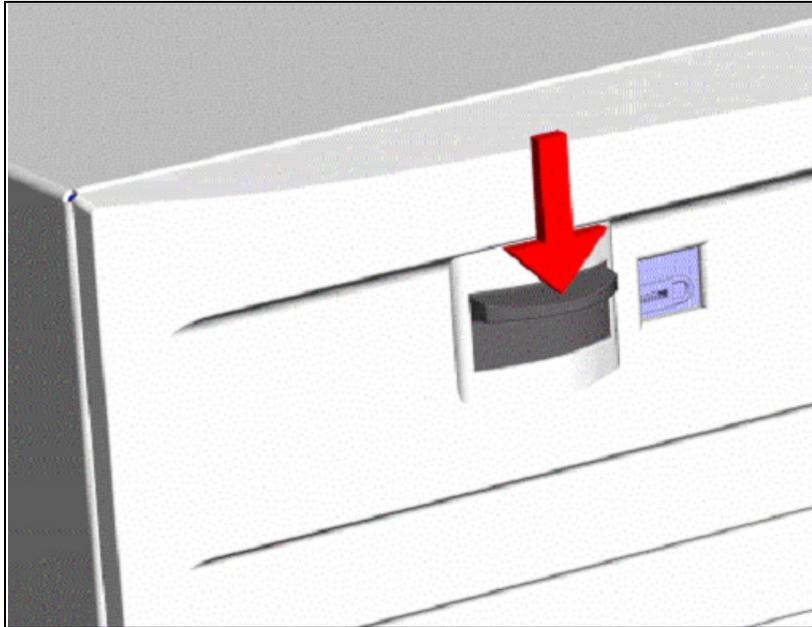
upward to remove it from the Media Gateway. Refer to Figure 16 on [page 86](#).

**Note:** The bottom of the front cover is supported by, but not secured to, the Media Gateway. Do not drop it.

**Figure 15**  
**Unlock the latches**



**Figure 16**  
**Unlock the cover**



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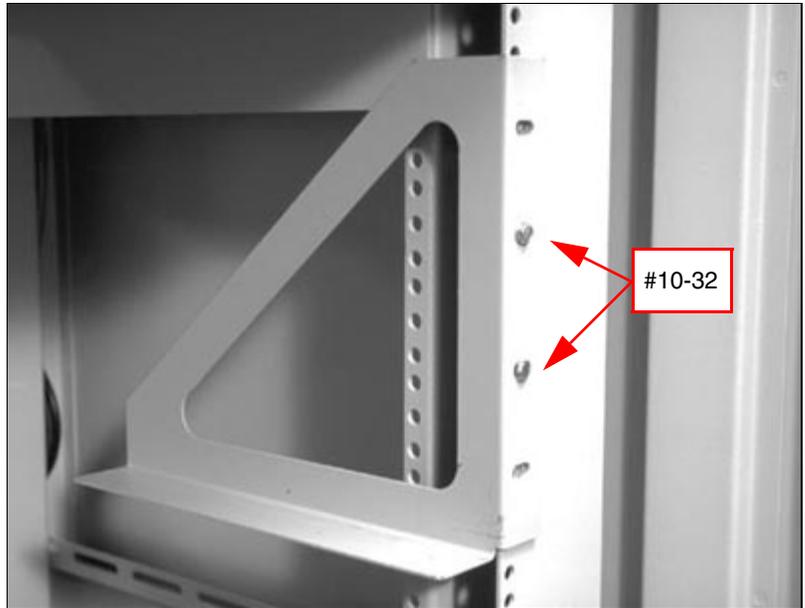
**End of Procedure**

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**Procedure 2**  
**Rack-mounting a Media Gateway or Media Gateway Expander**

- 1** Fasten the right guide bracket to the right rack support.
  - a.** Insert two #10-32 machine screws into the two middle slots in the guide bracket and into the respective holes in the right rack support. See Figure 17.
  - b.** Fasten the screws.

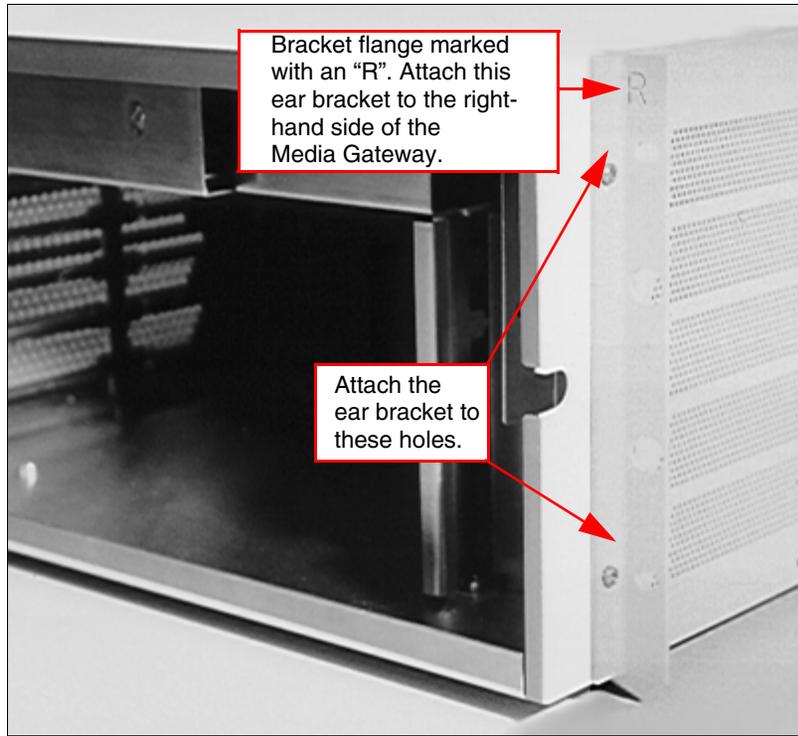
**Figure 17**  
**Guide bracket installed in a rack**



- 2 Fasten the left guide bracket to the left rack support.
  - a. Insert two #10-32 machine screws into the two middle slots in the bracket and into the respective holes in the left rack support.
  - b. Fasten the screws.
- 3 Attach the right ear bracket (marked with an “R”) to the holes on the right side of the Media Gateway.
  - a. Use two #8-32 machine screws. Position the ear bracket so that the four holes on the bracket flange are nearer to the rear of the Media Gateway.

**Note:** To determine the front of the bracket, locate the “R” on the bracket. The “R” must be at the top of the bracket and face the front of the Media Gateway (see Figure 18).

**Figure 18**  
**Right ear bracket on a Media Gateway**



- 4 Attach the left ear bracket (marked with an "L") to the holes on the left side of the Media Gateway (near the front).

- a. Use two #8-32 machine screws. Position the ear bracket so the four holes on the bracket flange are closer to the rear of the Media Gateway.

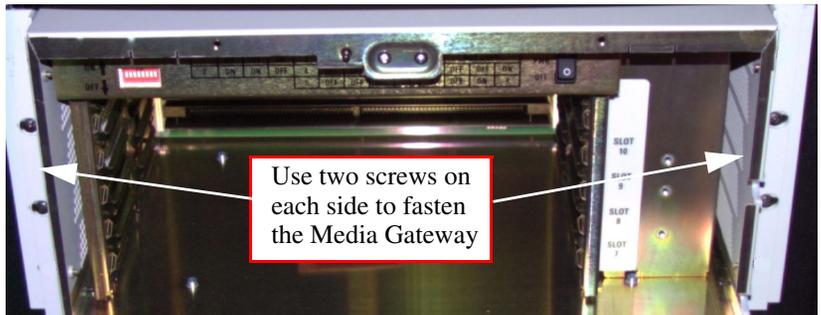
**Note:** To determine the front of the bracket, locate the “L” on the bracket. The “L” must be at the top of the bracket and face the front of the Media Gateway.

**WARNING**

A Media Gateway or a Media Gateway Expander each weighs approximately 30 lb. (13.5 kg) with circuit cards installed and 26 lb. (12 kg) without circuit cards installed. If necessary, get assistance when lifting the equipment.

- 5 Place the Media Gateway on the guide brackets.
  - a. Carefully slide the Media Gateway into the rack until the ear brackets come to rest against the rack support.
- Note:** Make sure that the rear of the Media Gateway is on the guide brackets. See Figure 19 on [page 89](#).
- 6 Use the four remaining #10-32 machine screws to fasten the Media Gateway to the rack supports (two screws on each side).

**Figure 19**  
**Media Gateway installed in a rack**



**End of Procedure**

## **Rack-mounting a Terminal Server**

Follow the manufacturer's instructions to rack-mount this equipment.

## **Rack-mounting a BayStack 470 Switch**

Follow the manufacturer's instructions to rack-mount this equipment.

## **Rack-mounting a BayStack 460 Power over Ethernet unit**

Follow the manufacturer's instructions to rack-mount this equipment.

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# Installing system grounds

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## Contents

This section contains information on the following topics:

<a href="#">Introduction</a> . . . . .	91
<a href="#">Installing a ground bar</a> . . . . .	92
<a href="#">Grounding an ISP1100 Signaling Server</a> . . . . .	95
<a href="#">Grounding a Media Gateway powered by the same electrical panel</a> . .	95
<a href="#">Grounding a Media Gateway powered by multiple electrical panels</a> . .	97
<a href="#">Grounding a Media Gateway Expander</a> . . . . .	97
<a href="#">Grounding other rack-mounted components</a> . . . . .	98
<a href="#">Grounding equipment in the UK</a> . . . . .	100

## Introduction

This chapter contains the following procedures:

- Procedure 3: "Installing an NTBK80 Ground Bar" on [page 93](#)
- Procedure 4: "Installing an NTDU6201 Ground Bar" on [page 94](#)
- Procedure 5: "Grounding Media Gateways powered by the same electrical panel" on [page 96](#).
- Procedure 6: "Grounding Media Gateways powered by multiple electrical panels" on [page 97](#)
- Procedure 7: "Grounding a Media Gateway Expander" on [page 98](#)
- Procedure 8: "Grounding equipment in the UK" on [page 100](#)

Refer to your grounding plan for additional information.



**WARNING**

Correct grounding is very important. Failure to complete the grounding procedures could result in a system that is unsafe for the personnel using the equipment.



**CAUTION — Service Interruption**

If your system is not grounded correctly, it cannot be protected from lightning or power surges, and it could be subject to service interruptions. You must use insulated ground wire for system grounding.



**CAUTION — Service Interruption**

To prevent ground loops, power all equipment from the same dedicated electrical panel.



**WARNING**

For rack configurations, equipment must be powered from the same electrical panel.

## Installing a ground bar

Install the NTBK80 Ground Bar for up to six Media Gateways with their Expander. Install the NTDU6201 Ground Bar for up to 35 ground connections. Reference to ground bar in this NTP refers to either the NTBK80 or the NTDU6201 Ground Bar.

Follow Procedure 3 to install a ground bar.

**Procedure 3**  
**Installing an NTBK80 Ground Bar**

- 1 Place the ground bar near the equipment.

**Note:** The ground bar is a bridging point for ground wires from up to six components.

- 2 Connect the ground bar to the ground bus in the AC electrical panel using #6 AWG wire. See Table 12 on [page 93](#) for region-specific grounding requirements.



**WARNING**

A qualified technician or electrician must make the connection in the AC electrical panel.

- 3 Place a tag marked DO NOT DISCONNECT on the ground wire at the electrical panel.
- 4 Test the ground

Refer to Figure 20 on [page 94](#) for the NTBK80 Ground Bar

**Table 12**  
**Region-specific grounding wire requirements**

Region	Grounding wire requirements
Germany	#8 AWG (8.36 mm <sup>2</sup> ) green/yellow wire
Other regions in Europe	not smaller than #6 AWG (13.3 mm <sup>2</sup> ) at any point
UK	two green/yellow wires no thinner than two 10 mm <sup>2</sup>

**Figure 20**  
**NTBK80 Ground Bar**



---

**End of Procedure**

---

Follow Procedure 4 to install an NTDU6201 Ground Bar.

**Procedure 4**  
**Installing an NTDU6201 Ground Bar**

- 1 Place the NTDU6201 Ground Bar near the equipment.

**Note:** The ground bar is a bridging point for ground wires from up to 48 components.

- 2 Connect the NTDU6201 Ground Bar to the ground bus in the AC electrical panel, or to TGB for an ANSI/EIA/TIA 607 installation using #6 AWG wire. See Table 12 on [page 93](#) for region-specific grounding requirements.

**WARNING**

A qualified technician or electrician must make the connection in the AC electrical panel.

- 3 Place a tag marked DO NOT DISCONNECT on the ground wire at the electrical panel.
- 4 Test the ground.

---

**End of Procedure**

---

## Grounding an ISP1100 Signaling Server

The ISP1100 Signaling Server is not connected to a ground bar. It is properly grounded when:

- the ISP1100 Signaling Server power cord is plugged into the rack's AC outlet. The rack's AC outlet must be grounded to its dedicated electrical panel. This is the preferred method.
- the ISP1100 Signaling Server power cord is plugged into a wall AC outlet. The ISP1100 Signaling Server is grounded outside of the rack using the safety grounding conductor in the power cord. This method ensures proper grounding only of the ISP1100 Signaling Server itself. It does not provide grounding protection for other rack-mounted pieces of equipment. Therefore, ensure that other devices in the rack are properly grounded as required.

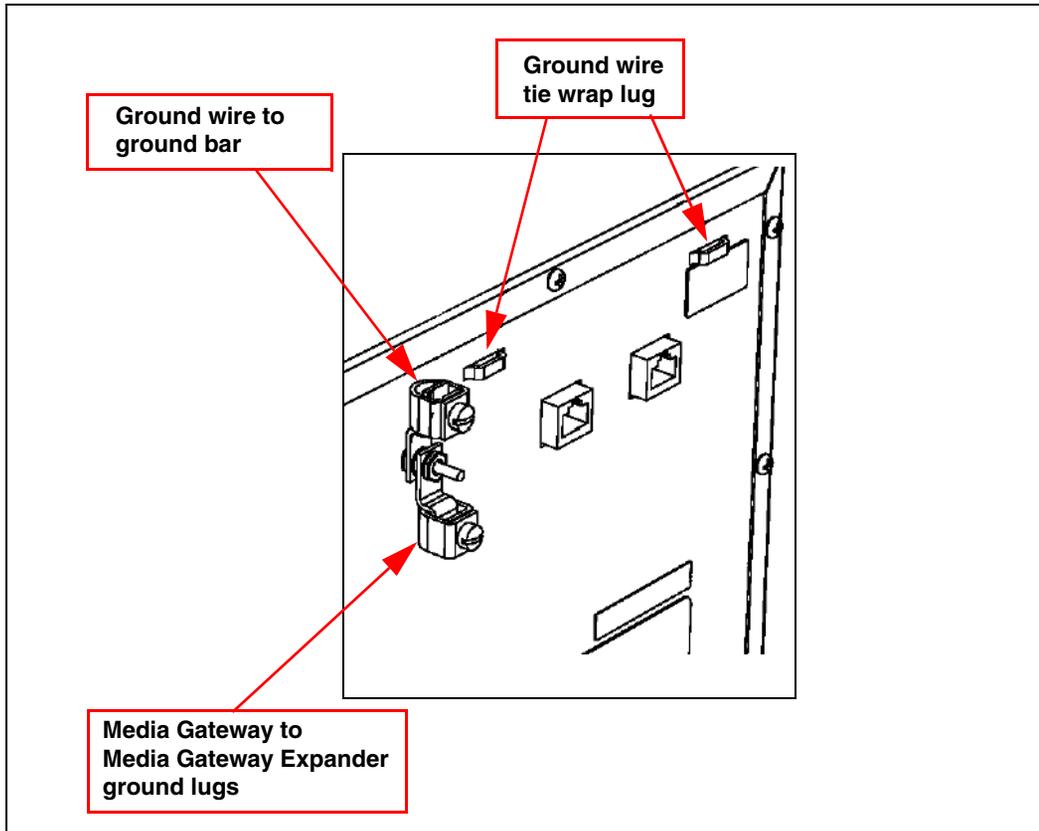
## Grounding a Media Gateway powered by the same electrical panel

Follow Procedure 5 to ground one or more Media Gateway powered by the same electrical panel.

**Procedure 5**  
**Grounding Media Gateways powered by the same electrical panel**

- 1 Disconnect the AC power cord from the power outlet.
- 2 Install a #6 AWG ground wire from the ground lug, as shown in Figure 21 on [page 96](#), at the back of the Media Gateway to the ground bar.
- 3 Place a DO NOT DISCONNECT tag on the ground wire.

**Figure 21**  
**Media Gateway and Media Gateway Expander ground lug location**



- 4 Test the ground.

---

**End of Procedure**

---

## Grounding a Media Gateway powered by multiple electrical panels

Follow Procedure 6 on [page 97](#) to ground multiple Media Gateway that are powered by multiple electrical panels.

### Procedure 6

#### Grounding Media Gateways powered by multiple electrical panels

- 1 Disconnect the AC power cord from the power outlet.
- 2 Identify the electrical panel powering each component.
- 3 Install a ground bar for each electrical panel identified above.  
**Note:** Each component must be grounded to the electrical panel that provides the power to that component.
- 4 Install a #6 AWG ground wire from the ground lug on the rear of the Media Gateway to the ground bar identified for that component's power source.
- 5 Place a DO NOT DISCONNECT tag on the ground wire.
- 6 Test the ground.

---

**End of Procedure**

---

## Grounding a Media Gateway Expander

The Media Gateway Expander and the Media Gateway are considered as the same ground.

**IMPORTANT!**

Ground the Media Gateway Expander to the Media Gateway.

**IMPORTANT!**

Power each Media Gateway and Media Gateway Expander pair from the same electrical panel.

Follow Procedure 7 to ground a Media Gateway Expander.

**Procedure 7**

**Grounding a Media Gateway Expander**

- 1 Disconnect the AC power cord from the power outlet.
- 2 Install a #6 AWG ground wire from the ground lug on the rear of the Media Gateway Expander to the Media Gateway. See Figure 21 on [page 96](#).
- 3 Place a DO NOT DISCONNECT tag on the ground wire.
- 4 Test the ground.

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**End of Procedure**

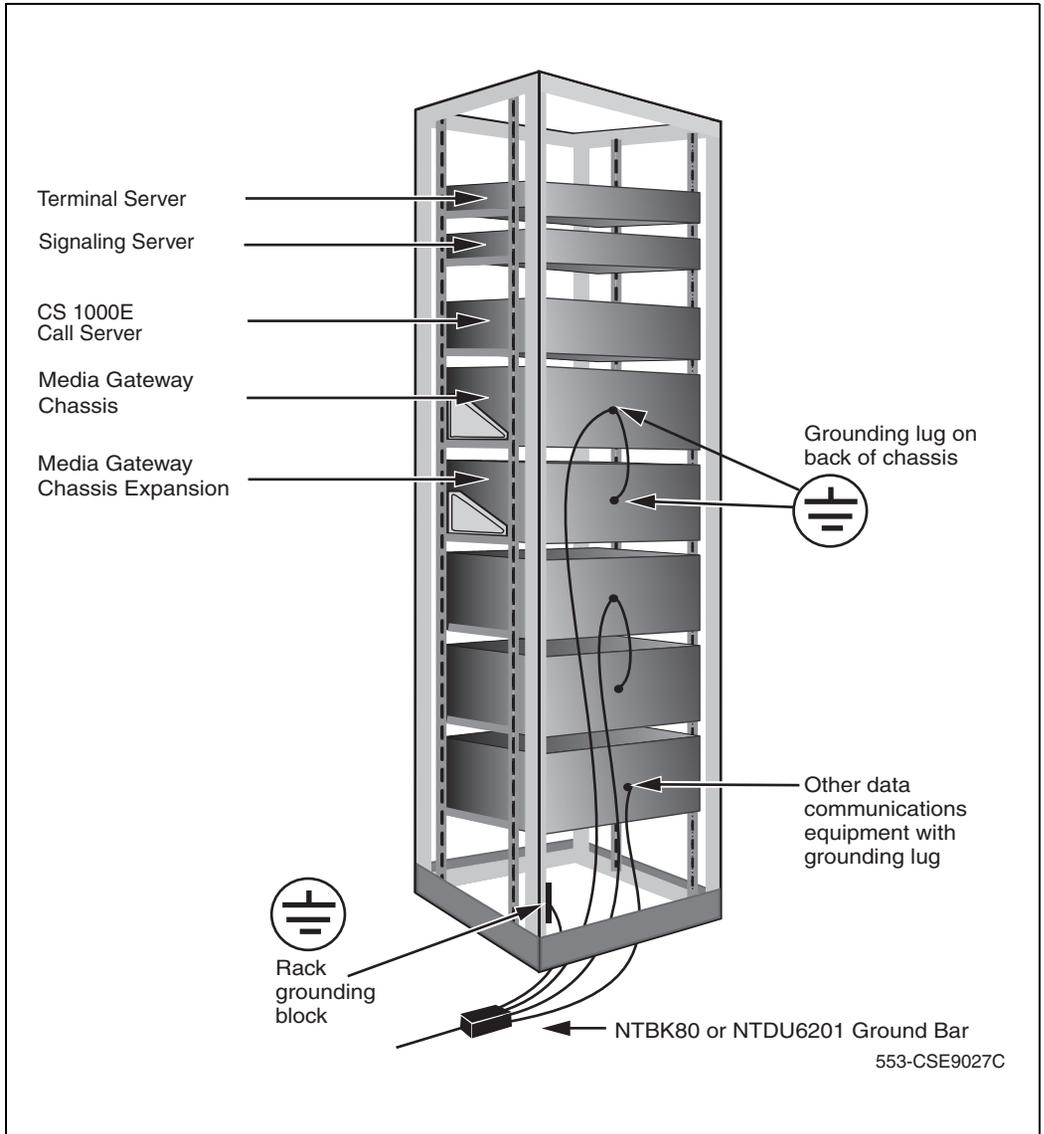
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## Grounding other rack-mounted components

To ground multiple pieces of equipment in a rack, use a separate ground connection from each piece of equipment to the ground bar. If a piece of data communications equipment in a rack does not have a grounding lug then ground the rack to the ground bar.

When the rack is grounded to the ground bar, the equipment is grounded using the Single Point Grounding method, as shown in Figure 22 on [page 99](#).

**Figure 22**  
**Grounding multiple pieces of equipment in a rack**



## Grounding equipment in the UK

Follow Procedure 8 to ground equipment in the UK.

### Procedure 8

#### Grounding equipment in the UK

- 1 Connect a protective and functional ground wire from the grounding strip on the Krone Test Jack Frame to the ground at the building entry point. Use a green/yellow wire no thinner than 10 mm<sup>2</sup>.

Consider each Media Gateway and Media Gateway Expander pair as one ground.

- 2 Jumper the Media Gateway Expander ground to the Media Gateway ground. See Figure 21 on [page 96](#).
- 3 In each Media Gateway:
  - a. Connect a ground wire from the ground lug in the equipment to the ground connection at the Test Jack Frame. Use a green/yellow wire no thinner than 10 mm<sup>2</sup>.
  - b. Place a DO NOT DISCONNECT tag on the grounding wire.
  - c. Measure the resistance of the ground between the Krone Test Jack Frame and the Media Gateway frame ground. The resistance must not be more than 0.25 Ohm.

---

**End of Procedure**

---

---

# Connecting CS 1000E system components

---

## Contents

This section contains information on the following topics:

Introduction . . . . .	101
Connecting CP PM Call Server 0 to CP PM Call Server 1 . . . . .	102
Connecting the CS 1000E Core CP PM Call Servers to an MG 1000E	104
Inserting a Shielded 50-pin to Serial/ELAN/TLAN adapter onto a Media Card . . . . .	108
Connecting a Media Card to the ELAN subnet . . . . .	109
Connecting a Media Card to the TLAN subnet . . . . .	110
Connecting a Media Gateway to a Media Gateway Expansion . . . . .	111

## Introduction

Several system connections are required to make the CS 1000E operational. The CS 1000E must be connected to the MG 1000E through the ELAN subnet. The Media Gateways are directly connected to the Media Gateway Expander. The system's components, such as the ISP1100 Signaling Server and the Media Cards installed in the Media Gateway, require both ELAN subnet and TLAN subnet connections.

This chapter contains the following procedures:

- Procedure 9: "Connecting co-located CP PM Call Servers" on [page 103](#)

- Procedure 10: "Connecting Campus Redundant CP PM Call Servers" on [page 104](#)
- Procedure 13: "Inserting a Shielded 50-pin to Serial/ELAN/TLAN adapter" on [page 108](#)
- Procedure 14: "Connecting a Media Card to the ELAN subnet" on [page 109](#)
- Procedure 15: "Connecting a Media Card to the TLAN subnet" on [page 110](#)
- Procedure 16: "Connecting a Media Gateway to a Media Gateway Expansion" on [page 111](#).

## Connecting CP PM Call Server 0 to CP PM Call Server 1

The CS 1000E redundant architecture allows for the separation of Call Server 0 and Call Server 1. The two processors are connected by either a direct 100BaseT crossover cable or a carefully engineered Layer 2/VLAN infrastructure.

Campus Redundancy provides the ability to separate the CS 1000E CP PM Call Servers in a campus environment for “campus mirroring”. This feature enables two CP PM Call Servers, one active and one redundant, to be connected through an Ethernet network interface. Campus Redundancy can operate using any vendor’s Layer 2 switching products, in addition to the BayStack 470. The distance depends upon network parameter limitations specified in *Communication Server 1000: System Redundancy* (NN43001-507).

To separate the redundant CP PM Call Servers, the ELAN subnet and the subnet of the High Speed Pipe (HSP) can be extended between the two processors with an Ethernet switch, using Layer 2 protocol.

If the two CP PM Call Servers are collocated, they can be connected using a standard CAT5e or CAT6 crossover cable, limited to 100 meters in length.

For detailed information on Campus Redundancy, refer to *Communication Server 1000: System Redundancy* (NN43001-507).

The Layer 2 switch allows the ELAN subnet and the subnet of the High Speed Pipe (HSP) to be extended between the two processors. The BayStack 470-24T provides full duplex wire-speed 100BaseT with no significant packet loss (less than 0.001%) and delays of less than 100 usec.

The method used to connect CP PM Call Server 0 to CP PM Call Server 1 depends on the proximity of the units. If the units are co-located, follow Procedure 9 to connect the CP PM Call Servers. If the units are configured for Campus Redundancy, follow Procedure 10 to connect the CP PM Call Servers.

## Connecting co-located CP PM Call Servers

Follow Procedure 9 to connect co-located CP PM Call Servers.

### Procedure 9

#### Connecting co-located CP PM Call Servers

- 1 Plug one end of the CAT5E RJ-45 crossover cable (NTRC17) into the LAN 2 connector on the front of Call Server 0.
- 2 Plug the other end of the CAT5E RJ-45 NTRC17 crossover cable into the LAN 2 connector on the front of Call Server 1.

---

**End of Procedure**

---

## Connecting Campus Redundant CP PM Call Servers

The MultiLink Trunking (MLT) feature of the BayStack 470-24T enables the two uplink fiber ports to be grouped but is not solely necessary for the two uplink fiber ports to be linked. Grouping the uplink fiber ports increases aggregate throughput up to 2 Gbps between sides with active redundant links.

The port-based VLANs used in the BayStack 470-24T switches operate in accordance with the IEEE 802.1Q tagging rules. VLAN ports are grouped into broadcast domains by assigning them to the same VLAN. Frames received in one VLAN can be forwarded only within that VLAN. For more information, see *Communication Server 1000: System Redundancy* (NN43001-507).

### **Procedure 10**

#### **Connecting Campus Redundant CP PM Call Servers**

- 1 Connect the CAT5E RJ-45 LAN 2 port of Call Server 0 to a 100BaseT ELAN network interface on the local Baystack 470-24T switch.
- 2 Connect the CAT5E RJ-45 LAN 2 port of Call Server 1 to a 100BaseT port on the remote Baystack 470-24T switch.
- 3 Link the two Baystack 470-24T switches with two high-speed single-mode fiber uplinks (1 Gbps per link), using the built-in GBIC ports for dedicated uplink connectivity.
- 4 Assign three VLANs to the BayStack 470-24T ports.
  - VLAN 1 – Default
    - All 104 ports belong to the four BayStack 470-24T ports.
  - VLAN 2 – HSP
    - Two ports connect CP PM packs HSP ports in Call Server 0 and Call Server 1.
    - Four high-speed fiber uplinks (GBIC ports)
  - VLAN 3 – ELAN
    - Includes 2 ELAN network interfaces on the CP PM Call Servers, for example, for ELAN connections for ISP1100 Signaling Servers, MG 1000Es, Call Pilot, Symposium, OTM, Element Manager.
    - Four high-speed fiber uplinks (GBIC ports)

---

**End of Procedure**

---

## **Connecting the CS 1000E Core CP PM Call Servers to an MG 1000E**

An MG 1000E performs functions under the direct control of the CS 1000E Core CP PM Call Server. The MG 1000E detects stimulus events from its interface cards and passes these events to the CS 1000E Core CP PM Call Server, where the high-level call processing decisions are made.

The NTBK48AA 3-port SDI cable connects to the SDI port on the Cabinet. Figure 23 on [page 106](#) shows front of MGC with the "bulkhead" connectors (1E and 2T) that connect to numbers 1 and 2 bulkhead. The CE and CT connect to the ELAN port. The 100 Base T ports 1 and 2 connect to the bulkhead, while ports 1 and 2 in the lower left connect to the backplane.

## **MGC Ethernet Capabilities**

An MGC features 6 Ethernet interfaces set to autonegotiate by default. See Figure 23.

The MGC backplane connections are as follows:

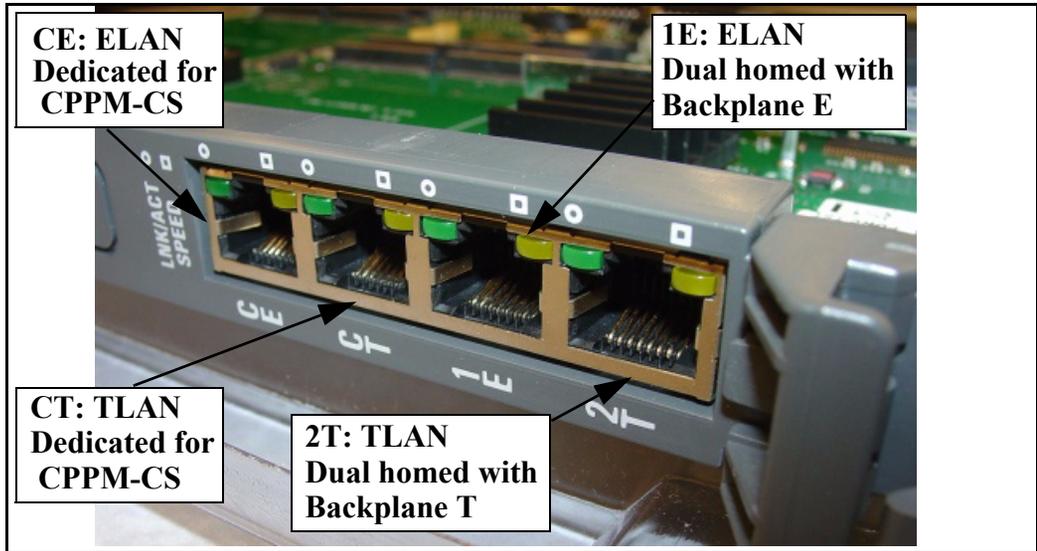
- E – ELAN, dual homed with faceplate 1E.
- T – TLAN, dual homed with faceplate 2T.

MGC dual-homing considerations are as follows:

- If only one port is connected, it is made active
- If two ports are connected, only one port is made active

If connection to the active port is lost, the MGC switches to the inactive one

Figure 23  
MGC faceplate



*Note:* The MG1000E can be connected directly to the CS1000E ELAN subnet, or it can be connected to the ELAN subnet through a Layer 3 switch.

End of Procedure

## Installing a DSP Daughterboard

The following procedure describes how to install a DSP Daughterboard on an MGC card:

### Procedure 11 Installing a DSP Daughterboard

- 1 Place the MGC on a safe ESD surface.
- 2 Place the DSP DB in either DB position 1 (for DSP DB-96) or DB position 2 (for DSP DB-32), or both, depending on how the Daughterboards will be configured from a TN perspective.

- 3 Ensure the DSP DB is securely attached to the MGC (using the four supplied screws and standoffs).

*Note:* Note: Call Server dongles do not need to be retained for IPMGs.

---

**End of Procedure**

---

## Installing the MGC card

### **Procedure 12** **Installing the MGC card**

In Release 5.0, the MGC card replaces the existing SSC used in the MG 1000T.

#### **IMPORTANT!**

You must ensure that all dongles (for both MGC and CP PM cards) are correctly identified.

You must destroy or return the SSC dongle to your local Nortel Repairs>Returns center.

For the CP PM call server you must use the dongle provided with the software kit.

To install the MGC card, perform the following steps:

- 1 Power down the Main Chassis.
- 2 Remove the SSC card.
- 3 Install the DSP Daughterboard on the MGC card as described in Procedure 11 on [page 106](#).
- 4 Insert the MGC into Slot 0 of the Chassis.
- 5 The existing 3-port SDI cable (NTBK48AA) is reused. It connects to the SDI port on the Chassis.

This chassis, the main chassis in the system, will now become known as IPMG 00.

---

**End of Procedure**

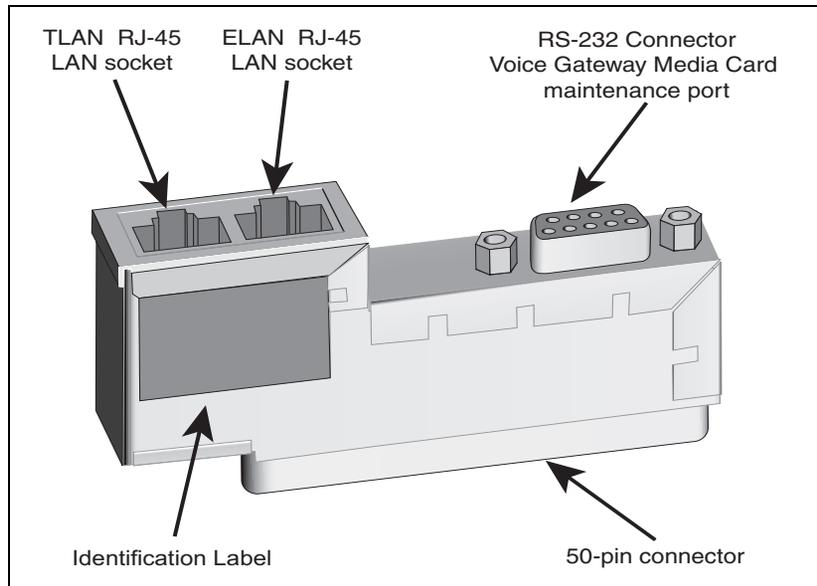
---

## Inserting a Shielded 50-pin to Serial/ELAN/TLAN adapter onto a Media Card

The Shielded 50-pin to Serial/ELAN/TLAN adapter shown in Figure 24 provides access to the TLAN and ELAN Ethernet Ports. The adapter breaks out the signals from the I/O connector to the following:

- ELAN (management) network interface
- TLAN (telephony) network interface
- one RS-232 (local console) port

**Figure 24**  
**Shielded 50-pin to Serial/ELAN/TLAN adapter**



### **Procedure 13** **Inserting a Shielded 50-pin to Serial/ELAN/TLAN adapter**

- 1 Open the Media Card package NTDU41CA.
- 2 Remove the Shielded 50-pin to Serial/ELAN/TLAN adapter.

- 3 Save the other items from the package for use in “Installing a CompactFlash” on [page 328](#).
- 4 Insert the adapter, shown in Figure 24, into the connector Card 1, Card 2, Card 3, or Card 4 that corresponds to the location of the Media Card.  
  
For example, in Figure 25 on [page 110](#), the Media Card is installed in card slot 1. Therefore, the adaptor is installed in connector Card 1.

---

**End of Procedure**

---

## Connecting a Media Card to the ELAN subnet

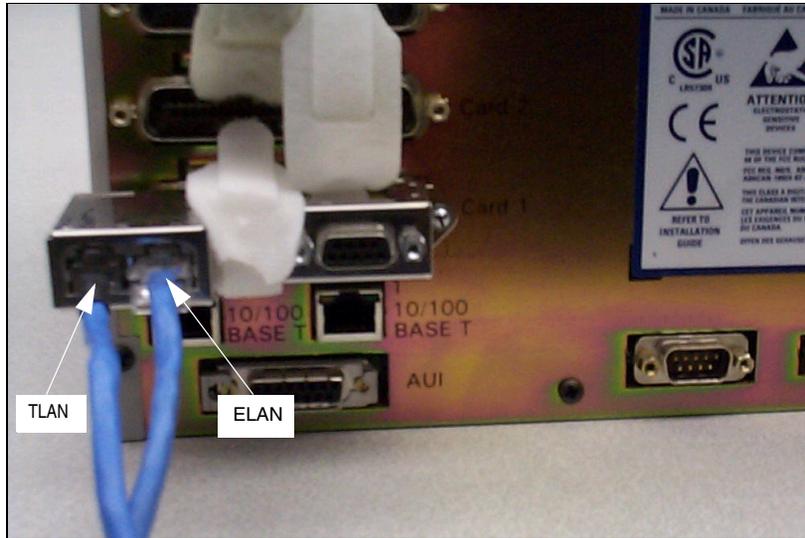
Follow Procedure 14 to connect a Media Card to the ELAN.

### **Procedure 14**

#### **Connecting a Media Card to the ELAN subnet**

- 1 Connect a standard CAT5 patch cable to the ELAN network interface on the Adaptor (Figure 25 on [page 110](#)).
- 2 Connect the other end of the standard CAT5 patch cable to an RJ-45 ELAN network interface on the BayStack 470 switch

**Figure 25**  
**Shielded 50-pin to Serial/ELAN/TLAN adapter on the Media Gateway**



---

End of Procedure

---

## Connecting a Media Card to the TLAN subnet

Follow Procedure 15 to connect a Media Card to the TLAN subnet.

### Procedure 15 Connecting a Media Card to the TLAN subnet

- 1 Connect a standard CAT5 patch cable to the TLAN network interface on the adaptor (see Figure 25 on [page 110](#)).
- 2 Connect the other end of the standard CAT5 patch cable to an RJ-45 TLAN network interface on the BayStack 470 switch.

---

End of Procedure

---

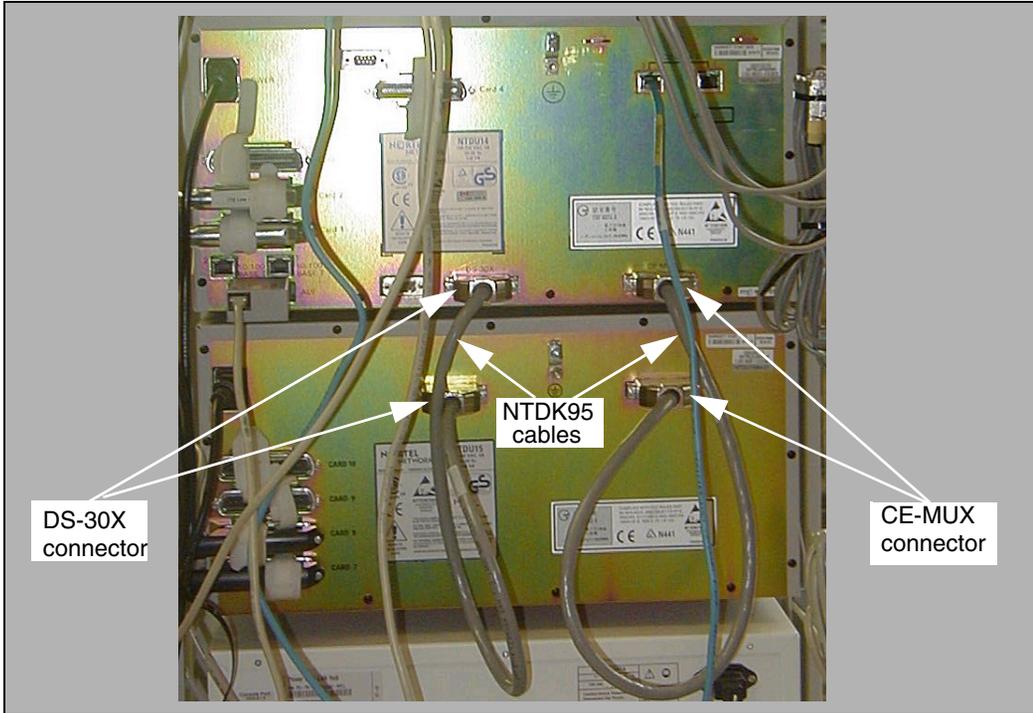
## Connecting a Media Gateway to a Media Gateway Expansion

Procedure 16 describes how to connect a Media Gateway Expander to the Media Gateway. The Media Gateway Expander Cable Kit (NTDK89) contains two NTDK95 cables used to connect the Media Gateway Expander to the Media Gateway. One cable provides DS-30X connectivity while the second cable provides CE-MUX connectivity to slot 10 only.

### **Procedure 16** **Connecting a Media Gateway to a Media Gateway Expansion**

- 1 Connect one NTDK95 cable from the CE-MUX connector at the back of the Media Gateway to the CE-MUX connector at the back of the Media Gateway Expander.
- 2 Tighten the screws on the connectors.
- 3 Connect the other NTDK95 cable from the DS-30X connector at the back of the Media Gateway to the DS-30X connector at the back of the Media Gateway Expander.
- 4 Tighten the screws on the connectors. Figure 26 on [page 112](#) shows the Media Gateway and Media Gateway Expander connected with the two NTDK95 cables.

**Figure 26**  
**Media Gateway and Media Gateway Expander connections**



————— End of Procedure —————

---

# Installing software on the CS 1000E

---

## Contents

This section contains information on the following topics:

<a href="#">Introduction</a> . . . . .	113
<a href="#">Installing the software</a> . . . . .	114
<a href="#">Testing the CP PM Call Servers</a> . . . . .	135

## Introduction

The Software Install Kit required to install CP PM includes one CF card for system software and one for backup. The system CF card contains the following:

- CS 1000E Release 5.0 software
- keycode files
- CS 1000E Release 5.0 Dependency List (PEPs) for Large and Small systems
- default database (if initiated during the installation)

A third CF card is blank and can be used for database backup storage.



**IMPORTANT!**

Systems and components delivered to customer sites may include preinstalled software. However, the pre-installed software versions are typically older and are included only for manufacturing and order management purposes. **Do not attempt to operate the system with the pre-installed software.** You must download the latest software from the Nortel Software Download web site and install the software as part of the installation process.

## Installing the software

This section provides the steps involved in installing CS 1000 Release 5.0 for CP PM.

### Procedure 17

#### Installing the software on the CP PM Call Server

- 1 Connect the terminal to port 0 with the NTAk19EC cable.
- 2 Insert the CF card into the Call Server faceplate.
- 3 Reboot the card. When prompted (see Figure 27), enter **F** to “force board to boot from faceplate drive” (prompt may appear twice).

**Figure 27**  
**Upgrade boot sequence**

```

+-----+
|                System BIOS Configuration, (C) 2005 General Software, Inc.                |
+-----+
| System CPU           : Pentium M           | Low Memory           : 632KB           |
| Coprocessor         : Enabled              | Extended Memory      : 1011MB          |
| Ide 0 Type          : 3                    | Serial Ports 1-2    : 03F8 02F8      |
| Ide 1 Type          : 3                    | ROM Shadowing       : Enabled        |
| Ide 2 Type          : 3                    | BIOS Version        : NTDU74AA 11    |
+-----+
|
| Press F to force board to boot from faceplate drive.
| .....
|
| Attempting to boot from faceplate drive.
|

```



- 5 The Software Installation Tool Main Menu appears (see Figure 29 on [page 116](#)).

*Note:* If the keycode files reside on a separate CF card, remove the software CF card and insert the CF card containing the keycode files.

**Figure 29**  
**Software Installation Tool Main Menu**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====
                               M A I N   M E N U

The Software Installation Tool will install or upgrade
Communication Server 1000 Software, Database and the CP-BOOTROM.

You will be prompted throughout the installation and given the
opportunity to quit at any time.

Please enter:
<CR> -> <u> - To Install Menu.
        <t> - To Tools Menu.
        <q> - Quit.

Enter choice>
```

- 6 Enter <CR> or **u** to access the Install Menu. The following screen appears (see Figure 30).

**Figure 30**  
Keycode files

```

The following keycode files are available on the removable media:

      Name                Size      Date      Time
-----
<CR> -> <1> - keycode.kcd    1114    Jan-17-2007  12:14
      <q> - Quit

Enter choice>

>validating keycode ...
>Copying "/cf2/keycode/495H_CPPM.kcd" to "/u/keycode" -

>The provided keycode authorizes the install
>of X210495 software (all subissues)
>for machine type 4021 (CPPM processor on CS 1000E).

```

- 7 The keycode file appears in the list. Select the appropriate keycode file for this system and install the keycode.

*Note:* If the CF card was exchanged, insert the CF card containing CS 1000 Release 5.0.

- 8 Enter <CR> or **y** to confirm that the keycode matches the system software on the RMD (see Figure 31 on [page 117](#)).

**Figure 31**  
Keycode confirmation

```

Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

Please confirm that this keycode matches the system s/w on the RMD.

Please enter:
<CR> -> <y> - Yes, the keycode matches. Go on to Install Menu.
      <n> - No, the keycode does not match. Try another keycode.

Enter choice>
>obtaining database file names ...

```

- 9 The Install Menu appears (see Figure 32 on [page 118](#)). Enter **b** to install the software, database, and CP-BOOTROM.

**Figure 32**  
**Install Menu**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====
                I N S T A L L   M E N U

The Software Installation Tool will install or upgrade
Communication Server 1000 Software, Database and the CP-BOOTROM.

You will be prompted throughout the installation and given the
opportunity to quit at any time.

Please enter:
<CR> -> <a> - To install Software, CP-BOOTROM.
        <b> - To install Software, Database, CP-BOOTROM.
        <c> - To install Database only.
        <d> - To install CP-BOOTROM only.
        <t> - To go to the Tools Menu.
        <k> - To install Keycode only.
        For Feature Expansion, use OVL143.
        <p> - To install 3900 Set Languages.
        <q> - Quit.

Enter choice> b
```

The following screen appears (see Figure 33 on [page 118](#)):

- 10 Enter **<CR>** or **y** to confirm that the call processor is set to side 0.

**Figure 33**  
**Side information**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

This CS 1000 call Processor is set to side 0

Please confirm that the side information is correct.

Please enter:
<CR> -> <y> - Yes, the side information is correct.
        <n> - No, the side information is incorrect. Go on to Side Setting Me

Enter choice>
```

- 11 The location information screen appears (see Figure 34), indicating that the call processor is located in loop 0 and shelf 0 of the IPMG. Enter **<CR>** or **y** to confirm their location.

**Figure 34**  
**Call processor location**

```

Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

This CS 1000 Call Processor is currently located in the IPMG
configured as:

loop 0
shelf 0

Please confirm that the IPMG loop and shelf information is correct.

Note: If the IPMG has not been configured yet, the IPMG loop and
shelf information can be left as the current value. To update
the loop and the shelf information later, use OVL117.

Please enter:
<CR> -> <y> - Yes, the IPMG loop and shelf information is correct.
        <n> - No, the IPMG loop and shelf information is incorrect.
           Go on to Loop/Shelf Setting Menu.

Enter choice>

```

- 12 If not already present in the CF drive, insert the CF card containing CS 1000 Release 5.0 (see Figure 35).

**Figure 35**  
**Insert RMD**

```

Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

Please insert the Removable Media Device into the drive on Core 0.

Please enter:
<CR> -> <a> - RMD is now in drive. Continue with s/w checking.
        <q> - Quit.

Enter choice>

```

- 13 Enter **<CR>** or **y** to confirm that you have the correct software version (see Figure 36 on [page 120](#)).

**Figure 36**  
**Confirm software version**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

The RMD contains system S/w version X2105XX_x|.

Please enter:
<CR> -> <y> - Yes, this is the correct version. Continue.
        <n> - No, this is not the correct version. Try another RMD
            or a different keycode.

Enter choice>
```

- 14 Enter **<CR>** or **y** to install dependency lists and continue with the upgrade (see Figure 37 on [page 120](#)).

**Figure 37**  
**Install Dependency Lists**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

Do you want to install Dependency Lists?.

Please enter:
<CR> -> <y> - Yes, Do the Dependency Lists installation
        <n> - No, Continue without Dependency Lists installation

Enter choice>
```

- 15 Enter **<CR>** or **y** (the default) to enable the Automatic Centralized Software Upgrade (CSU) feature (see Figure 38 on [page 121](#)).

**Figure 38**  
**Centralized Software Upgrade**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

Enable Automatic Centralized Software Upgrade (CSU) Feature ? (Default)
Please enter:
<CR> -> <y> - Yes
      <n> - No

Enter choice>
```

- 16 Set the CSU feature to Sequential by entering either **<CR>** or **y** (see Figure 39).

**Figure 39**  
**Automatic Centralized Software Upgrade Mode**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

Set Automatic Centralized Software Upgrade Mode to:
Please enter:
<CR> -> <1> - Sequential
      <2> - Simultaneous

Enter choice>
>Processing the install control file ...
```

- The Installation Status Summary screen appears (see Figure 40 on [page 122](#)).

**Figure 40**  
**Installation Status Summary**

```
>Installing release 05XXX

-----
                    INSTALLATION STATUS SUMMARY
-----

+-----+-----+-----+-----+
| Option | Choice | Status | Comment |
+-----+-----+-----+-----+
| SW: RMD to FMD | yes | | install for rel 0495H |
+-----+-----+-----+-----+
| Dependency Lists | yes | | |
+-----+-----+-----+-----+
| AUTO-CSU Feature | SEQ | | SEQ-CSU Enabled |
+-----+-----+-----+-----+
| IPMG Software: | yes | | install for rel 0495H |
+-----+-----+-----+-----+
| Database | yes | | |
+-----+-----+-----+-----+
| CP-BOOTROM | yes | | |
+-----+-----+-----+-----+

Please enter:
<CR> -> <y> - Yes, start installation.
        <n> - No, stop installation. Return to the Main Menu.

Enter choice>
>Checking system configuration
```

17 Enter <CR> or **y** to begin the installation (see Figure 41).

**Figure 41**  
**Install Tool**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

You selected to install software release: 05XXX on the new system.

This will create all necessary directories and pre-allocate
files on the hard disk.

You may continue with software install or quit now and leave
your software unchanged.

Please enter:
<CR> -> <a> - Continue with new system install.
        <q> - Quit.

Enter choice>
```

- 18 A prompt appears warning you that old system files will be deleted as a result of the installation. Enter **<CR>** or **y** to continue with the installation.
- 19 The PSDL Installation Menu appears (see Figure 42). Select the appropriate location based on your geographical location.

**Figure 42**  
**The PSDL Installation Menu**

```

*****
PSDL INSTALLATION MENU
The PSDL contains the loadware for all downloadable
cards in the system and loadware for M3900 series sets.
*****
Select ONE of the SEVEN PSDL files:
  1. Global 10 Languages
  2. Western Europe 10 Languages
  3. Eastern Europe 10 Languages
  4. North America 6 Languages
  5. Spare Group A
  6. Spare Group B
  7. Packaged Languages

  [Q]uit, <CR> - default

By default option 1 will be selected.
Enter your choice ->1

>Copying new PSDL ...

```

- 20 Enter **<CR>** to continue.

A message appears indicating that the installation on Core 0 was successful (see Figure 43).

**Figure 43**  
**Core 0 software installation complete**

```

Communication Server 1000 software/Database/BOOTROM RMD Install Tool
=====
Software release 05XXX was installed successfully on Core 0.
All files were copied from RMD to FMD.

Please press <CR> when ready ...

```

- 21 Enter **<CR>** to continue.

The following screen appears (see Figure 44).

**Figure 44**  
**Database installation**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====
You will now perform the database installation.

Please enter:
<CR> -> <a> - Install CUSTOMER database.
           The Removable Media Device containing the customer database
           must be in the drive.
<b> - Install DEFAULT database and DEFAULT accounts.
           The system S/w media must be in drive.)
<d> - Transfer Small System database.
           The RMD containing the database must be in the drive
<e> - Check the database that exists on the Fix Media Device.
<q> - Quit.

Enter choice> d
```

**22** Enter **b**.

**23** The Installation Status Summary screen appears, indicating that the installation was a success (see Figure 45). Enter **<CR>** to continue.

**Figure 45**  
**Installation Status Summary**

```

Database Restore operation completed from SSC to CPPM.

-----
                    INSTALLATION STATUS SUMMARY
-----

+-----+-----+-----+-----+
| option | Choice | Status | Comment |
+-----+-----+-----+-----+
| SW: RMD to FMD | yes | ok | install for rel 0495H |
+-----+-----+-----+-----+
| Dependency Lists | yes | ok | None Available |
+-----+-----+-----+-----+
| AUTO-CSU Feature | SEQ | | SEQ-CSU Enabled |
+-----+-----+-----+-----+
| IPMG Software: | yes | ok | install for rel 0495H |
+-----+-----+-----+-----+
| Database | yes | | |
+-----+-----+-----+-----+
| CP-BOOTROM | yes | ok | |
+-----+-----+-----+-----+

Please press <CR> when ready ...

```

- 24** The Install Menu appears (see Figure 46 on [page 126](#)). Enter **q** to quit the Install Tool.

**Figure 46**  
**Install Menu**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====
                I N S T A L L   M E N U

The software Installation Tool will install or upgrade
Communication Server 1000 Software, Database and the CP-BOOTROM.

You will be prompted throughout the installation and given the
opportunity to quit at any time.

Please enter:
<CR> -> <a> - To install Software, CP-BOOTROM.
        <b> - To install Software, Database, CP-BOOTROM.
        <c> - To install Database only.
        <d> - To install CP-BOOTROM only.
        <t> - To go to the Tools Menu.
        <k> - To install Keycode only.
           For Feature Expansion, use OVL143.
        <p> - To install 3900 Set Languages.
        <q> - Quit.

Enter choice> q
```

25 Enter <CR> or y to confirm your selection (see Figure 47).

**Figure 47**  
**Quit Install Tool**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

You selected to quit. Please confirm.

Please enter:
<CR> -> <y> - Yes, quit.
        <n> - No, DON'T quit.

Enter choice>
```

- 26 Enter <CR> or y to reboot the system (see Figure 48). Once the system has completed its reboot, remove the CF from the faceplate.

**Figure 48**  
**System reboot**

```
Communication Server 1000 Software/Database/BOOTROM RMD Install Tool
=====

You selected to quit the Install Tool.
You may reboot the system or return to the Main Menu.
-----
DO NOT REBOOT USING RESET BUTTON!!!
-----

Please enter:
<CR> -> <a> - Reboot the system.
        <m> - Return to the Main Menu.

Enter choice>

>Rebooting system ...
```

## Reconfigure I/O ports and call registers

### Procedure 18

#### Reconfiguring I/O ports and call registers

- 1 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 4500 and 1000 respectively). If changes are required, reconfigure the values in LD 17:

**LD 17**            Load program

**500B 1000**        Use 1000 as a minimum value

**NCR 20000**        Use 20000 as a minimum value

**\*\*\*\***             Exit program

- 2 Print the Configuration Record to confirm the changes made in Step 1:

**LD 22**            Load program

**REQ PRT**         Set the print option

**TYPE CFN**        Print the configuration

**\*\*\*\***             Exit program

---

**End of Procedure**

---

### Procedure 19

#### Switching call processing to the CP PM Call Server

- 1 Plug the CP PM Call Server port labeled ELAN into the ELAN subnet.
- 2 Initialize (using the init button) the CP PM card.
- 3 Wait for "DONE" and then "INI" messages to display before you continue.

---

**End of Procedure**

---

## Test the CP PM Call Server

### Procedure 20

#### Testing the CP PM Call Server

- 1 Verify that the CP PM Call Server is active.  

<b>LD 135</b>	Load program
<b>STAT CPU</b>	Get the status of the CPUs
- 2 Check dial-tone.
- 3 Verify that the CP PM Call Server is active, redundant, and single.
- 4 Make internal, external, and network calls.
- 5 Check attendant console activity.
- 6 Check IP Peer networking for incoming and outgoing calls.
- 7 Check applications (CallPilot, Symposium, and so on).

---

**End of Procedure**

---

## Install the software on the second CP PM Call Server

### Procedure 21

#### Installing the software on the second CP PM Call Server

- 1 Attach the ELAN and TLAN cables to the CP PM faceplate connectors between the CP PM Call Servers.
- 2 Complete procedures 22 through 27 for the second CP PM Call Server.
- 3 Each CP PM Call Server can be named: CP PM Call Server 1 and CP PM Call Server 0.

**Note:** Do not install ELAN and TLAN cables at this time.

---

**End of Procedure**

---

## Verifying CP PM Call Server 0 is active

Use the following commands to verify that CP PM Call Server 0 is active.

<b>LD 135</b>	Load program
<b>STAT CPU</b>	Get the status of the CPUs
<b>CFN</b>	

## Make the system redundant

At this point, Core/Net 0 is ready to be synchronized with Core/Net 1.

### Procedure 22

#### Making the system redundant

- 1 Check to see if the ELAN and TLAN cables are attached. If not, attach the ELAN and TLAN cables to the CP PM faceplate connectors both CP PM cards.
- 2 Once the synchronization of memories and drives is complete, STAT the CPU and verify that the CPUs are in a true redundant state.

<b>LD 135</b>	
<b>STAT CPU</b>	Get status of CPU and memory
<b>****</b>	Exit the program

```
.stat cpu

cp 0 16 PASS -- STDBY

TRUE REDUNDANT
DISK STATE = REDUNDANT
HEALTH = 20
VERSION = Mar 3 2005, 16:26:40
  Side = 0, DRAM SIZE = 512 MBytes

cp 1 16 PASS -- ENBL

TRUE REDUNDANT
DISK STATE = REDUNDANT
HEALTH = 20
VERSION = Mar 3 2005, 16:26:40
  Side = 1, DRAM SIZE = 512 MBytes
```

- 3** Tier 1 and Tier 2 health of both CP PM Call Servers must be identical in order to successfully switch service from CP PM Call Server 1 to CP PM Call Server 0.

### **LD 135**

**STAT HEALTH**    Get status of CPU and memory

**\*\*\*\***            Exit the program

```
.stat health
Local (Side 0, Active, Redundant):
Components without TIER 1 Health contribution:
=====
    disp 0 15 1:In Service
    sio2 0 15 1:In Service
        cp 0 16:In Service
            ipb 0:In Service
TIER 1 Health Count Breakdown:
=====
    sio8 0 16 1: 0002
    sio8 0 16 2: 0002
        sutl 0 15: 0002
            strn 0 15: 0002
    xsmp 0 15 1: 0002

    eth 0 16 0: 0002
Local TIER 1 Health Total: 20
```

```
TIER 2 Health Count Breakdown:
=====
ELAN 16 IP : 47.11.138.150 Health = 2
ELAN 17 IP : 47.11.138.153 Health = 2

Local AML over ELAN Total Health:4
Local Total IPL Health = 6

IPL connection history:3 3 3 3 3 3 3 3 3 3 3 3 3 3
3 3 3 3 3 3

Local TIER 2 Health Total:10

Remote (Side 1, Inactive, Redundant):
Components without TIER 1 Health contribution:
    disp 1 15 1:In Service
    sio2 1 15 1:In Service
    cp 1 16:In Service
    ipb 1:In Service
TIER 1 Health Count Breakdown:
    sio8 1 16 1: 0002
    sio8 1 16 2: 0002
    sutl 1 15: 0002
    strn 1 15: 0002
    xsmp 1 15 1: 0002
    eth 1 16 0: 0002
Remote TIER 1 Health Total: 20
```

```
TIER 2 Health Count Breakdown:
=====
ELAN 16 IP : 47.11.138.150 Health = 2
ELAN 17 IP : 47.11.138.153 Health = 2

Remote AML over ELAN Total Health:4
Remote Total IPL health = 6

Remote TIER 2 Health Total:10
```

**4** Get status of links to the Media Gateways (STAT IPL).

**LD 135**

**STAT IPL**

Get status of MG 1000E (IPMG)

Media Gateway 1: LINK UP

Media Gateway 2: LINK UP

Media Gateway 3: LINK UP

Media Gateway 4: LINK UP

\*\*\*\*

Exit the program

The system now operates in full redundant mode with CP  
PM Call Server 1 active.

---

**End of Procedure**

---

---

## Complete the CP PM installation

### Testing the CP PM Call Servers

#### Procedure 23

#### Testing CP PM Call Server 0

At this point in the installation, CP PM Call Server 0 is tested from active CP PM Call Server 1. Upon successful completion of these tests, call processing is switched and the same tests are performed on CP PM Call Server 1 from active CP PM Call Server 0. As a final step, call processing is then switched again to CP PM Call Server 1.

**From active CP PM Call Server 1, perform the following tests on CP PM Call Server 0:**

- 1 Perform a redundancy sanity test:

#### **LD 135**

**STAT CPU**      Get status of CPU and memory

**TEST CPU**      Test the CPU

- 2 Check the LCD states

- a. Perform a visual check of the LCDs.

- b. Test and LCDs:

#### **LD 135**

**TEST LEDs**      Test LEDs

#### **DSPL ALL**

- c. Check that the LCD display matches the software check.

- 3 Test the System Utility card

**LD 135**            Load program

**STAT SUTL**      Get the status of the System Utility card

**TEST SUTL**      Test the System Utility card

4 Test system redundancy and media devices:

- LD 137** Load program
- TEST RDUN** Test redundancy
- DATA RDUN** Test database integrity
- STAT FMD** Status of one or both Fixed Media Devices (FMD)
- STAT RMD** Status of one or both Removable Media Devices (RMD)

5 Clear the display and minor alarms on both CP PM Call Servers:

- LD 135** Load program
- CDSP** Clear the displays on the cores
- CMAJ** Clear major alarms
- CMIN ALL** Clear minor alarms

6 Check dial tone.

7 Check applications (CallPilot, Symposium, and so on)

————— **End of Procedure** —————

### Switch call processing

#### Procedure 24

#### Switching call processing

- LD 135** Load program
- SCPU** Switch call processing from CP PM Call Server 1 to CP PM Call Server 0

CP PM Call Server 0 is now the active call processor.

————— **End of Procedure** —————

**Procedure 25**  
**Testing CP PM Call Server 1**

**From active CP PM Call Server 0**, perform these tests on CP PM Call Server 1:

- 1 Perform a redundancy sanity test:

<b>LD 135</b>	Load program
<b>STAT CPU</b>	Get status of CPU and memory
<b>TEST CPU</b>	Test the CPU

- 2 Check the LCD states.

- a. Perform a visual check of the LCDs.

- b. Test LCDs:

<b>LD 135</b>	Load program
<b>TEST LCDs</b>	Test LCDs
<b>DSPL ALL</b>	

- c. Check that the LCD display matches the software check.

- 3 Test the System Utility card:

<b>LD 135</b>	Load program
<b>STAT SUTL</b>	Get the status of the System Utility card
<b>TEST SUTL</b>	Test the System Utility card

- 4 Test system redundancy and media devices:

<b>LD 137</b>	Load program
<b>TEST RDUN</b>	Test redundancy
<b>DATA RDUN</b>	Test database integrity
<b>STAT FMD</b>	Status of one or both Fixed Media Devices (FMD)

**STAT RMD**      Status of one or both Removable Media Devices (RMD)

**\*\*\*\***            Exit the program

**5** Clear the display and minor alarms on both CP PM Call Servers:

**LD 135**        Load program

**CDSP**        Clear the displays on the CP PM Call Servers

**CMAJ**        Clear major alarms

**CMIN ALL**    Clear minor alarms

**6** Check dial tone.

**7** Check applications (CallPilot, Symposium, etc.)

————— **End of Procedure** —————

### **Switch call processing**

#### **Procedure 26**

#### **Switching call processing**

**LD 135**        Load program

**SCPU**        Switch call processing from CP PM Call Server 0 to CP PM Call Server 1

CP PM Call Server 1 is now the active call processor.

————— **End of Procedure** —————

**Perform a customer backup data dump (installation release)****Procedure 27****Performing a data dump to backup the customer database:**

- 1 Log in to the system.
- 2 Insert a CF card into the active CP PM Call Server RMD slot to back up the database.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter:

**LD 43**            Load program.

**.**                EDD

- 4 When "EDD000" appears on the terminal, enter:

**EDD**            Begin the data dump.

**CAUTION — Service Interruption****Loss of Data**

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter:

**\*\*\*\***            Exit program

The installation is now complete.

**End of Procedure**



---

# Configuring the CS 1000E CP PM Call Server

---

## Contents

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## Introduction

The CS 1000E system requires the configuration of an IP telephony node. The configuration data is stored in the BOOTP.TAB and CONFIG.INI files on the CS 1000E. Copies of both files are maintained on each node component (Signaling Server and Media Card).

The preconfigured IP telephony configuration files from the leader Signaling Server must be imported. These files are saved on the CS 1000E as:

- `c:/u/db/node/nodex.cfg` where *x* is the node number
- `c:/u/db/node/nodex.btp` where *x* is the node number

### **IMPORTANT!**

Do not attempt to alter the configuration files either manually or with OTM's ITG or IP Phone management. Use Element Manager only.

The node database files are backed up along with the customer database using the LD 43 EDD command.

This chapter contains the following procedures:

- Procedure 28: "Configuring login IDs and passwords" on [page 143](#)
- Procedure 29: "Enabling the multi-user option" on [page 146](#)
- Procedure 30: "Configuring pseudo-terminals (PTYs)" on [page 147](#)
- Procedure 31: "Checking PTY status" on [page 149](#)
- Procedure 32: "Configuring MG 1000E Bandwidth Management Zone" on [page 151](#)
- Procedure 33: "Launching Element Manager" on [page 156](#)
- Procedure 34: "Importing an existing node" on [page 158](#)
- Procedure 35: "Performing a datadump using Element Manager" on [page 160](#)

## Configuring login IDs and passwords

**Note:** You must be logged in as a user with admin2 level privileges in order to change the default username and password.

For increased security:

- Change the default login username and password.  
The default login is username **admin1** and password **0000**, as used throughout this guide.
- Configure the Limited Access Password (LAPW) IDs and passwords.

Follow Procedure 28 to configure login IDs and passwords.

### Procedure 28 Configuring login IDs and passwords

- 1 Enter the command:

**LD 17**

```
CFN000
MEM AVAIL: (U/P): 1015918 USED U P: 138773 24956
TOT:1179647
DISK RECS AVAIL: 486
TMDI D-CHANNELS AVAIL: 0 USED: 0 TOT: 0
DCH AVAIL: 80 USED: 0 TOT: 80
AML AVAIL: 15 USED: 1 TOT: 16
```

- 2 Enter the command:

REQ **CHG**

- 3 Enter the command:

**PSWD\_COMP**

<enter to accept default or set to required setting>

**FPC**

<enter to accept default or set to required setting>

**LOUT**

<enter to accept default or set to required setting>

**FLTH**

<enter to accept default or set to required setting>

**LOCK**

<enter to accept default or set to required setting>

**FLTA**

<enter to accept default or set to required setting>

**AUDT**

<enter to accept default or set to required setting>

**LLID**

<enter to accept default or set to required setting>

- 4 Enter the command:

ACCOUNT\_REQ **new**

- 5 Enter the command:

PWD\_TYPE **pwd2** (pwd1, pwd2, lapw are options)

- 6 Enter the command:

USER\_NAME **kattest** (username)

- 7 Enter the command:

PASSWORD (**userpassword**)

- 8 Enter the command:

CONFIRM (**confirm password**)

- 9 Enter the command:

ACCT **yes** (**yes** for pdt access, default for no pdt access)

- 10 Enter the command:

PDT **pdt2** (pdt1 or pdt2)

- 11 Enter the command:

ACCOUNT\_REQ **new**

- 12 Enter the command:

PWD\_TYPE **lapw**

- 13 Enter the command:

PWTP **ovly**

- 14 Enter the command:

USER\_NAME **kattest** (username)

- 15 Enter the command:  
PASSWORD (**userpassword**)
- 16 Enter the command:  
CONFIRM (**confirm password**)
- 17 Enter the command:  
OVLA **10 11**
- 18 Enter the command:  
OVLA **all**
- 19 Enter the command:  
OVLA
- 20 Enter the command:  
Cust **0**
- 21 Enter the command:  
TEN
- 22 Enter the command:  
CUST
- 23 Enter the command:  
HOST
- 24 Enter the command:  
MAT
- 25 Enter the command:  
OPT
- 26 Enter the command:  
PDT  
  
PWD ACCOUNT SETTINGS SAVED

---

**End of Procedure**

---

## Enabling the multi-user option

Follow Procedure 29 to enable the multi-user option.

### Procedure 29 Enabling the multi-user option

- 1 Enter the command:

**LD 17**

System response:

```
CFN000
MEM AVAIL: (U/P): 1015918 USED U P: 138773 24956
TOT: 1179647
DISK RECS AVAIL: 486
TMDI D-CHANNELS AVAIL: 0 USED: 0 TOT: 0
DCH AVAIL: 80 USED: 0 TOT: 80
AML AVAIL: 15 USED: 1 TOT: 16
```

- 2 Enter the command:

REQ **chg**

- 3 Enter the command:

TYPE **ovly**

....

- 4 Enter the command:

MULTI\_USER **on**

System response:

```
MEM AVAIL: (U/P): 1015893 USED U P: 138773 24981
TOT: 1179647
DISK RECS AVAIL: 486
TMDI D-CHANNELS AVAIL: 0 USED: 0 TOT: 0
DCH AVAIL: 80 USED: 0 TOT: 80
AML AVAIL: 15 USED: 1 TOT: 16
```

- 5 Enter the command:

REQ **\*\*\*\***

---

**End of Procedure**

---

## Configuring pseudo-terminals (PTYs)

CS 1000E provides two ports (COM1 and COM2) on the CPU. A Terminal Server is used to provide additional serial ports for specific applications, such as ACD, BGD, CTY, MCT, PMS, and TRF. Each configured Terminal Server serial port automatically starts an rlogin session with a user ID to a dedicated pseudo (PTY) port in the CS 1000E system. Nortel recommends configuring at least two PTYs for general use (rlogin sessions with no user ID). In practice, a maximum of 14 PTYs can be used, leaving 2 TTYs for COM1 and COM2 on the CPU card. Login to PTY is case sensitive.

Every PTY configured is given a user ID "PTYx", where x is the port number assigned to the PORT prompt. If no input is entered for the PORT prompt, the default value is the same as the TTY number. Nortel recommends using the default value for easy management. When an rlogin session is initiated with a user ID, the Call Server searches for a free PTY with a matching user ID. The search starts with the highest configured PTY number and progresses in descending order of the PTY number. If no free PTY with a matching user ID is found, the connection is refused. In this case, TTY012 message is printed on the administration terminal. When an rlogin session is initiated with no user ID specified, the Call Server searches for a free PTY. The search starts from the lowest configured PTY number and progresses in ascending order of the PTY number. The first available PTY is used to open the rlogin session. In order to minimize the probability of having a PTY configured for a specific application being used for general rlogin sessions, PTYs of specific applications are configured to start with the highest TTY number, such as 15, and progress in descending order. PTYs for general use are configured to start with the lowest number and progress in ascending order.

Follow Procedure 30 to configure pseudo-terminals.

### **Procedure 30** **Configuring pseudo-terminals (PTYs)**

Nortel recommends that at least two PTYs be configured. A maximum of four PTYs can be allocated on a CS 1000E system.

- 1 Enter the command:

**LD 17**

System response:

```
CFN000
MEM AVAIL: (U/P):1019254 USED U P:138012 22381
TOT:1179647
DISK RECS AVAIL: 491
TMDI D-CHANNELS AVAIL: 0 USED: 0 TOT: 0
DCH AVAIL: 80 USED: 0 TOT: 80
AML AVAIL: 15 USED: 1 TOT: 16
```

**2** Enter the command:

```
REQ CHG
```

**3** Enter the command:

```
TYPE CFN
```

**4** Enter the command:

```
ADAN NEW TTY <x>
```

Where:

<x> = an available TTY number (0-15)

**5** Enter the command:

```
TTY_TYPE PTY
```

**6** Enter the command:

```
PORT <y>
```

Where:

<y> = an available PTY port (0-7)

**7** Enter the command:

```
DES <z>
```

Where:

<z> = designator (for example, ""**ether 1**"")

**8** Enter the command:

```
FLOW NO
```

**9** Enter the command:

```
USER MTC BUG SCH
```

**10** Enter the command:

TTYLOG **NO**

**11** Enter the command:

BANR **YES**

System response:

```
MEM AVAIL: (U/P):1019130 USED U P: 138064 22453
TOT: 355327
DISK RECS AVAIL: 491
TMDI D-CHANNELS AVAIL: 0 USED: 0 TOT: 0
DCH AVAIL: 80 USED: 0 TOT: 80
AML AVAIL: 15 USED: 1 TOT: 16
ADAN DATA SAVED
```

**12** Enter the command:

ADAN **\*\*\*\***

---

**End of Procedure**

---

## Checking PTY status

Follow Procedure 31 to check the PTY status.

### **Procedure 31** **Checking PTY status**

Pseudo-terminals show enabled only if you are using them.

**1** Enter the command:

**LD 37**

**2** Enter the command:

**STAT**

System response:

```
TTY 0: ENBL DES: ...
TTY 1: ENBL DES: ...
TTY 2: ENBL DES: ...
TTY 3: ENBL DES: ...
TTY 12: DSBL DES: ether 1
```

```

TTY 13: DSBL DES: ether 2
TTY 14: DSBL DES: ether 3

```

3 Enter the command:

```
****
```

4 Perform an EDD to save your changes.

---

**End of Procedure**

---

## Configuring Virtual Tone and Conference Circuits

Virtual Tone and Conference Circuits must be defined for use by each MG 1000E. Use LD 17 to add Virtual Tone and Conference circuits (VXCT). Each VXCT consists of two loops. The VXCT must start with an even loop number. The Virtual Tone and Conference Circuits in the same MG 1000E must occupy contiguous double loops. For easy management, Nortel recommends to start the VXCT loops from a loop number high enough (for example, 60) to leave enough superloop number for all MG 1000E superloops. If an MG 1000E has two Virtual Tone and Conference Circuits and the starting loop is 60, VXCTs 60 and 62 must be configured.

### LD 17 – Add Virtual Tone and Conference loops.

Prompt	Response	Comment
REQ	CHG	Change existing data
TYPE	CEQU	Common Equipment
...	...	
MGTDS	X	(x=superloop number (even))
IPMG	a b	(a=loop of MG, b=shelf of MG)
MGCONF	X	(x=superloop number (odd))
IPMG	a b	(a=loop of MG, b=shelf of MG)

## Configuring the MG 1000E Bandwidth Management Zones

Follow Procedure 32 for configuring bandwidth management zones.

### Procedure 32

#### Configuring MG 1000E Bandwidth Management Zone

- 1 Enter LD 117 and press <cr>.
- 2 Enter NEW ZONE 0, to create a new zone with default parameters.

**Note:** LD 117 also includes DIS and ENL commands to disable or enable a zone. When you create a zone, its default state is enabled. See LD 117 – Bandwidth management zone commands on [page 152](#).

- 3 Print zone and bandwidth information using PRT INTRAZONE or PRT INTERZONE.
- 4 Exit from LD 117 by entering the command: \*\*\*\*

**LD 117 – Bandwidth management zone commands**

Command	Description
NEW ZONE xxx p1 p2 p3 p4 p5	<p>Create a new zone, where:</p> <p>xxx = zone number = (0) - 255.</p> <p>p1 = Intrazone available bandwidth = 0 - (10 000) - 100 000 (Kbps)</p> <p>p2 = Intrazone preferred strategy = (BQ for Best Quality) or BB for Best Bandwidth</p> <p>p3 = Interzone available bandwidth = 0 - (10 000) - 100 000 (Kbps)</p> <p>p4 = Interzone preferred strategy = BQ for Best Quality or BB for Best Bandwidth</p> <p>p5 = Zone resource type = (shared) or private</p>
NEW ZONE xxx	<p>Create a new zone with default values for the parameters:</p> <p>p1 = 10 000 (Kbps)</p> <p>p2 = BQ</p> <p>p3 = 10 000 (Kbps)</p> <p>p4 = BQ</p> <p>p5 = shared</p>
CHG ZONE xxx p1 p2 p3 p4 p5	<p>Change parameters of a zone. All parameters, including those that are unchanged, must be re-entered.</p>
OUT ZONE xxx	<p>Remove a zone.</p>
DIS ZONE xxx	<p>Disable a zone. When a zone is disabled, no new calls are established inside, from, or toward this zone.</p>
ENL ZONE xxx	<p>Enable a zone.</p>
PRT ZONE xxx	<p>Print zone and bandwidth information.</p>

---

**End of Procedure**

---

The type of any Bandwidth Management Zone for MG 1000E with conference resources configured must be shared.

Distortion in Music is expected when G.729AB codec is used. Hence the Interzone and the Intrazone policies for an MG 1000E Bandwidth Management Zone should have Best Quality to give preference to G711 codec to minimize of occurrence of music distortion.

**IMPORTANT!**

Currently, the CS 1000E only supports Recorded Announcement Broadcast and Music Broadcast.

Ensure that the bandwidth provisioned is adequate to provide the acceptable blocking level of the resources in the MG 1000E. Refer to the *Communication Server 1000E: Planning and Engineering* (NN43041-220) for details.

## Configuring the MG 1000E ports

IP addresses must be configured on the CP PM Call Server for each MG 1000E in the system. Use LD 97 to configure the MG 1000E ports.

### LD 97 – Configuring the MG 1000E ports

Prompt	Response	Comment
REQ	CHG	Change existing data
TYPE	SUPL	Superloop
SUPL	<x>	Superloop for gateway
SLOT	<x>	Default
SUPT	IPMG	MG 1000E
IPRO	xx.xx.xx.xx	IP address of for Media Gateway
ZONE0	x	Zone for Media Gateway

## Configuring Digitone Receivers

Digitone Receivers must be configured in each MG 1000E if any analog terminals or trunks are equipped. The loop of the Digitone Receivers is the superloop of the MG 1000E. The first MG 1000E in the superloop is on shelf 0, and the second MG 1000E's on shelf 1. Sixteen units of DTMF tone detection (DTR) are integrated within the controller (SSC) circuitry, or eight Digitone Receiver units can be configured on each of card 14 and card 15. These Digitone Receiver units are built in on the SSC card in the MG 1000E. No additional hardware is required. If Digitone Receivers units are configured in any other card slots, a receiver hardware pack must be equipped in the slot. If no hardware is equipped, the unequipped receiver units may be allocated during call processing, resulting in call failure.

Any additional tone signaling resources must be added and configured as IPE cards.

Configure Digitone Receivers in LD 13.

### LD 13 – Configure the Digitone Receivers

Prompt	Response	Comment
REQ	NEW CHG	Add or change the existing data.
TYPE	a...a	Type of data block (a...a = DTR, MFC, MFE, MFK5, MFK6, or MFR)
TN	l s c u	Terminal Number  l = loop for CS 1000E system. MG 1000E requiring Digitone Receivers.  s = 0 or 1  c = 14 or 15 to access the integrated MG 1000E tone circuits  u = 0-7 DTMF detectors (DTR) 0-3 MFR, MFC, MFE, MFK5, MFK6 units on card 15

## Configuring Tone Detectors

Tone Detectors, when required, are configured in a manner similar to that for Digitone Receivers. The SSC card in the MG 1000E provides four units of Multifrequency Senders and Receivers. These units are configured on card 15 of the MG 1000E. In addition Multifrequency Transmit Level codes (MFTL0 and MFTL1) must be configured in LD 97.

### LD 97 - Configure Tone Detectors

Prompt	Response	Comment
REQ	CHG	Change existing data
TYPE	SYSP	System Parameters for Peripheral equipment)
...		
MFLT0	(0)-15	Multifrequency transmit level code for Identifier 0 for MG 1000E
MFLT1	(0)-15	Multifrequency transmit level code for Identifier 1 for MG 1000E

## Logging in to Element Manager

To log in to Element Manager, follow the steps in Procedure 33 on [page 156](#). Element Manager supports Microsoft™ Internet Explorer 6.0.2600 for Windows operating systems.

Before following this procedure, see *Signaling Server: Installation and Commissioning* (NN43001-312) for information about setting up a browser for optimal performance of Element Manager.

*Note:* This procedure requires Service Pack 1 and Java Runtime environment.

**Procedure 33**  
**Launching Element Manager**

- 1    Open the web browser.
- 2    Enter the **Signaling Server Node IP address** in the Address Bar of the browser window, and press **Enter** on the keyboard.

*Note:* The ELAN network interface IP address may be required, instead of the Node IP address, to access the Element Manager login web page in secure environments.

- 3    Element Manager opens with the **Login** web page (see Figure 49).

*Note:* If a security certificate has been correctly installed, and the usage rule set to “UserChoice”, the user will have the option of logging in using Secure mode. If the usage rule is set to “Always”, the user will be redirected to the https site, and a warning message will appear.

- a.    Enter a valid **User ID** and **Password** combination.

*Note:* A valid **User ID** and **Password** combination is one which is defined on the Call Server.

The IP Address of the Call Server appears in the **Call Server IP Address** field.

- b.    Click **Login**.

**Figure 49**  
**The Element Manager login**

>CS 1000 ELEMENT MANAGER

>THIS IS NORTEL

User ID:

Password:

Call Server IP Address:

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---

**End of Procedure**

---

## Importing preconfigured IP telephony files

Follow Procedure 34 to import the preconfigured IP telephony files from the Signaling Server.

### Procedure 34 Importing an existing node

Figure 50 displays the **Element Manager System Information** home page.

**Figure 50**  
**Element Manager – System Information**

The screenshot shows the 'CS 1000 ELEMENT MANAGER' interface. The top navigation bar is purple with the 'NORTEL' logo on the left and 'Help | Login' on the right. A left-hand sidebar contains a tree view of navigation options, including Home, Links, System, Customers, Routes and Trunks, Dialing and Numbering Plans, and Tools. The main content area is titled 'System Overview' and displays the following information: 'Managing: 192.167.104.53', 'System Overview', 'IP Address: 192.167.104.53', 'Type: Nortel Communication Server 1000E CPPM', 'Version: 4021', and 'Release: 500F'. Below this information are two blue hyperlinks: 'Signaling Server Details' and 'Active Sessions'.

- 1 Select **System > IP Network > Nodes: Servers, Media Cards** from the navigator.  
The **Node Configuration** web page appears. No nodes are defined.
- 2 Import the Node files from the leader Signaling Server.
  - a. Click **Import Node Files** on the **Node Configuration** web page.  
The **Import Node Files** screen in Figure 51 on [page 159](#) appears.
  - b. Enter the ELAN IP address of the leader Signaling Server in the input box.

**Figure 51**  
**Import Node Files – Retrieve and upgrade configuration files**



- 3 Click **Import**.  
A success message appears.
- 4 Click **OK** to go to the next procedure.

————— **End of Procedure** —————

## Reviewing and submitting IP telephony node configuration files

To review and submit IP telephony node configuration files, please refer to *IP Line: Description, Installation, and Operation* (NN43100-500).

## Adding a Follower Signaling Server to an IP telephony node

To add a follower signaling server to an IP telephony node, follow the procedure as given in *Signaling Server: Installation and Commissioning* (NN43001-312).

## Performing a datadump

Follow Procedure 35 to perform a datadump using Element Manager. This procedure is an alternative to using the CLI to perform a datadump. The datadump backs up new IP Telephony node files on the CS 1000E at the same time that it backs up the customer database.

### **Procedure 35** **Performing a datadump using Element Manager**

From Element Manager (see Figure 49 on [page 157](#) for details on logging in), do the following:

- 1 Choose **Tools > Backup and Restore > Call Server** from the navigator.  
The **Call Server Backup and Restore** web page opens (see Figure 52 on [page 161](#)).

**Figure 52**  
**Call Server Backup and Restore web page**

The screenshot shows the 'Call Server Backup and Restore' web page within the 'CS 1000 ELEMENT MANAGER' interface. The top navigation bar is purple and contains the 'NORTEL' logo, the title 'CS 1000 ELEMENT MANAGER', and 'Help | Logout' links. Below the navigation bar, the page title is 'Call Server Backup and Restore'. The left sidebar contains a tree view of navigation options, with 'Call Server' under the 'Tools' section highlighted. The main content area displays a breadcrumb trail: 'Tools » Backup and Restore » Call Server Backup and Restore'. Below the breadcrumb, the page title 'Call Server Backup and Restore' is repeated, followed by a list of options: '- Backup', '- Restore', '- Backup Rules', and '- Backup Schedules'.

Managing: [192.167.104.53](#)  
Tools » Backup and Restore » Call Server Backup and Restore

## Call Server Backup and Restore

- Backup
- Restore
- Backup Rules
- Backup Schedules

**2** Select **Backup**.

The **Call Server Backup** web page appears (see Figure 53 on [page 162](#)).

**Figure 53**  
**CS 1000E Backup**

Managing: [192.167.104.53](#)  
Tools » Backup and Restore » [Call Server Backup and Restore](#) » Call Server Backup

---

## Call Server Backup

**Action**

- Backup
- Backup Clear(EDD CLR)
- Backup According to Rule(BKR X)

- 3 Select **Backup** from the **Action** drop-down list box.
- 4 Click **Submit**.  
The message displays indicating “Backup in progress. Please wait...”
- 5 Click **OK** in the **EDD complete** dialog box.  
The Backup function then displays information in a tabular form, indicating the actions that were performed.

————— **End of Procedure** —————

---

# Installing a Signaling Server

---

## Contents

This section contains information on the following topics:

- [Introduction . . . . .](#) 164
- [Readiness checklist . . . . .](#) 165
- [Installing the CP PM Signaling Server hardware . . . . .](#) 167
- [Connections . . . . .](#) 191
- [Installing the Signaling Server software . . . . .](#) 201
- [First boot of a new Nortel CP PM Signaling Server . . . . .](#) 228
- [Unpacking Help files for Virtual Terminal Emulator . . . . .](#) 247
- [Logging in to the Signaling Server . . . . .](#) 247
- [Verifying a successful configuration . . . . .](#) 249
- [Testing the Leader Signaling Server . . . . .](#) 249

## Introduction

This chapter contains general instructions to install a Nortel CP PM server and detailed instructions to install a legacy Nortel ISP1100 server. This chapter contains no instructions to install an IBM X306m or HP DL320-G4 COTS 1U server. Please see the *IBM xSeries 306m Types 8848 and 8491 User Guide* or the *HP ProLiant DL320 Generation 4 Server User Guide* shipped with the COTS servers for detailed installation instructions. Of particular note, the IBM X306m and HP DL320-G4 servers require four-post

rack mounting, as opposed to two-post rack mounting for the Nortel ISP1100 server.

**IMPORTANT!**

Instructions to install an IBM X306m or HP DL320-G4 COTS 1U server are not included in this chapter. Detailed installation instructions can be found in the IBM xSeries 306m Types 8848 and 8491 User Guide or the HP ProLiant DL320 Generation 4 Server User Guide shipped with the server.

## Readiness checklist

Before installing a Signaling Server in a CS 1000 system, complete the following checklist.

**WARNING**

Do not modify or use a supplied AC-power cord if it is not the exact type required in the region where the Signaling Server is installed and used. Be sure to replace the cord with the correct type.

**Table 13**  
**Readiness checklist (Part 1 of 2)**

<b>Have you:</b>	
Read all safety instructions in <i>Communication Server 1000E: Installation and Commissioning</i> (NN43041-310) or <i>Communication Server 1000M and Meridian 1 Large System Installation and Configuration</i> (NN43021-310), as appropriate for your CS 1000 system?	
<p>Received all equipment and peripherals?</p> <p><b>For a Nortel ISP1100 (NTDU27AA), IBM X306m (NTDU99AAE5), and HP DL320-G4 (NTDU97AA) Signaling Servers:</b></p> <ul style="list-style-type: none"> <li>• installation accessories for rack-mounting the server</li> <li>• AC-power cord</li> <li>• a DTE-DTE null modem cable (supplied)</li> </ul> <p><b>For a CS 1000E Nortel CP PM Signaling Server (NTDW61BAE5):</b></p> <ul style="list-style-type: none"> <li>• NTDW6102E5 - CP PM Signaling Server Hard Drive kit</li> <li>• N0118766 - CP PM Signaling Server Hard Drive Installation instructions</li> <li>• NTAK19ECE6 - CP PM Signaling Server 2 port SDI Cable assembly kit</li> <li>• NTDU0606E6 - CP PM Signaling Server 25cm RJ45 Ethernet Cable kit</li> <li>• a DTE-DTE null modem cable (supplied)</li> <li>• for a CS 1000M Nortel CP PM Signaling Server (NTDW66AAE5 model)</li> <li>• NTDW6102E5 - CP PM Signaling Server Hard Drive kit</li> <li>• N0118766 - CP PM Signaling Server Hard Drive Installation instructions</li> <li>• NTAK19ECE6 - CP PM Signaling Server 2 port SDI Cable assembly kit</li> <li>• NTDW69AAE5 - CP PM Signaling Server Large System Cabling kit</li> <li>• N0106745 - CP PM Signaling Large System Cabling</li> <li>• a DTE-DTE null modem cable (supplied)</li> </ul> <p><b>Note:</b> Save the packaging container and packing materials in case you must ship the product.</p>	

**Table 13**  
**Readiness checklist (Part 2 of 2)**

<b>Have you:</b>	
Made sure the area meets all environmental requirements?	
Checked for all power requirements?	
Checked for correct grounding facilities?	
<p>Obtained the following:</p> <ul style="list-style-type: none"> <li>• screwdrivers</li> <li>• an ECOS 1023 POW-R-MATE or similar type of multimeter</li> <li>• appropriate cable terminating tools</li> <li>• a computer (maintenance terminal) to connect directly to the Signaling Server, with: <ul style="list-style-type: none"> <li>— teletype terminal (ANSI-W emulation, serial port, 9600 bps)</li> <li>— a web browser for Element Manager (configure cache settings to check for new web pages)</li> <li>— every time the browser is invoked, and to empty the cache when the browser is closed)</li> </ul> </li> </ul>	
Prepared the network data as suggested in <i>Converging the Data Network with VoIP</i> (NN43001-260), <i>Communication Server 1000E: Planning and Engineering</i> (NN43041-220) or <i>Communication Server 1000M and Meridian 1 Large System Planning and Engineering</i> (NN43021-220), as appropriate for your CS 1000 system?	
Read all safety instructions in <i>Communication Server 1000E: Installation and Commissioning</i> (NN43041-310) or <i>Communication Server 1000M and Meridian 1 Large System Installation and Configuration</i> (NN43021-310), as appropriate for your CS 1000 system?	

## Installing the CP PM Signaling Server hardware

The Nortel CP PM server is a circuit card, and thus is not mounted in a rack. This section contains instructions for installing a Nortel CP PM Signaling Server in a CS 1000E and a CS 1000M system.

This section contains general instructions for installing the CP PM Signaling Server circuit cards in CS 1000E and CS 1000M systems. For more detailed installation instructions, refer to *Circuit Card: Description and Installation* (NN43001-311) and *Signaling Server: Installation and Commissioning* (NN43001-312).

**IMPORTANT!**

There are several switches on CP PM circuit cards. All switch settings must be factory defaults except for the switch labelled "S5". Switch S5 must be set to position 2 to support the internal hard drive used on the CP PM Signaling Server circuit cards only.

## Installation in a CS 1000E system

The NTDW61BAE5 model of the Nortel CP PM server is designed for use in a CS 1000E system. The first task that must be performed is to install the hard drive shipped with the server. For instructions, see "Install the hard drive on a Nortel CP PM Signaling Server" in *Signaling Server: Installation and Commissioning* (NN43001-312).

You can insert the NTDW61BAE5 model of the Nortel CP PM server into any slot of a CS 1000E Media Gateway (MG 1000E or MG 1000B) or 11C cabinet or chassis, except slot 0. Slot 0 is reserved for a Small System Controller (SSC) card or a Media Gateway Controller (MGC) card. Keying prevents the NTDW61BAE5 model from being inserted into this slot.



**CAUTION — Equipment Damage**

Do not insert the NTDW61BAE5 model of the Nortel CP PM server into any slot of a CS 1000M Universal Equipment Module (UEM). Doing so can cause electrical shorts on adjacent circuit cards.

## Installation in a CS 1000M system

The NTDW66AAE5 model of the Nortel CP PM server is designed for use in a CS 1000M system. The first task that must be performed is to install the hard drive shipped with the server. For instructions, see "Install the hard drive on a Nortel CP PM Signaling Server" in *Signaling Server: Installation and Commissioning* (NN43001-312).

You can insert the NTDW66AAE5 model into any slot of a CS 1000M Universal Equipment Module (UEM) except slot 7. The External Peripheral Equipment Controller (XPEC) is next to slot 7 and prevents the double wide faceplate of the NTDW66AAE5 model from seating into slot 7.

The next task that you must perform is to install ELAN and TLAN Ethernet ports on the back of the CS 1000M UEM. These ports are used to connect your Nortel CP PM Signaling Server to the ELAN and TLAN Ethernet subnets of your CS 1000M system.

Use the following procedure to install ELAN and TLAN Ethernet ports on the back of a CS 1000M UEM.

### **IMPORTANT!**

Installing ELAN and TLAN Ethernet ports on the back of a CS 1000M Universal Equipment Module (UEM) is service-disrupting. Power to the shelf must be turned off during this procedure.

**Procedure 36**

**Installing ELAN and TLAN Ethernet ports on a CS 1000M UEM**

- 1 Obtain the special cabling kit (NTDW69AAE5) shipped with the CS 1000M model of the Nortel CP PM Signaling Server (NTDW66AAE5). The NTDW69AAE5 cabling kit should include the items shown in Figure 54.

**Figure 54**

**NTDW69AAE5 Cabling Kit contents**

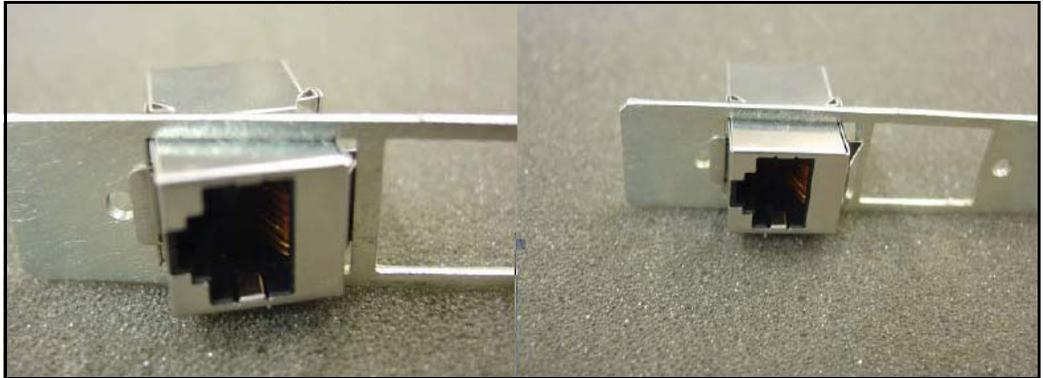


The following is a list of items in the NTDW69AAE5 cabling kit:

- two RJ-45 CAT5 Ethernet patch cables
- two Ethernet port couplers
- one Ethernet port adapter plate
- two screws
- two nuts
- two washers
- two ferrite beads

- 2 Insert an Ethernet port coupler into the adapter plate. See Figure 55.

**Figure 55**  
**One Ethernet port coupler in adapter plate**



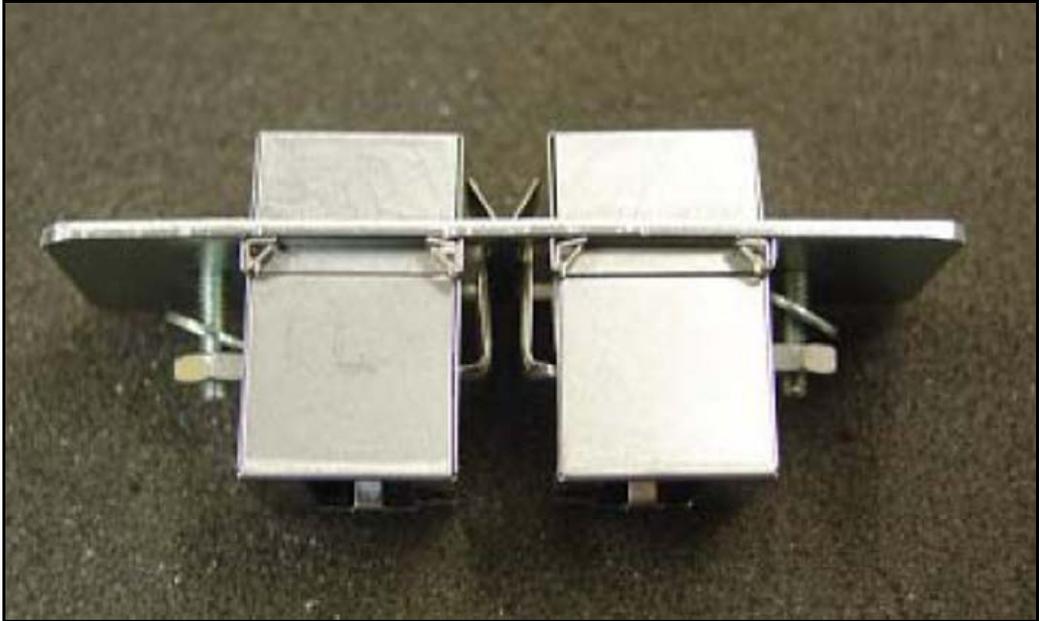
- 3 Insert the other Ethernet port coupler into the adapter plate. See Figure 56 on page 171.

**Figure 56**  
**Two Ethernet port couplers in adapter plate**



- 4 Loosely attach screws, washers, and nuts to the Ethernet port adapter plate. See Figure 57.

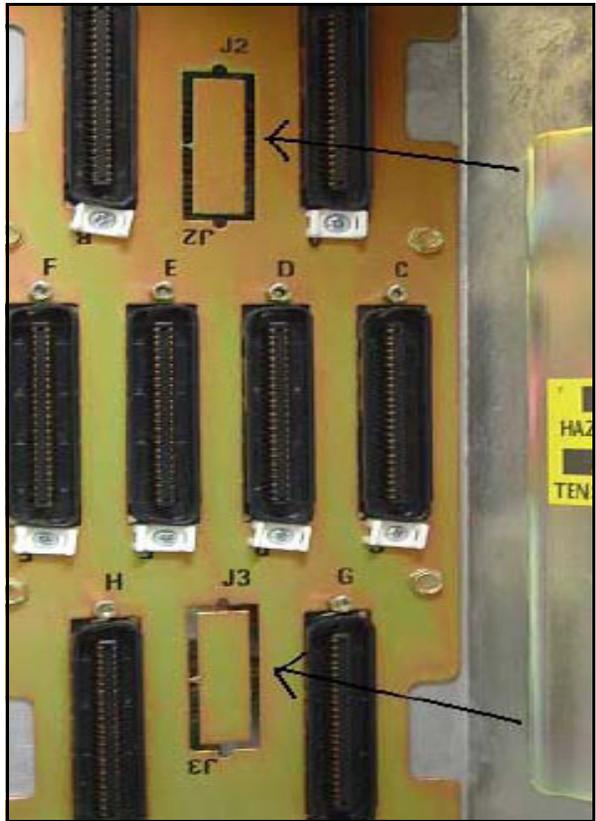
**Figure 57**  
**One Ethernet port coupler in adapter plate**



- 5 Switch off the UEM power supplies. See Figure 58.

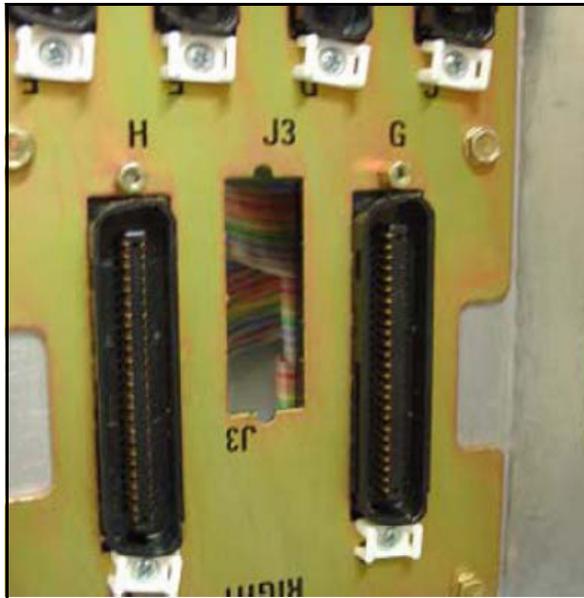


**Figure 59**  
**J2-J5 plates on back panel of UEM**



- 7 Knock out the metal plate from selected J2-J5 location. This provides a hole through which the Ethernet patch cables are routed, and to which the Ethernet port adapter plate is attached. See Figure 60.

**Figure 60**  
**Selected J2-J5 plate on back panel of UEM**



- 8** Establish an ELAN port on the back panel of the UEM.
  - a.** Insert the end of one of the RJ-45 CAT5 Ethernet patch cables (supplied) into the ELAN network interface (ELAN port) on the faceplate of the server.
  - b.** Route the Ethernet patch cable through the hole you made in the back panel of the UEM.
  - c.** Plug the other end of the Ethernet patch cable into one of the Ethernet port couplers mounted in the Ethernet port adapter plate.
  - d.** Label the Ethernet port coupler as ELAN.

See Figure 61 and Figure 62.

**Figure 61**  
**ELAN connection on faceplate**



**Figure 62**  
**ELAN connection on Ethernet port coupler**



- 9** Connect the server to the TLAN subnet.
  - a.** Insert one end of the remaining RJ-45 CAT5 Ethernet patch cable (supplied) into the TLAN network interface (TLAN port) on the faceplate of the server.
  - b.** Route the Ethernet patch cable through the hole you made in the back panel of the UEM.
  - c.** Plug the other end of the Ethernet patch cable into the remaining Ethernet port coupler mounted in the Ethernet port adapter plate.
  - d.** Label the Ethernet port coupler as TLAN.

See Figure 63 and Figure 64.

**Figure 63**  
**TLAN connection on faceplate**



**Figure 64**  
**TLAN connection on Ethernet port coupler**



- 10** Fit the Ethernet port adapter plate into the hole on the back of the UEM and tighten the screws. See Figure 65.

**Figure 65**  
**Installed Ethernet port adapter plate**



**11** Attach the ferrite beads to the Ethernet patch cables. See Figure 66.

**Figure 66**  
**Attached Ethernet patch cable ferrite beads**



---

**End of Procedure**

---

## **Installing a Nortel ISP1100 Signaling Server**

Complete Procedure 37 to install the ISP1100 Signaling Server hardware into the 19-inch rack. Refer to *Signaling Server: Installation and Commissioning* (NN43001-312) for additional information.

**Note:** Save the packaging container and packing materials in the event you need to package the server for shipment.

## Accessories pouch

You require specific hardware to install the Nortel ISP1100 server in a 19-inch rack. This hardware is included in the Nortel ISP1100 server accessories pouch. The accessories pouch must contain the following items:

- Two support brackets (A)
- Two rack-mounting brackets (B)
- Six rack-mount bracket screws (ten 25 x 1/4 inch pan-head Phillips)

Refer to Figure 67.

**Figure 67**  
**ISP1100 Signaling Server mounting accessories**



**Procedure 37****Preparing an ISP1100 Signaling Server for rack-mounting**

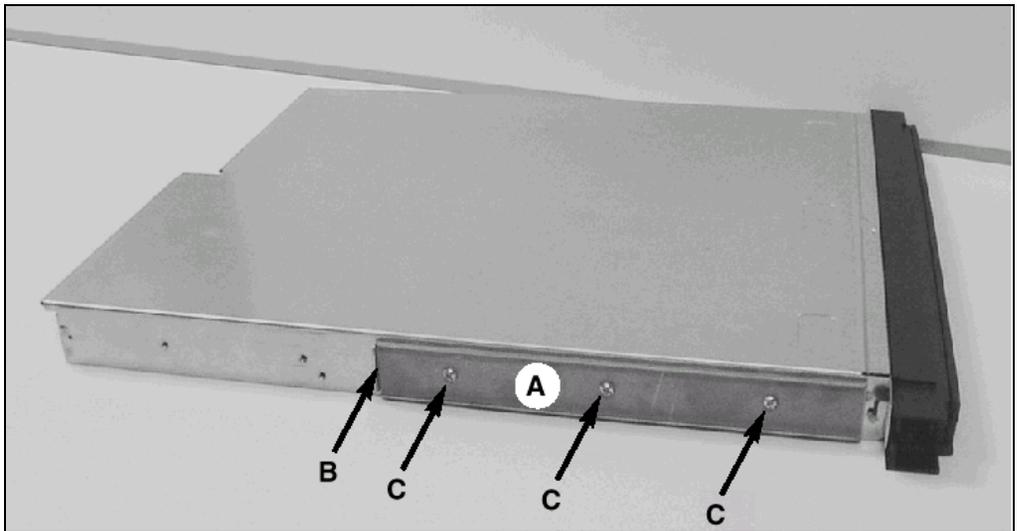
**Note:** The Front Mount Bracket assembly is not intended for use as a slide rail system. The ISP1100 Signaling Server must be firmly attached to the rack.

**WARNING**

The load rating for this mounting kit is 50 pounds. If you exceed this limit, damage or injury can occur.

- 1 Make sure the Nortel ISP1100 server is not plugged in to an electrical outlet.
- 2 Align the end of the rail with the flange (B) toward the rear of the ISP1100 Signaling Server. See Figure 68.

**Figure 68**  
**Nortel ISP1100 Support bracket**



- 3 Align the screw holes in the rack-mount rail to the mating holes in the side of the ISP1100 Signaling Server chassis. Use three screws (C) on each side.

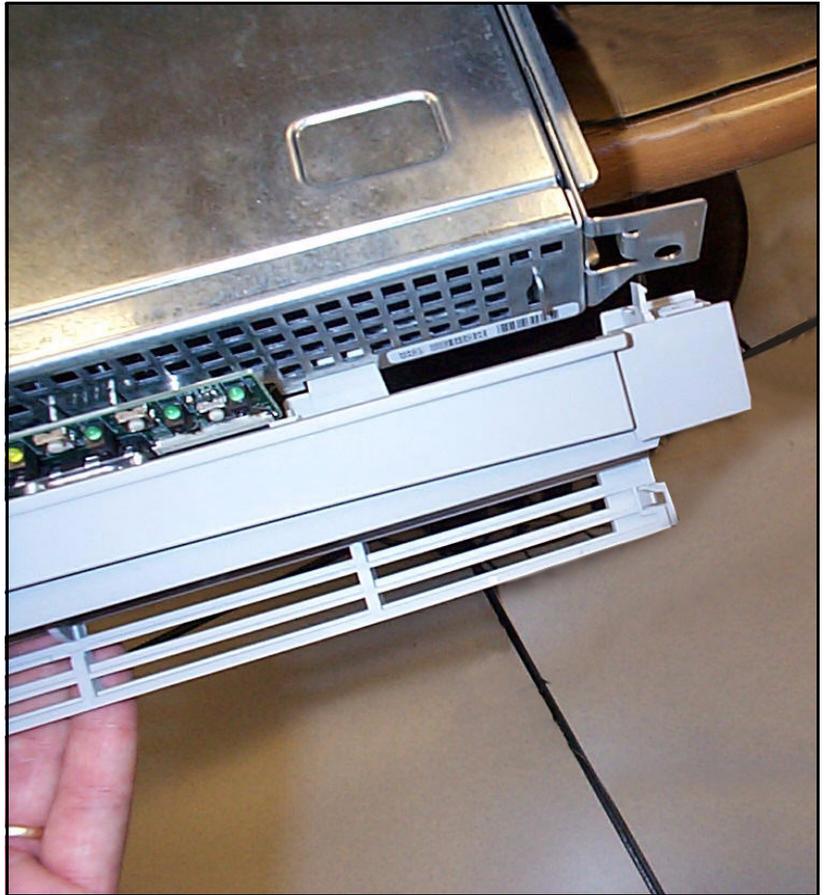
**Note:** Hand-tighten the screws to prevent cross-threading, then use a Phillips screwdriver to secure them.

- 4 Attach the bezel door to the faceplate of the Signaling Server, as shown in Figure 69 and Figure 70 on [page 185](#).

**Figure 69**  
**Left hinge mount**

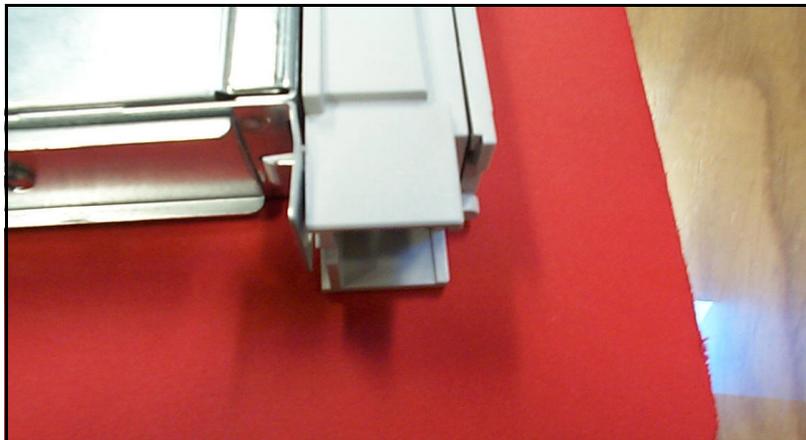


**Figure 70**  
**Right hinge mount**



When the door is attached to the ISP1100 Signaling Server and rack-mount apparatus, it should appear as shown in Figure 71 on [page 186](#).

**Figure 71**  
**Snapped-in bezel door**



————— End of Procedure —————

## **Rack-mounting the Nortel ISP1100 server**

### **Procedure 38** **Rack-mounting a ISP1100 Signaling Server**

This procedure describes how to install the server in a rack.

Read the following warnings carefully before you begin installing the ISP1100 Signaling Server in the rack.

**DANGER OF ELECTRIC SHOCK****DISCONNECT AC POWER**

The ISP1100 Signaling Server must be completely disconnected from any AC power source before performing this procedure. Pressing the Power button **DOES NOT** turn off power to this Signaling Server. Some circuitry in the unit can continue to operate even though the front panel Power button is off.

Failure to disconnect the ISP1100 Signaling Server from its AC power source can result in personal injury or equipment damage.

**DANGER OF ELECTRIC SHOCK****GROUNDING THE RACK INSTALLATION**

To avoid the potential for an electrical shock hazard, include a third wire safety grounding conductor with the rack installation.

If the ISP1100 Signaling Server power cords are plugged into AC outlets that are part of the rack, then provide proper grounding for the rack itself.

If the ISP1100 Signaling Server power cords are plugged into wall AC outlets, the safety grounding conductor in each power cord provides proper grounding for the ISP1100 Signaling Server only. Provide additional, proper grounding for the rack and other devices installed in it.



**WARNING**

**MAIN AC POWER DISCONNECT**

A main AC power disconnect must be installed. The main AC power disconnect must:

- disconnect power to the entire rack unit
- be readily accessible
- be labeled as controlling power to the entire unit, not just to the ISP1100 Signaling Server(s)



**WARNING**

**OVERCURRENT PROTECTION**

The Nortel ISP1100 server is designed for an AC line voltage source with up to 20 amperes (A) of over-current protection. If you install the power system for the equipment rack on a branch circuit with more than 20 A of protection, provide supplemental protection for the Nortel ISP1100 server. If you install more than one server in the rack, the power source for each server must be from a separate branch circuit.

- 1 Attach the rack-mount brackets (“B” as shown in Figure 67 on [page 182](#)) to the equipment rack. Install the left and right side at an equal height. Use standard length screws from the accessories pouch, and screw them into the top and bottom drill holes of the bracket (see Figure 72 on [page 189](#)).

**Figure 72**  
**Installed rack-mount bracket**



- 2 When both brackets are fixed in place:
  - a. Align the rack-mount brackets on the ISP1100 Signaling Server with the slide rail system on the rack posts.
  - b. Slide the ISP1100 Signaling Server in place. Refer to [Figure 73](#) on [page 190](#).

**Figure 73**  
**Rack-mounting the ISP1100 Signaling Server**



- 3** Tighten the screws through the faceplate of the ISP1100 Signaling Server to the rack-mount bracket.

**Note:** Do not apply excessive torque while tightening the bolts. The bezel door is plastic and does not require or withstand overtightening.

---

**End of Procedure**

---

## Connections

### Connection checklist



#### WARNING

Do not modify or use a supplied AC power cord if it is not the correct type required for the host region.

#### IMPORTANT!

Nortel CP PM servers are powered through the backplane of the Media Gateway, Universal Equipment Module or 11C cabinet into which they are installed and thus require no power cord.

Before connecting a Signaling Server, ensure that you have the following materials on-hand.

**Table 14**  
**Connections checklist**

<b>Have you:</b>	
Obtained a serial cable (DTE-DTE null modem cable) to connect the server to a maintenance terminal?	
Obtained the NTA19EC cable (if you are connecting a Nortel CP PM server)? This cable adapts the 50-pin MDF connector on the back of the shelf of the Media Gateway, Universal Equipment Module, or 11C cabinet to a 25-pin DB connector.	
Obtained the CAT5 cables (or better) to connect the server to the ELAN and TLAN subnets?	

### Connecting a Nortel CP PM Signaling Server

This section contains instructions for connecting the NTDW61BAE5 and NTDW66AAE5 models of the Nortel CP PM Signaling Server to the ELAN

and TLAN subnets of a CS 1000E and CS 1000M system respectively. It also contains instructions for connecting a maintenance terminal to the Nortel CP PM Signaling Server.

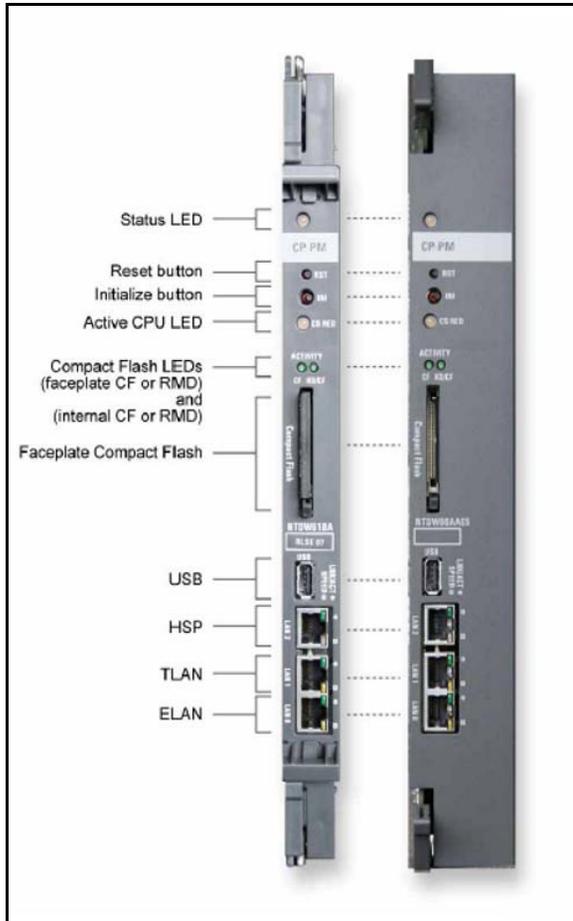
The NTDW61BAE5 model of the Nortel CP PM Signaling Server was designed for use in a CS 1000E system. As such, it is inserted into a slot of the Media Gateway (MG 1000E or MG 1000B). The Media Gateway also hosts the Media Gateway Controller (MGC) that has Ethernet ports for connecting to the ELAN and TLAN subnets of your CS 1000 system.

However, it is common in a CS 1000E system for the Call Server to be connected to the MGC through these ELAN and TLAN Ethernet ports. If the Call Server is not connected to the MGC through these Ethernet ports, the NTDW61BAE5 model of the CP PM Signaling Server uses them to connect to the ELAN and TLAN subnets of the CS 1000E system. If the Call Server is using the MGC ELAN and TLAN Ethernet ports, the Nortel CP PM Signaling Server is connected directly to the ELAN and TLAN Ethernet switches from the faceplate ELAN and TLAN Ethernet ports.

The NTDW66AAE5 model of the Nortel CP PM Signaling Server was designed for use in a CS 1000M system. As such, it is inserted into a slot of a Universal Equipment Module (UEM). UEMs do not have built-in ELAN and TLAN Ethernet ports. These Ethernet ports must be installed on the back of the UEM to enable the Nortel CP PM Signaling Server to connect to the ELAN and TLAN subnets of your CS 1000 system (see Procedure 36: "Installing ELAN and TLAN Ethernet ports on a CS 1000M UEM" on [page 170](#).)

Figure 74 shows the faceplates of the two models of the Nortel CP PM Signaling Server with labeling for all components (NTDW61BAE5 on the left and NTDW66AAE5 on the right).

**Figure 74**  
**Faceplates of the Nortel CP PM server**



**Procedure 39**  
**Connecting a Nortel CP PM Signaling Server**

**Note:** Refer to Figure 74 when performing the following procedure.

- 1** Establish a maintenance terminal connection at the back of the shelf of the IPMG, IPE cube, or 11C chassis. The com (SDI) port of the CP PM circuit card Signaling Server is routed through the backplane of the shelf to the 50 pin MDF connector on the back of the shelf. A special cable is shipped with the CP PM signaling server that adapts the 50 pin MDF connector to a 25 pin DB connector (NTAK19EC). A DTE-DTE null modem serial cable is required to adapt the SDI port to a typical PC serial port.
  - a.** Connect the NTAK19EC cable (shipped with the CP PM Signaling Server) to the 50 pin MDF connector on the back of the desired shelf of the IPMG, IPE cube or 11C chassis.
  - b.** Connect a DTE-DTE null modem serial cable to the 25 pin DB connector at the end of the NTAK19EC cable.
  - c.** Connect the other end of the DTE-DTE null modem serial cable to the serial port on the maintenance terminal.
- 2** Insert the Signaling Server circuit card into an appropriate slot on the shelf of the IPMG, IPE cube, or 11C chassis. The CP PM Signaling Server is hot-pluggable so it may be inserted without powering off the system. The maintenance terminal now has access to the CP PM Signaling Server through the 50-pin MDF connector connected at the back of the shelf of the IPMG, IPE cube or 11C chassis.
- 3** Connect the Signaling Server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable into the LAN1 port (TLAN network interface) on the front of the Signaling Server. The LAN1 port is the middle one of the three network interfaces.
- 4** Connect the Signaling Server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable into the LAN0 port (ELAN network interface) on the front of the Signaling Server. The LAN0 port is the bottom one of the three network interfaces.

5 Set the COM port on the maintenance terminal as follows:

- Terminal type: VT100
- Speed: 9 600
- Data bits: 8
- Parity: none
- Stop bits: 1
- Flow control: none

**Note:** The CP PM Signaling Server is shipped with the Admin Serial port set to 9600 Bit/s. Other available speeds are 19 200, 38 400, and 115 200 Bits. You can change the port speed using the maintenance terminal. To verify or change the baud rate on a Nortel CP PM Signaling Server, see *Signaling Server: Installation and Commissioning* (NN43001-312).

6 Configure the Signaling Server maintenance terminal. Refer to *Signaling Server: Installation and Commissioning* (NN43001-312).

---

**End of Procedure**

---

Complete Procedure 40 to connect a Nortel CP PM Signaling Server (model NTDW61BAE5) to the ELAN and TLAN subnets of a CS 1000E system.

#### **Procedure 40**

##### **Connecting to the subnets of a CS 1000E system**

1 Connect the Signaling Server to the ELAN subnet.

- if the Call Server is not connected to the Media Gateway Controller (MGC)
  - Insert the end of one of the 25-cm RJ-45 CAT5 Ethernet cables shipped with the server (NTDU0606E6) into the ELAN network interface port (ELAN port) on the faceplate of the server
  - insert the other end of the 25-cm RJ-45 CAT5 Ethernet cable into the MGC ELAN Ethernet port
- if the Call Server is connected to the MGC
  - Insert the end of a longer RJ-45 CAT5 Ethernet cable (not supplied) into the ELAN network interface port (ELAN port) on the faceplate of the server

- Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the ELAN Ethernet switch
- 2** Connect the Signaling Server to the TLAN subnet.
- if the Call Server is not connected to the Media Gateway Controller (MGC)
    - Insert the end of one of the 25-cm RJ-45 CAT5 Ethernet cables shipped with the server (NTDU0606E6) into the TLAN network interface port (TLAN port) on the faceplate of the server
    - Insert the other end of the 25-cm RJ-45 CAT5 Ethernet cable into the MGC TLAN Ethernet port
  - if the Call Server is connected to the MGC
    - Insert the end of a longer RJ-45 CAT5 Ethernet cable (not supplied) into the TLAN network interface port (TLAN port) on the faceplate of the server
    - Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the TLAN Ethernet switch

---

**End of Procedure**

---

**Note:** If the Call Server is connected to the Media Gateway Controller, you can not use the 25-cm CAT5 Ethernet cables shipped with the Signaling Server (NTDU0606E6). You must obtain CAT5 Ethernet cables that are long enough to connect the Signaling Server directly to the ELAN and TLAN Ethernet switches from the faceplate ELAN and TLAN Ethernet ports.

Complete Procedure 41 to connect a Nortel CP PM Signaling Server (model NTDW66AAE5) to the ELAN and TLAN subnets of a CS 1000M system.

**IMPORTANT!**

Connecting a Nortel CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000M system causes a service disruption.

**Procedure 41****Connecting to the subnets of a CS 1000M system**

- 1 Insert the end of an RJ-45 CAT5 Ethernet cable (not supplied) into the ELAN network interface port (ELAN port) on the back of the CS 1000M UEM. (You installed this ELAN port at the back of the UEM when you installed the Signaling Server in the UEM. See “Installing ELAN and TLAN Ethernet ports on a CS 1000M UEM” on [page 170](#).)
- 2 Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the ELAN Ethernet switch.
- 3 Insert the end of another RJ-45 CAT5 Ethernet cable (not supplied) into the TLAN network interface port (TLAN port) on the back of the CS 1000M UEM. (You installed this TLAN port at the back of the UEM when you installed the Signaling Server in the UEM (see “Installing ELAN and TLAN Ethernet ports on a CS 1000M UEM” on [page 170](#)).
- 4 Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the TLAN Ethernet switch.

---

**End of Procedure**

---

**Verify or change the baud rate**

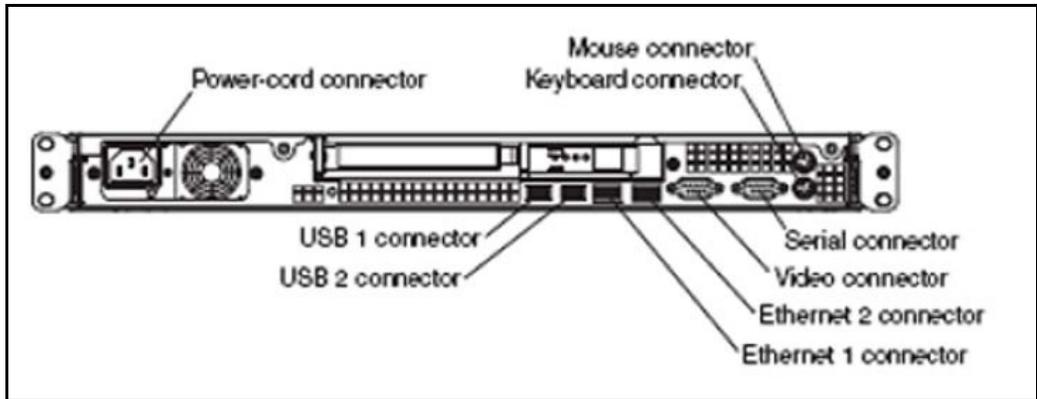
To verify or change the baud rate on a Nortel CP PM Signaling Server, see *Signaling Server: Installation and Commissioning* (NN43001-312).

**Connecting an IBM X306m Signaling Server**

In geographic regions that are susceptible to electrical storms, Nortel recommends that you plug the IBM X306m Signaling Server into an AC surge suppressor.

Figure 75 shows the rear view of the IBM X306m Signaling Server.

**Figure 75**  
**IBM X306m Signaling Server (rear view)**



*Note:* Refer to Figure 75 when performing the following procedure.

**Procedure 42**  
**Connecting an IBM X306m Signaling Server**

- 1 Connect the Signaling Server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable into Port 1 (TLAN network interface) on the back of the Signaling Server. Port 1 is the right-most of the two network interfaces.
- 2 Connect the Signaling Server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable into PEthernet 2 connector (ELAN network interface) on the back of the Signaling Server. Port 2 is the left-most of the two network interfaces.
- 3 Connect a DTE–DTE null modem serial cable from the serial port on the back of the Signaling Server to the serial port on a maintenance terminal.
- 4 Connect the Signaling Server power cord.
  - a. Check that the power cord is the type required in the region where the Signaling Server is used. Do not modify or use the supplied AC power cord if it is not the correct type.
  - b. Attach the female end of the power cord to the mating AC power receptacle on the left side of the Signaling Server's back panel. Plug the male end of the AC power cord into the AC power source (wall outlet).

- 5 Set the baud rate for the serial port on the Signaling Server to 9 600 b/ps. See *Signaling Server: Installation and Commissioning* (NN43001-312).

**Note:** The IBM X306m Signaling Server ships with the serial port set to 9600 b/ps.

- 6 Configure the connected maintenance terminal. See *Signaling Server: Installation and Commissioning* (NN43001-312).
- 7 Press the Power switch.

**Note:** Refer to the Signaling Server Product Guide on the CD-ROM shipped with the IBM X306m Signaling Server for additional operating information.

---

**End of Procedure**

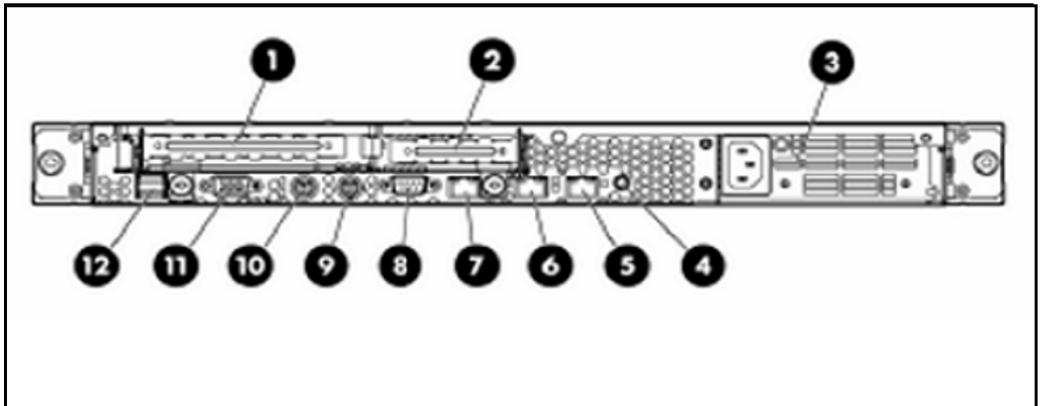
---

## Connecting an HP DL320-G4 Signaling Server

In geographic regions that are susceptible to electrical storms, Nortel recommends that you plug the HP DL320-G4 Signaling Server into an AC surge suppressor.

Figure 76 shows the rear view of the HP DL320-G4 Signaling Server.

**Figure 76**  
**HP DL320-G4 Signaling Server (rear view)**



**Procedure 43**

**Connecting an HP DL320-G4 Signaling Server**

- 1 Connect the Signaling Server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable labeled with the number 5 into the port (TLAN network interface) on the back of the Signaling Server.
- 2 Connect the Signaling Server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable labeled with the number 6 into the port (ELAN network interface) on the back of the Signaling Server.
- 3 Connect a DTE–DTE null modem serial cable from the Serial Port on the back of the Signaling Server to a maintenance terminal.
- 4 Connect the Signaling Server power cord.
  - a. Check that the power cord is the type required in the region where the Signaling Server is used. Do not modify or use the supplied AC power cord if it is not the correct type.
  - b. Attach the female end of the power cord to the mating AC power receptacle on the right-hand side of the Signaling Server's back panel. Plug the male end of the AC power cord into the AC power source (wall outlet).
- 5 Configure the COM1 serial port as the communication port for the connected maintenance terminal. Set the COM 1 baud rate for the serial port on the Signaling Server to 9 600 b/ps. See *Signaling Server: Installation and Commissioning* (NN43001-312).
- 6 Configure the connected maintenance terminal. See *Signaling Server: Installation and Commissioning* (NN43001-312).
- 7 Press the Power switch.

---

**End of Procedure**

---

## Maintenance terminal configuration parameters

To configure Signaling Server maintenance terminal configuration parameters, see the Maintenance chapter of *Signaling Server: Installation and Commissioning* (NN43001-312).

---

## Installing the Signaling Server software

**IMPORTANT!**

The Signaling Server is out-of-service during software upgrade.

### Introduction

This section provides installation procedures for CS 1000 Release 5.0 Signaling Server software on an IBM X306m or HP DL320-G4 Signaling Server.

**IMPORTANT!**

CP PM, IBM X306m and HP DL320-G4 Signaling Servers do not support any Signaling Server software prior to CS 1000 Release 5.0.

**IMPORTANT!**

CS 1000 Release 5.0 Signaling Server software does not need to be installed on the CP PM Signaling Server. It is delivered with the Signaling Server software, operating system, applications and web files pre-loaded onto the hard drive. Only basic system configuration parameters need to be entered on the first boot of the CP PM Signaling Server.

### Before you begin

Before installing the software, you must do the following:

- Connect and power up the Signaling Server. See “Connections” on [page 191](#).
- For CP PM Signaling Servers, ensure that Switch S5 is set to position 2 (to support the internal hard disk drive)
- For IBM X306m and HP DL320-G4 Signaling Servers, you must obtain the CS 1000 Release 5.0 Signaling Server Software Install CD.

## Installing the software

To install software and enter basic system configuration parameters on an IBM X306m or HP DL320-G4 Signaling Server, complete Procedure 44.

### **Procedure 44** **Installing Signaling Server software**

Upon completion of Step 1, this procedure takes approximately 45 minutes to complete.

- 1 From your Planning and Engineering group, obtain the following network and IP Telephony data for this Signaling Server:
  - node ID for the IP Telephony node
  - node IP address for the IP Telephony node
  - hostname for the Signaling Server
  - ELAN network interface IP address, Subnet mask, and Gateway
  - TLAN network interface IP address, Subnet mask, and Gateway
  - ELAN network interface IP address of the Call Server
  - Primary and Alternate NRS IP addresses for this networked system. Refer to *IP Peer Networking: Installation and Commissioning* (NN43001-313)
  - NRS role, if applicable. Refer to *IP Peer Networking: Installation and Commissioning* (NN43001-313)
  
- 2 Boot the Signaling Server from the Removable Media Device (RMD):
  - For IBM X306m, HP DL320-G4, or Nortel ISP1100 Signaling Servers, insert the CS 1000 Release 5.0 Signaling Server Software CD into the CD drive and press the RST button on the front panel of the Signaling Server to trigger a cold boot. This forces the Signaling Server to boot from the CD.
  - For a Nortel CP PM Signaling Server, insert the CS 1000 Release 5.0 Signaling Server Software CF card into the faceplate CF drive and press the RST button on the faceplate of the Signaling Server to trigger a cold boot. The CP PM System BIOS Configuration screen appears (see Figure 77) with an instruction to press F to force the Signaling Server to boot from the CF card.

**Figure 77**  
**Nortel CP PM system BIOS configuration**

System BIOS Configuration, (C) 2005 General Software, Inc.			
System CPU	: Pentium M	Low Memory	: 632KB
Coprocessor	: Enabled	Extended Memory	: 1011MB
Ide 0 Type	: 3	Serial Ports 1-2	: 03F8 02F8
Ide 1 Type	: 3	ROM Shadowing	: Enabled
Ide 2 Type	: 3	BIOS Version	: NTDU74AA 15
Press F to force board to boot from faceplate drive.			
.....			

- The VxWorks™ banner screen appears (see Figure 78) followed by system messages indicating that the Signaling Server Software Installation Tool is being loaded from either the Signaling Server Software CD or CF Card.





The system verifies the file systems.

- If the hard drive of the Signaling Server is not partitioned, the file systems verification process fails. Upon failure, the menu in Figure 80 appears.

**Figure 80**  
**File systems verification failure**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

The filesystems verification failed! (This is normal for a new
system.)

The hard disk must be (re)partitioned and (re)initialized. This will
erase all data on the hard disk. The system will then reboot and
the Install Tool will restart.

Please enter:
<CR> -> <a> - Partition and initialize the hard disk, then reboot.

Enter Choice> a
```

- a. Enter a to partition and initialize the hard disk, and to reboot the Signaling Server.

The system displays the messages:

```
Partitioning hard disk ...
Hard disk partitioning succeeded.
```

```
Creating filesystems ...
Filesystems creation succeeded.
```

```
Rebooting system ...
```

- b. The Install Tool banner screen (Figure 79 on [page 205](#)) reappears. Go back to beginning of Step 2.. If the hard drive of the Signaling Server is partitioned, the following system messages appear.

```
Filesystems verification succeeded.
```

- c. Confirm or enter the date and time (Figure 81 on [page 207](#)).

**Figure 81**  
**Date and time**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

You should ensure the system date and time are correct prior to
installation, since all files copied or created during install will
be time-stamped.

You can press <CR> to accept the current values.

Current date is: FRIDAY 01-04-2006
Enter new date (dd mm yyyy): 04 04 2006
Date is set to: MONDAY 04-04-2006
Current time is: 09:47:18
Enter new time (hh mm ss): 08 38 30
Time is set to: 08:38:30
Current date and time is:
MONDAY 04-04-2005, 08:38:30
```

- When reinstalling the software on an existing system, the system verifies the file systems. The disk check reports:  
  
Filesystems verification succeeded.  
  
The system summary appears (Figure 82 on [page 208](#)). Enter **a** to continue the installation.  
  
**Note:** For a new installation, the data fields in the system summary are blank.

**Figure 82**  
**System Summary**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====
-----
                        SYSTEM INFORMATION
-----

+=====+
| Hostname: SS_Node276_Ldr           S/W Ver: x.xx.xx          |
|                                     |                          |
|   Role: Leader                     Set TPS: Disabled          |
| Node ID:                            Vtrk TPS: Disabled          |
| Node IP:                            NRS Config: Alternate SIP    |
| H.323 ID: SS_Node276_Ldr           CS IP:                       |
|                                     |                          |
| ELAN IP: 192.168.10.20             TLAN IP: 192.168.20.20    |
| ELAN SM: 255.255.255.0             TLAN SM: 255.255.255.0    |
| ELAN GW: 192.168.10.1             TLAN GW: 192.168.20.1    |
| ELAN MAC: 00:02:b3:c5:51:c6       TLAN MAC: 00:02:b3:c5:51:c7    |
+=====+

Please enter:
<CR> -> <a> - Continue with Install Tool.
      <q> - Quit.

Enter Choice>
```

**Figure 83**  
**Install Tool Main Menu**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

                M A I N   M E N U

The Install Tool will install Signaling Server software and related
files. You will be prompted throughout the installation.

Please enter:
<CR> -> <a> - To perform a complete installation/upgrade (Signaling
          Server s/w, IP Phone f/w, Voice Gateway Media
          Card l/w, basic Signaling Server configuration).
<b> - To install/upgrade Signaling Server software only.
<c> - To copy IP Phone firmware only.
<d> - To copy Voice Gateway Media Card loadware only.
<e> - To perform basic Signaling Server configuration only.
<t> - To go to the Tools Menu.
<q> - Quit.

Enter Choice>
```

- 4** At the Main Menu (Figure 83), enter **a** to install Signaling Server software. Option **a** performs options **b**, **c**, **d**, and **e**.

The following sample lines display on the screen:

```
Copying "/cd0/sse37012.p3/disk.sys" to "/u/disk.sys".
Processing the install control file ...
"/cd0/sse37012.p3/install.dat" parsed.
```

The Dependency Lists installation screen appears (Figure 84).

**Figure 84**  
**Dependency lists installation**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Do you want to install Dependency Lists?.

Please enter:
<CR> -> <y> - Yes, Do the Dependency Lists installation
      <n> - No, Continue without Dependency Lists installation

Enter Choice>
```

- 5 Press <CR> or enter y to install the dependency lists. The Installation Status Summary screen appears:

The Installation status screen appears (Figure 85 on [page 211](#)).

**Figure 85**  
**Installation Status**

```

-----
                        INSTALLATION STATUS SUMMARY
-----
+-----+-----+-----+-----+
| Option | Choice | Status | Comment |
+-----+-----+-----+-----+
| Software | yes | | new install x.xx.xx |
+-----+-----+-----+-----+
| Dependency Lists | yes | | copy ALL |
+-----+-----+-----+-----+
| firmware | yes | | copy ALL |
+-----+-----+-----+-----+
| loadware | yes | | copy ALL |
+-----+-----+-----+-----+
| configuration | yes | | |
+-----+-----+-----+-----+

Please enter:
<CR> -> <y> - Yes, start complete installation.
        <n> - No, cancel complete installation and return to the Main
        Menu.

Enter Choice>

```

- 6** Enter **y** to start the installation. The screens shown in Figures 86 to 92, which start on [page 212](#), appear.

**Figure 86**  
**Installation output**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

You have selected to install version x.xx.xx on the system. As
this is a new install, all necessary directories and files will
be created on the hard disk.

Starting new install of version x.xx.xx.

Initializing protected partition ...
"/p" initialized.

Creating directory ... (many directories are created here) ...
Copying ... (many files are copied here) ...

Boot ROM "/p/load/bootrom.bin" installed.
```

**Figure 87**  
**Software installation success**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Software version x.xx.xx was installed successfully.

All files were copied to the hard disk.
```

**Figure 88**  
**IP Phone firmware**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

The installation source contains multiple Internet Telephone firmware
files.

Copying "/cd0/0603Bxx.bin" to "/u/fw/0603Bxx.bin".
Copying "/cd0/0602Bxx.bin" to "/u/fw/0602Bxx.bin".
Copying "/cd0/0604Dxx.bin" to "/u/fw/0604Dxx.bin".
```

**Figure 89**  
**Voice Gateway Media Card loadware**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

The installation source contains multiple Voice Gateway Media Card
loadware files.

Copying "/cd0/IPL4xxxx.p2" to "/u/fw/IPL4xxxx.p2".
Copying "/cd0/IPL4xxxx.sa" to "/u/fw/IPL4xxxx.sa".
```

- 7 After the Signaling Server software and system components are installed, the Restore IP configuration screen appears (Figure 90 on [page 214](#)).

**Figure 90**  
**Restore IP configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please insert the database diskette in the removable drive
to restore the IP configuration to the hard disk

      Please enter:
<CR> -> <a> - Diskette is now in the removable drive.
          Continue.
      <b> - Continue without restoring the IP configuration
      <q> - Quit.

Enter Choice> b
```

**8** Do one of the following:

- If you are migrating a Leader Signaling Server (see "Signaling Server migration" in *Signaling Server: Installation and Commissioning* (NN43001-312), insert the Removable Media Device (RMD) into the appropriate drive, and press <CR> or enter a to restore the IP configuration data. After the restore is complete, the following system message appears:

Done copying IP configuration to disk

The IP Telephony parameter confirmation screen appears (Figure 91 on [page 215](#)). Go to step 12 on [page 240](#).

**Figure 91**  
**IP telephony parameter confirmation**

```

CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
-----

You have entered the following parameters for this Leader SS :
(Press <a>-<l> to correct, <y> to proceed, <n> to reconfigure all.)

      Please enter:
<CR> -> <y> - Yes, these parameters are correct.
      <n> - Re-enter all of the parameters

      <a> - Node ID           I : 9
      <b> - Hostname          : CS1000E_PIV
      <c> - ELAN IP           : 192.167.102.4
      <d> - ELAN subnet mask : 255.255.255.0
      <e> - ELAN gateway IP  : 192.167.102.1
      <f> - TLAN IP          : 192.167.103.2
      <g> - TLAN subnet mask : 255.255.255.0
      <h> - TLAN gateway IP  : 192.167.103.1
      <i> - Node IP           : 192.167.103.3
      <j> - Call Server IP   : 192.167.102.3
           NRS configuration : Primary GK + SIP
      <k> - Primary NRS IP   : 192.167.103.2
      <l> - Alternate NRS IP :

Enter Choice>

```

- 9** If you are installing a new Signaling Server, or you are migrating a Follower or Standalone Signaling Server (see "Signaling Server migration" in *Signaling Server: Installation and Commissioning* (NN43001-312)), select b to bypass the restoration of IP configuration data. The Signaling Server role selection screen appears (Figure 92 on [page 216](#)).

**Figure 92**  
**Signaling Server role selection**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====
Note: This step will over-write all existing configuration parameters
      on this Signaling Server.
Please select the role of this Signaling Server.

If this Signaling Server will be a Leader then its data networking
and IP Telephony parameters must be entered now. (This will pre-
configure the IP Telephony node files.)

If this Signaling Server will be a Follower then its data networking
and IP Telephony parameters must be configured through Element
Manager later.

      Please enter:
<CR> -> <a> - Set this Signaling Server as a Leader.
      <b> - Set this Signaling Server as a Follower.
      <q> - Quit.

      Enter Choice>
```

**10** Configure the Signaling Server as Leader or Follower. See Figure 92 on [page 216](#).

- If there is already a Leader Signaling Server in the IP Telephony node, enter **b** at the prompt to set this Signaling Server as Follower. The Follower Signaling Server configuration screen appears (Figure 93 on [page 217](#)). Go to step 10 on [page 236](#).

**Figure 93**  
**Follower Signaling Server configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

This Follower Signaling Server will obtain its data network and IP
telephony configuration from the Leader Signaling Server at boot.

To identify this Signaling Server, please enter a Hostname.

Hostname : SS_Node276_Ldr
```

- If there is not already a Leader Signaling Server in the IP Telephony node, or if the Signaling Server is to be a stand-alone Signaling Server – NRS Only, enter **a** at the prompt to configure this Signaling Server as Leader. The Application configuration screen appears (Figure 94 on [page 217](#)).

**Figure 94**  
**Application configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please select the application configuration for this Signaling Server.

Please enter:
<CR> -> <a> - Co-resident (LTPS + VTRK + NRS).
        <b> - Stand-alone (NRS only - no Call Server).
        <q> - Quit.

Enter Choice>
```

- 11 Configure the application configuration for this Signaling Server. See Figure 94 on [page 217](#).
- If the IP Phone TPS, Virtual Trunk TPS, and optional Network Routing Service (NRS) applications are to be enabled on this Signaling Server, enter **a** at the prompt to configure this Signaling Server as a co-resident Signaling Server.
  - If only the NRS is to be enabled on this Signaling Server:
    - If this Signaling Server is to be associated with a Call Server, enter **a** at the prompt to configure this Signaling Server as a co-resident Signaling Server. After you have finished installing the Signaling Server software, you can disable the Set TPS and Virtual Trunk TPS in Element Manager (refer to *Element Manager: System Administration* (NN43001-332)).
    - If this Signaling Server is not to be associated with a Call Server, enter **b** at the prompt to set this Signaling Server as a stand-alone Signaling Server – NRS Only.

Depending on the application configuration selected, either the NRS - Coresident Signaling Server screen or the NRS - Standalone Signaling Server screen appears.

**Figure 95**  
**Network Routing Service (NRS) — co-resident Signaling Server**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please select the Network Routing Service (NRS) configuration for this
Signaling Server.

Please enter:
<CR> -> <a> - H.323 Gatekeeper and SIP Redirect/Proxy Server.
        <b> - H.323 Gatekeeper only.
        <c> - SIP Redirect/Proxy Server only.
        <d> - None.

Enter Choice>
```

**Figure 96**  
**Network Routing Service (NRS) — stand-alone Signaling Server – NRS Only**

```

CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please select the Network Routing Service (NRS) configuration for this
Signaling Server.

Please enter:
<CR> -> <a> - H.323 Gatekeeper and SIP Redirect/Proxy Server.
        <b> - H.323 Gatekeeper only.
        <c> - SIP Redirect/Proxy Server only.

Enter Choice>

```

- 12** Select the Network Routing Service (NRS) to be provided by this Signaling Server. See Figure 95 on [page 218](#) for a co-resident Signaling Server or Figure 96 on [page 219](#) for a stand-alone Signaling Server – NRS Only.
- Enter **d** if this Signaling Server is configured as a Coresident Leader and is not providing an NRS. Go to step 13.
  - Press <CR> or enter **a** if this Signaling Server is to provide an H.323 Gatekeeper and a SIP Redirect/Proxy Server.
  - Enter **b** if this Signaling Server is to provide only an H.323 Gatekeeper.
  - Enter **c** if this Signaling Server is to provide only a SIP Redirect/Proxy Server. Refer to *Network Routing Service Installation and Commissioning* (NN43001-564) for more information on the NRS.

Depending on the application configuration selected, either the NRS type: Coresident Signaling Server screen or the NRS type: Standalone Signaling Server screen appears.

**Figure 97**  
**NRS type — co-resident Signaling Server**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please select the type of Network Routing Service (NRS) for this
Signaling Server.

    Please enter:
<CR> -> <a> - Primary.
        <b> - Alternate.
        <c> - Failsafe.

    Enter Choice>
```

**Figure 98**  
**NRS type — stand-alone Signaling Server – NRS Only**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please select the type of Network Routing Service (NRS) for this
Signaling Server.

    Please enter:
<CR> -> <a> - Primary.
        <b> - Alternate.

    Enter Choice>
```

- 13** Select the type of NRS to be provided by this Signaling Server. See Figure 97 for a co-resident Signaling Server.
- If this Signaling Server is to be the Primary NRS, enter **a**.
  - If this Signaling Server is to be the Alternate NRS, enter **b**.
  - If this Signaling Server is not a stand-alone Signaling Server – NRS Only and is to be the Fail-safe NRS, enter **c**.

Refer to *Network Routing Service Installation and Commissioning* (NN43001-564) for more information on the NRS.

Depending on whether the Signaling Server is configured as Leader or Standalone, either the Leader Signaling Server configuration screen (Figure 99) or the Standalone Signaling Server configuration screen (Figure 100) appears.

**Figure 99**  
**Leader Signaling Server configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please enter the data networking and IP Telephony parameters for
this Leader Signaling Server.

Node ID           : 276

Hostname          : SS_Node276_Ldr

ELAN IP           : 192.168.10.20
ELAN subnet mask : 255.255.255.0
ELAN gateway IP  : 192.168.10.1

TLAN IP           : 192.168.20.20
TLAN subnet mask : 255.255.255.0
TLAN gateway IP  : 192.168.20.1

Node IP           : 192.168.10.20

Call Server IP    : 192.168.10.10
```

**Figure 100**  
**Stand-alone Signaling Server – NRS Only configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please define the data networking parameters for this Standalone
Signaling Server. Note that the ELAN parameters are necessary for
management access (e.g. SNMP).

Hostname           : SS_SA

ELAN IP            : 192.168.10.20
ELAN subnet mask  : 255.255.255.0
ELAN gateway IP   : 192.168.10.1

TLAN IP            : 192.168.20.20
TLAN subnet mask  : 255.255.255.0
TLAN gateway IP   : 192.168.20.1
```

- 14** Enter the data networking and IP telephony parameters for the Signaling Server, as prompted. The IP information applies to a temporary IP Telephony node, to ensure that the existing node is not affected. The entry of data networking and IP telephony parameters also preconfigures the IP Telephony node files. After the Signaling Server software installation, the node files are imported into Element Manager for further configuration (see "Importing IP Telephony nodes" in *Signaling Server: Installation and Commissioning* (NN43001-312)).
- If this is a Leader Signaling Server, enter the parameters for the Node, ELAN network interface, TLAN network interface, and Call Server as required.
    - If installing the Signaling Server at an office that is not a branch office, enter the ELAN network interface IP address of the Call Server.
    - If installing the Signaling Server at a branch office, enter the ELAN network interface IP address of the MG 1000B Core.
  - If this is a Follower Signaling Server, enter the Hostname of the Leader Signaling Server. Then go to step 16 on [page 225](#).
  - If this is a stand-alone Signaling Server – NRS Only and not associated with a Call Server (that is, **b** was selected in step 11 on

[page 218](#)), enter the TLAN subnet parameters as required. The Call Server IP address is automatically set to 0.0.0.0.

Depending on whether the Signaling Server is configured as Primary, Alternate, or Standalone, either the Primary NRS IP address screen, the Alternate NRS IP address screen, or both (in succession) appear. Both screens appear in succession for a Standalone Signaling Server.

**Figure 101**  
**Primary NRS IP address**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====
Please enter the Primary NRS IP Address:
Primary NRS IP   :
```

**Figure 102**  
**Alternate NRS IP address**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====
Please enter the Alternate NRS IP Address:
Alternate NRS IP :
```

- 15 Enter the Primary NRS IP address or the Alternate NRS IP address, depending on the option entered in step 12 on [page 219](#) or step 13 on [page 220](#).
  - If **a** was entered in step 13, you can enter the address of the Alternate NRS if you know it, but it is not required. See.
  - If **b** was entered in step 13, enter the address of the Primary NRS..
  - If **c** was entered in step 13:
    - Enter the address of the Primary NRS..
    - Enter the address of the Alternate NRS.
  - If **d** was entered in step 12:

- Enter the address of the Primary NRS (optional).
- If you did enter the address of the Primary NRS, enter the address of the Alternate NRS (also optional).

The Gatekeeper configuration can be updated later using Element Manager.

The IP Telephony parameter confirmation screen appears (Figure 103).

**Figure 103**  
**IP Telephony parameter configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

You have entered the following parameters for this Leader
Signaling Server:

Node ID           : 276
Hostname          : SS_Node276_Ldr
ELAN IP           : 192.168.20.100
ELAN subnet mask : 255.255.255.0
ELAN gateway IP  : 192.168.10.1
TLAN IP           : 192.168.20.20
TLAN subnet mask : 255.255.255.0
TLAN gateway IP  : 192.168.20.1
Node IP           : 192.168.20.100
Call Server IP   : 192.168.10.10
NRS configuration: Alternate GK + SIP
Primary NRS IP   : 192.168.20.10
Alternate NRS IP : 192.168.20.24

Please enter:
<CR> -> <y> - Yes, these parameters are correct.
      <n> - No, these parameters are not correct.

Enter Choice>
```

- 16** Enter <CR> or **y** to confirm the parameters.

The example in Figure 103 on [page 224](#) is for a Leader Signaling Server configured with an Alternate H.323 and SIP NRS. The confirmation screens for a Follower and stand-alone Signaling Server – NRS Only are similar, showing the same list of parameters, specifically:

- The configuration screen for the Follower Signaling Server displays only the value for the Hostname parameter; all other values are blank.
- The configuration screen for the stand-alone Signaling Server – NRS Only displays values for the Hostname, ELAN network interface, TLAN network interface, and NRS parameters. The Node ID field is set to 0. The Call Server IP field is set to 0.0.0.0.

After you confirm the IP configuration, the following system messages appear:

```
For future reference, the ELAN MAC address is:  
"00:02:b3:c5:51:c6".
```

```
Wrote config file "/u/config/bootp.tab".
```

```
Wrote config file "/boot/nvram.sys".
```

```
Wrote config file "/u/config/config.ini".
```

```
Wrote config file "/u/config/nrsconf.xml".
```

**Note:** You must configure the ELAN network interface MAC address for the newly installed Signaling Server in the Element Manager node configuration web page.

- 17** To complete the installation, the Installation Status Summary screen appears as shown in Figure 104 on [page 226](#).

**Figure 104**  
**Installation Status Summary**

----- INSTALLATION STATUS SUMMARY -----			
Option	Choice	Status	Comment
software	yes	ok	new install x.xx.xx
Dependency Lists	yes	ignore	copy NONE
firmware	yes	ok	copy Ixxxx version x.xx
firmware	yes	ok	copy Ixxxx version x.xx
firmware	yes	ok	copy PhaseX IP Firmware version x.xx
firmware	yes	ok	copy Ixxxx IP Firmware version x.xx
firmware	yes	ok	copy Ixxxx IP Firmware version x.xx
firmware	yes	ok	copy Ixxxx IP Firmware version x.xx
firmware	yes	ok	copy Ixxxx IP Firmware version x.xx
loadware	yes	ok	copy IP Line x.xx.xx for P2
loadware	yes	ok	copy IP Line x.xx.xx for SA
loadware	yes	ok	copy IP Line x.xx.xx for MC32S
configuration	yes	ok	set as Leader

Please press <CR> when ready ...

- 18** Press <CR> to exit to the Main Menu (see Figure 105 on [page 227](#)). Enter q at the Main Menu to quit the installation process. Figure 106 on [page 227](#) appears. Enter q again.

**Figure 105**  
**Install Tool Main Menu**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

                M A I N   M E N U

The Install Tool will install Signaling Server software and related
files. You will be prompted throughout the installation.

    Please enter:
<CR> -> <a> - To perform a complete installation/upgrade (Signaling
          Server s/w, IP Phone f/w, Voice Gateway Media
          Card l/w, basic Signaling Server configuration).
        <b> - To install/upgrade Signaling Server software only.
        <c> - To copy IP Phone firmware only.
        <d> - To copy Voice Gateway Media Card loadware only.
        <e> - To perform basic Signaling Server configuration only.
        <t> - To go to the Tools Menu.
        <q> - Quit.

    Enter Choice>
```

**Figure 106**  
**Quit**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

You have selected to quit the Install Tool.

Before quitting and rebooting the system, remove all disks (floppy,
CDROM) from the drives.

    Please enter:
<CR> -> <m> - Return to previous menu.
        <q> - Quit and reboot the system.

Enter Choice> q
```

- 19** Remove the Signaling Server Software CD or the Signaling Server Software CF Card (as appropriate) from the RMD drive of the Signaling Server and enter `q` to close/terminate the Installation Tool and reboot the system. The following system messages appear:

```
Removing temporary file "/u/disk.sys".
```

```
Rebooting system ....
```

---

**End of Procedure**

---

## First boot of a new Nortel CP PM Signaling Server

Nortel CP PM Signaling Servers have CS 1000 Release 5.0 software, applications, operating system, and web files preloaded on the hard drive when they are shipped. On the first boot of a Nortel CP PM Signaling Server, the Signaling Server Software Installation Tool prompts you to enter basic system configuration parameters.

### Before you begin

Before booting the new Nortel CP PM Signaling Server for the first time and entering basic system configuration parameters, you must perform the following tasks:

- Install and connect the Signaling Server (refer to “Installing the CP PM Signaling Server hardware” on [page 167](#)).
- Obtain the network and IP Telephony data for the Signaling Server from your Planning and Engineering group:
  - node ID for the IP Telephony node
  - node IP address for the IP Telephony node
  - hostname for the Signaling Server
  - ELAN network interface IP address, Subnet mask, and Gateway
  - TLAN network interface IP address, Subnet mask, and Gateway
  - ELAN network interface IP address of the Call Server



- 2 Press <CR> to continue with the configuration. The Restore IP configuration screen appears (Figure 108).

**Figure 108**  
**Restore IP configuration**

```
CS 1000 signaling Server Software Install Tool (sse-x.xx.xx)
=====
Please insert the database diskette in the removable drive
to restore the IP configuration to the hard disk

Please enter:
<CR> -> <a> - Diskette is now in the removable drive.
        Continue.
        <b> - Continue without restoring the IP configuration
        <q> - Quit.

Enter Choice> b
```

- 3 Enter b at the prompt to bypass the restore of IP configuration data. The CP PM board location screen appears (Figure 109).

**Figure 109**  
**CP PM board location**

```
CS 1000 signaling server software Install Tool (sse-x.xx.xx)
=====
This CS 1000 signaling server is currently located in the IPMG
configured as (Loop-Shelf-Card) :

Please enter new IPMG location for this CPPM SS, or press <CR> to skip.
Note: If the IPMG has not been configured yet, the IPMG loop and
      shelf information can be left as the current value. To update
      the loop and the shelf information later, use OAM shell)

New IPMG location (Loop and shelf only) [LL SS] :
```

- 4 Enter the location (loop and shelf) of the IPMG board.

**Note:** If the IPMG has not been configured yet, the loop and shelf information can be left at the current value. The IPMG board location can be updated using OAM shell commands after the Signaling Server is configured.

- 5 The Leader/Follower configuration screen appears (Figure 110).

**Figure 110**  
**Leader/Follower Signaling Server configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====
Note: This step will over-write all existing configuration parameters
      on this Signaling Server.

Please select the role of this Signaling Server.

If this Signaling Server will be a Leader then its data networking
and IP Telephony parameters must be entered now. (This will pre-
configure the IP Telephony node files.)

If this Signaling Server will be a Follower then its data networking
and IP Telephony parameters must be configured through Element
Manager later.

      Please enter:
<CR> -> <a> - Set this Signaling Server as a Leader.
      <b> - Set this Signaling Server as a Follower.
      <q> - Quit.

      Enter Choice>
```

- 6 Configure the Signaling Server as a Leader or Follower. If there is already a Leader Signaling Server in the IP Telephony node, enter b at the prompt to configure this Signaling Server as Follower. The Follower Signaling Server configuration screen appears (Figure 111). Go to step 15 on [page 223](#).

**Figure 111**  
**Follower Signaling Server configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

This Follower Signaling Server will obtain its data network and IP
telephony configuration from the Leader Signaling Server at boot.

To identify this Signaling Server, please enter a Hostname.

Hostname : SS_Node276_Ldr
```

- 7 If there is not a Leader Signaling Server in the IP Telephony node already, or if the Signaling Server is to be a stand-alone Signaling Server – NRS Only, press <CR> or enter a at the prompt to configure this Signaling Server as Leader.

- 8 Configure the application configuration for this Signaling Server. See Figure 112.
- If you are planning on enabling the IP Phone TPS, Virtual Trunk TPS, and optional Network Routing Service (NRS) applications on this Signaling Server, enter **a** at the prompt to configure this Signaling Server as a co-resident Signaling Server.
  - If you are planning on enabling only the NRS on this Signaling Server:
    - If this Signaling Server is to be associated with a Call Server, enter **a** at the prompt to configure this Signaling Server as a co-resident Signaling Server. After you finished installing the Signaling Server software, you can disable the IP Phone TPS and Virtual Trunk TPS in Element Manager (refer to *Element Manager: System Administration* (NN43001-332)).
    - If this Signaling Server is not to be associated with a Call Server, enter **b** at the prompt to set this Signaling Server as a Standalone Signaling Server - NRS.

**Figure 112**  
**Application configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====
Please select the application configuration for this Signaling Server.

Please enter:
<CR> -> <a> - Co-resident (LTPS + VTRK + NRS).
        <b> - Stand-alone (NRS only - no Call Server).
        <q> - Quit.

Enter Choice>
```

Depending on the application configuration selected, either the NRS type: co-resident Signaling Server screen (Figure 113 on [page 234](#)) or the NRS type: standalone Signaling Server screen (Figure 114 on [page 234](#)) appears.

**Figure 113**  
**Standalone Signaling Server - NRS**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please select the Network Routing Service (NRS) configuration for this
Signaling Server.

Please enter:
<CR> -> <a> - H.323 Gatekeeper and SIP Redirect/Proxy Server.
        <b> - H.323 Gatekeeper only.
        <c> - SIP Redirect/Proxy Server only.

Enter Choice>
```

**Figure 114**  
**NRS type — co-resident Signaling Server**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please select the type of Network Routing Service (NRS) for this
Signaling Server.

Please enter:
<CR> -> <a> - Primary.
        <b> - Alternate.
        <c> - Failsafe.

Enter Choice>
```

- 9** Select the type of NRS to be provided by this Signaling Server. See Figure 114 for a co-resident Signaling Server. See Figure 113 for a stand-alone Signaling Server – NRS Only.
- If this Signaling Server is to be the Primary NRS, enter **a**.
  - If this Signaling Server is to be the Alternate NRS, enter **b**.
  - If this Signaling Server is not a stand-alone Signaling Server – NRS Only and is to be the Fail-safe NRS, enter **c**.

Refer to *IP Peer Networking: Installation and Commissioning* (NN43001-313) for more information on the NRS.

Depending on whether the Signaling Server is configured as Leader, Follower or Stand-alone, the Leader Signaling Server configuration screen (Figure 115), the Follower Signaling Server configuration screen (Figure 116) or the Stand-alone Signaling Server – NRS Only configuration screen (Figure 117) appears.

**Figure 115**  
**Leader Signaling Server configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please enter the data networking and IP Telephony parameters for
this Leader Signaling Server.

Node ID           : 276

Hostname          : SS_Node276_Ldr

ELAN IP           : 192.168.10.20
ELAN subnet mask : 255.255.255.0
ELAN gateway IP  : 192.168.10.1

TLAN IP           : 192.168.20.20
TLAN subnet mask : 255.255.255.0
TLAN gateway IP  : 192.168.20.1

Node IP           : 192.168.10.20

Call Server IP   : 192.168.10.10
```

**Figure 116**  
**Follower Signaling Server configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

This Follower Signaling Server will obtain its data network and IP
telephony configuration from the Leader Signaling Server at boot.

To identify this Signaling Server, please enter a Hostname.

Hostname : SS_Node276_Ldr
```

**Figure 117**  
**Stand-alone Signaling Server configuration**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

Please define the data networking parameters for this Standalone
Signaling Server. Note that the ELAN parameters are necessary for
management access (e.g. SNMP).

Hostname           : SS_SA
ELAN IP            : 192.168.10.20
ELAN subnet mask  : 255.255.255.0
ELAN gateway IP   : 192.168.10.1

TLAN IP           : 192.168.20.20
TLAN subnet mask  : 255.255.255.0
TLAN gateway IP   : 192.168.20.1
```

- 10** Enter the data networking and IP telephony parameters for the Signaling Server, as prompted.
- If this is a Leader Signaling Server, enter the parameters for the Node, ELAN network interface, TLAN network interface, and Call Server as required. See Figure 99 on [page 221](#). For the Call Server:
    - If installing the Signaling Server at an office that is not a branch office, enter the ELAN network interface IP address of the Call Server.
    - If installing the Signaling Server at a branch office, enter the ELAN network interface IP address of the MG 1000B Core.
  - If this is a Follower Signaling Server, enter the Hostname of the Leader Signaling Server. The IP telephony parameter configuration screen appears (Figure 118 on [page 237](#)).

**Figure 118**  
**IP Telephony parameter configuration**

```

CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
-----

You have entered the following parameters for this Leader SS :
(Press <a>-<l> to correct, <y> to proceed, <n> to reconfigure all.)

Please enter:
<CR> -> <y> - Yes, these parameters are correct.
        <n> - Re-enter all of the parameters

        <a> - Node ID           I : 9
        <b> - Hostname          : CS1000E_PIV
        <c> - ELAN IP           : 192.167.102.4
        <d> - ELAN subnet mask  : 255.255.255.0
        <e> - ELAN gateway IP  : 192.167.102.1
        <f> - TLAN IP          : 192.167.103.2
        <g> - TLAN subnet mask  : 255.255.255.0
        <h> - TLAN gateway IP   : 192.167.103.1
        <i> - Node IP           : 192.167.103.3
        <j> - Call Server IP    : 192.167.102.3
        NRS configuration : Primary GK + SIP
        <k> - Primary NRS IP   : 192.167.103.2
        <l> - Alternate NRS IP :

Enter Choice>

```

- Proceed to step 16 on [page 225](#).
- If this is a stand-alone Signaling Server and not associated with a Call Server (that is, **b** was selected in step 11 on [page 218](#)), enter the TLAN subnet parameters as required. The Call Server IP address is automatically set to 0.0.0.0.

The IP information applies to a temporary IP Telephony node. This ensures that the existing node is not impacted. This also preconfigures the IP Telephony node files. In *Signaling Server: Installation and Commissioning* (NN43001-312), the node files are imported to Element Manager for further configuration.

Depending on whether the Signaling Server is configured as Primary, Alternate or Stand-alone, the Primary NRS IP address screen (Figure 119), the Alternate NRS IP address screen (Figure 120), or both in succession (for a Stand-alone Signaling Server) appear.

**Figure 119**  
**Primary NRS IP address**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====
Please enter the Primary NRS IP Address:
Primary NRS IP   :
```

**Figure 120**  
**Alternate NRS IP address**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====
Please enter the Alternate NRS IP Address:
Alternate NRS IP :
```

- 11 Enter the Primary NRS IP address or the Alternate NRS IP address, depending on the option entered in step 12 on [page 219](#) or step 13 on [page 220](#).
  - If **a** was entered in step 13, you can enter the address of the Alternate NRS if you know it, but it is not required. See Figure 102 on [page 223](#).
  - If **b** was entered in step 13, enter the address of the Primary NRS. See Figure 101 on [page 223](#).
  - If **c** was entered in step 13:
    - Enter the address of the Primary NRS. See Figure 101.
    - Enter the address of the Alternate NRS. See Figure 102.
  - If **d** was entered in step 12:
    - Enter the address of the Primary NRS (optional).

- If you did enter the address of the Primary NRS, enter the address of the Alternate NRS (also optional).

The Gatekeeper configuration can be updated later using Element Manager. The IP telephony parameter configuration screen appears (Figure 121).

**Figure 121**  
**IP Telephony parameter configuration**

```

CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
-----

You have entered the following parameters for this Leader SS :
(Press <a>-<l> to correct, <y> to proceed, <n> to reconfigure all.)

Please enter:
<CR> -> <y> - Yes, these parameters are correct.
      <n> - Re-enter all of the parameters

      <a> - Node ID           I : 9
      <b> - Hostname          : CS1000E_PIV
      <c> - ELAN IP           : 192.167.102.4
      <d> - ELAN subnet mask : 255.255.255.0
      <e> - ELAN gateway IP  : 192.167.102.1
      <f> - TLAN IP          : 192.167.103.2
      <g> - TLAN subnet mask : 255.255.255.0
      <h> - TLAN gateway IP  : 192.167.103.1
      <i> - Node IP           : 192.167.103.3
      <j> - Call Server IP   : 192.167.102.3
           NRS configuration : Primary GK + SIP
      <k> - Primary NRS IP   : 192.167.103.2
      <l> - Alternate NRS IP :

Enter Choice>

```

**12** Press <CR> or enter *y* to confirm all parameters entered, *n* to re-enter all parameters, or a letter *a* through *I* to change the value of the corresponding system parameter. The configuration screens for a Follower and Standalone Signaling Server - NRS are similar, showing the same list of parameters, specifically:

- The screen for the Follower Signaling Server displays only the value for the Hostname parameter; all other values are blank.
- The screen for the stand-alone Signaling Server displays values for the Hostname, ELAN network interface, TLAN network interface, and NRS parameters. The Node ID field is set to 0. The Call Server IP field is set to 0.0.0.0.

The following message is displayed:

**For future reference, the ELAN MAC address is:  
"00:02:b3:c5:51:c6".**

**Note:** The ELAN network interface MAC address must be configured in the Element Manager node configuration web page.

The Install Tool Main Menu screen appears (Figure 122):

**Figure 122**  
**Install tool**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====

                M A I N   M E N U

The Install Tool will install Signaling Server software and related
files. You will be prompted throughout the installation.

Please enter:
<CR> -> <a> - To perform a complete installation/upgrade (Signaling
          Server s/w, Internet Telephone f/w, Voice Gateway Media
          Card l/w, basic Signaling Server configuration).
<b> - To install/upgrade Signaling Server software only.
<c> - To copy Internet Telephone firmware only.
<d> - To copy Voice Gateway Media Card loadware only.
<e> - To perform basic Signaling Server configuration only.
<f> - To selectively change initial system parameters.
<g> - To change board location information (CPPM only).
<t> - To go to the Tools Menu.
<q> - Quit.

Enter Choice> q
```

- 13** Enter **q** to quit the Install Tool. Confirm to reboot the system. The Installation Tool quit confirmation screen appears (Figure 123).

**Figure 123**  
**Installation Tool quit confirmation**

```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====
You have selected to quit the Install Tool.

Before quitting and rebooting the system, remove all disks (floppy,
CDROM) from the drives.

      Please enter:
<CR> -> <m> - Return to previous menu.
      <q> - Quit and reboot the system.

      Enter Choice> q
```

- 14 Enter **q** to close/terminate the Installation Tool and reboot the Signaling Server.

---

**End of Procedure**

---

## Adding a follower Signaling Server

After configuration and reboot, a Follower Signaling Server sends out BOOTP requests and waits for a response. Since the Follower Signaling Server is not yet configured in an IP Telephony node, there is no BOOTP response. Do not wait for this response. Complete Procedure 46, “Adding a Follower Signaling Server to an IP Telephony node,” on [page 243](#) .

**Procedure 46****Adding a Follower Signaling Server to an IP Telephony node**

**Note:** The first time the Follower Signaling Server is installed, it cannot obtain the system login and password, and does not have the current CONFIG.INI file with the Call Server IP address, therefore the FTP fails. In subsequent Follower installations, FTP succeeds.

- 1 Open the Web browser.
- 2 Enter the **Signaling Server Node IP address** in the Address Bar of the browser window and press Enter on the keyboard.

**Note:** The ELAN network interface IP address can be required, instead of the Node IP address, to access the Element Manager login Web page in secure environments.

- 3 The Element Manager **Login** Web page opens.
  - a. Enter a valid **User ID** and **Password** combination.
    - A valid User Id and Password combination is one that is defined on the Call Server.

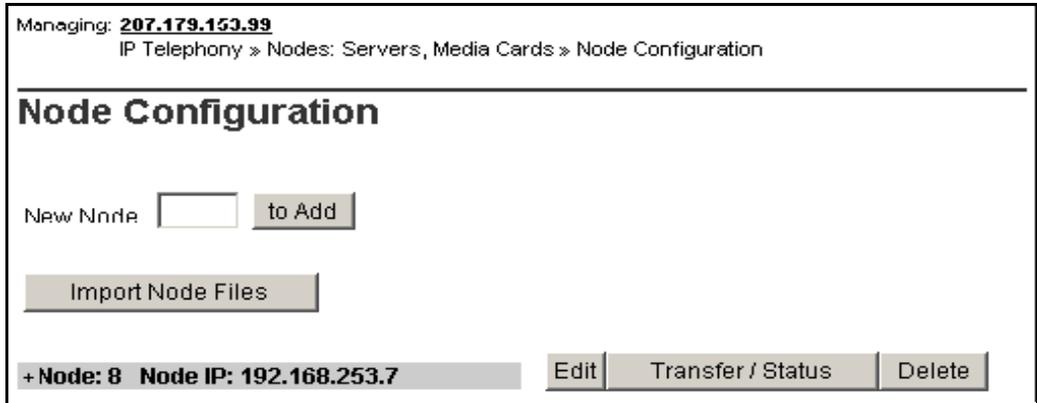
The IP Address of the Call Server appears in the Call Server IP Address field.

- b. Click **Login**.

The System Overview Web page appears.

- 4 Select **IP Network > Nodes: Servers, Media Cards** from the navigator. The Node Configuration web page opens, as shown in Figure 124.

**Figure 124**  
**Node Configuration web page**



- 5 Click Edit next to the node to which the Follower Signaling Server is to be added. The Edit web page opens, as shown in Figure 125.

**Figure 125**  
**Edit web page**

Managing: **Navigation System Name (192.167.102.3)**  
 System » IP Network » Node Configuration » IP Telephony: Node ID 9 » Edit

## Edit

Save and Transfer Cancel

**- IP Telephony Node**

**Node ID 9**

Telephony LAN (TLAN) Node IP address  \*

Embedded LAN (ELAN) gateway IP address

Embedded LAN (ELAN) subnet mask

Voice LAN (TLAN) subnet mask

+ VGW and IP phone codec profile

+ QoS

+ LAN configuration

+ SNTP

+ Virtual Trunk Network Health Monitor configuration

+ H323 GW Settings

+ Firmware

+ SIP GW Settings

+ SIP URI Map

+ SIP CD Services

+ SIP CTI Services

+ Cards

+ Signaling Servers

Save and Transfer Cancel

*\*Mandatory fields of current configuration*

- 6 Click Add next to Signaling Servers. The section expands to show a list of Signaling Servers and a blank template for entering Signaling Server xxx.xxx.xxx.xxx properties, as shown in Figure 126.

**Figure 126**  
**Signaling Server properties template**

- Signaling Servers	Add
+ Signaling Server 192.167.102.4 Properties	Remove
- Signaling Server 0.0.0.0 Properties	Remove

Role **Unknown**

Type **UnknownSS**

Embedded LAN (ELAN) IP address  \*

Embedded LAN (ELAN) MAC address  \*

Telephony LAN (TLAN) IP address  \*

Telephony LAN (TLAN) gateway IP address

Hostname  \*

H323 ID

Enable Line TPS

Enable IP Peer Gateway (Virtual Trunk TPS)  ▼

If Telephony LAN(TLAN) IP address and Telephony LAN(TLAN) gateway IP  
 Telephony LAN(TLAN) Node IP address when Line TPS or IP Peer Gateway  
 applications will not run.

Enable SIP Proxy / Redirect Server

Local SIP TCP/UDP Port to Listen to

SIP Domain name

SIP Gateway Endpoint Name

SIP Gateway Authentication Password

Enable Gatekeeper

Network Routing Service Role  ▼

\*Mandatory fields of current configuration

- 7 Enter the information corresponding to the Follower Signaling Server. The Role field will automatically revert to Follower once the Follower Signaling Server has been added.

- 8 Click Save and Transfer to transfer the updated IP Telephony node information to the other elements of the node. Refer to Transferring IP Telephony files, and *IP Line: Description, Installation, and Operation* (NN43001-500) for detailed instructions on transferring IP Telephony node information.

---

**End of Procedure**

---

## Unpacking Help files for Virtual Terminal Emulator

Help files for the Virtual Terminal Emulator (VTE) component of Element Manager are copied to the Signaling Server as compressed files during installation of the Signaling Server software.

Unpacking the Help files is optional. However, they can be unpacked at any time after the Signaling Server software is installed. To unpack the files, refer to *Signaling Server: Installation and Commissioning* (NN43001-312).

### **IMPORTANT!**

Unpacking the Help files takes approximately 20 to 30 minutes. Nortel recommends that you unpack the files during a service outage.

Refer to *Element Manager: System Administration* (NN43001-632) for more information on Element Manager and the Virtual Terminal Emulator.

## Logging in to the Signaling Server

Use Procedure 47 on [page 248](#) to log in to the vxWorks™ shell to access the Signaling Server from a maintenance terminal.

**Procedure 47**  
**Logging in to the Signaling Server**

Before you begin, make sure the DTE–DTE null modem cable (supplied with the Signaling Server) runs between the serial port on the back of the Signaling Server and the maintenance terminal.

- 1 Make sure the Signaling Server is powered up and connected to the maintenance terminal. Refer to *Signaling Server: Installation and Commissioning* (NN43001-312).

The Signaling Server must boot successfully before the user can log in.

- 2 Press <CR> to invoke the login prompt.
- 3 Enter the login credentials by doing one of the following:
  - If the Signaling Server has connected to the Call Server (the startup messages indicate if the PBX link is up), use the PWD1 login to access the Signaling Server.
  - If the Signaling Server is not connected to the Call Server:
    - a. Enter the default Signaling Server Command Line Interface (CLI) login **admin**.
    - b. Enter the Signaling Server Command Line Interface (CLI) password.
      - If this Signaling Server has just been installed and you are logging in for the first time, enter the default password **cseadmin**.

The system immediately prompts you to change the default password.

- If this is not the first login to the Signaling Server, enter the appropriate password.

If you have forgotten the password, reset it from the Tools Menu (see *Signaling Server: Installation and Commissioning* (NN43001-312)).

---

**End of Procedure**

---

To log out of the Signaling Server, enter **exit** at the command line.

## Verifying a successful configuration

To ensure that the Signaling Server Ethernet connections (for the ELAN and TLAN subnets) are configured correctly, perform a ping test to one or more of the other devices connected to the network, particularly the Call Server.

### Procedure 48

#### Verifying the Signaling Server Ethernet connection

1 Log in to the Signaling Server, using Procedure 47 on [page 248](#).

2 Ping the IP address of the Signaling Server. Enter the command:

```
ping x.x.x.x
```

Where **x.x.x.x** is the Signaling Server ELAN network interface IP address.

3 Ping the IP address of the Call Server. Enter the command:

```
ping x.x.x.x,3
```

Where **x.x.x.x** is the Call Server ELAN network interface IP address.

4 If desired, repeat step 3 for other devices connected to the network.

---

**End of Procedure**

---

## Testing the Leader Signaling Server

Configure two IP Phones to register to the Signaling Server on its temporary node. These IP Phones must be provisioned on the Call Server. Refer to *Communication Server 1000E: Installation and Commissioning* (NN43041-310), *Communication Server 1000M and Meridian 1: Large System Installation and Commissioning* (NN43021-310), or *Communication Server 1000M and Meridian 1: Small System Installation and Configuration* (NN43011-310) for the procedure appropriate to the system. After provisioning, the telephones can call each other.



---

# Connecting an IR-8020M-101 Terminal Server

---

## Contents

This section contains information on the following topics:

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## Introduction

Many third-party applications require serial port interfaces to provide a connection to a PBX. As well, support staff traditionally use serial ports to connect maintenance terminals and modems to a system for maintenance. As the CS 1000E Call Server provides only two local serial ports for these purposes, an IP-based Terminal Server is required to provide the necessary standard serial ports for applications.

The CS 1000E system currently supports 2 terminal servers, the IR-8020M-101 (non-ROHS) and the MRV LX8020S-102AC-R (ROHS). This chapter contains information on connecting the IR-8020M-101. For

information on connecting the MRV LX8020S-102AC-R, see “Connecting an MRV LX8020S-102AC-R Terminal Server” on [page 265](#).

As the Terminal Server is configured to automatically log in to the active Call Server upon start-up, only one Terminal Server is required for the system. It can be located anywhere on the LAN. One connection from each Call Server COM1 port is connected to the Terminal Server.

Up to 16 TTY ports can be configured with the CS 1000E Call Server. The Terminal Server can be used as a central point to manage several devices through their serial ports.

The MRV IR-8020M-101 Terminal Server is used with the CS 1000E system to provide serial connections for accessing the CS 1000E COM ports. The user can access each COM port from a local PC through telnet sessions or from a remote PC by dialing the on-board modem.

The Terminal Server provides IP connections to each Pseudo TTY (PTY) ports 0-15 for monitoring CDR and traffic reports.

The MRV IR-8020M-101 Terminal Server is supported by the CS 1000E system. The IR-8020M-101 – In-Reach Standalone has 20 Console Ports and a V.90 internal modem. A 19-inch rack-mount kit is provided with the unit.

On the MRV IR-8020M-101 Terminal Server, port 20 is the default management port. It will be used for primary configuration of the IP address, mask address and gateway address. Port 20 is reserved for configuring the Terminal Server in a CS 1000E system. Port 1 to 19 can be configured for Serial Data Interface for the CSE1000E system components.

**IMPORTANT!**

Before connecting the Terminal Server to another component of the CS 1000E system, read and understand the documentation provided by the Terminal Server’s manufacturer.

This chapter contains the following procedures:

- Procedure 49: "Connecting a Terminal Server to the system" on [page 254](#)
- Procedure 50: "Configure IP address for the Terminal Server" on [page 255](#)
- Procedure 51: "Run telnet from PC" on [page 256](#)
- Procedure 52: "Accessing a CS 1000E from a PC through telnet Terminal Server" on [page 257](#)
- Procedure 53: "Configuring a transparent rlogin port" on [page 258](#)
- Procedure 55: "Accessing an MRV Console Port through the on-board modem" on [page 262](#)

## Configuring a Terminal Server

Follow Procedure 49 to connect a Terminal Server with a CS 1000E system. Table 15 lists the MRV cables required to install the IR-8020M-101 Terminal Server in a CS 1000E system.

**Table 15**  
**Required MRV serial cables and connectors**

Order Code	Description
NTDU6302	Connects MRV Terminal Server to any standard DTE port or DCE port when a Null modem is used
NTDU6303	Used for telnet, rlogin connections
P/N-151-3028	Male RJ-45 to Male RJ-45 with connectors, 10 feet
P/N-350-0308	Female RJ-45 to Female DB9

Customer-made cables with the following pin out (as NTDU6302) can also be used. See Table 16.

**Table 16**  
**Customer made cable pin out**

Pins on DB9 Female		Pins on RJ45 Male (MRV Terminal Server)	
1	DCD	2	DTR
6	DSR		
2	RXD	3	TxD
3	TXD	6	RxD
4	DTR	7	DSR/DCD
5	S GND	4	TxD GND
		5	RxD GND
7	RTS	1	CTS
8	CTS	8	RTS
9	N/C		

**Procedure 49**  
**Connecting a Terminal Server to the system**

- 1 Connect the MRV P/N-151-3028 serial cable from the Terminal Server console port 20 to the PC COM port.



**WARNING**

Port 20 is the default console port. Do not change the configuration for port 20.

- 2 Plug MRV PC Card (in MRV package) into Terminal Server faceplate socket, and power on the Terminal Server.
- 3 Start the MRV HyperTerminal application. In Windows:  
**Start > Programs > Accessories > Communication > HyperTerminal.exe**

- 4 Configure HyperTerminal to communicate with the Terminal Server's management port:
  - a. Set baud rate to 9600.
  - b. Set data bits to 8.
  - c. Set parity to none.
  - d. Set stop bit to 1.
  - e. Set flow control to "None".
  - f. Set Terminal Emulation to VT100.
  - g. Press <CR> until you receive a log-in prompt.
- 5 Log in to the Terminal Server. Enter:  
ACCESS
- 6 Enter the user name. Enter:  
ADMIN
- 7 Set privileged mode. Enter:  
SET PRIV
- 8 Enter the password. Enter:  
SYSTEM

---

**End of Procedure**

---

## Configuring the Terminal Server IP address

### Procedure 50

#### Configure IP address for the Terminal Server

**Note:** The IP address can be configured or changed only from local management port 20.

- 1 Configure the Terminal Server's IP address. At the In-Reach\_Priv prompt. Enter:  
define server ip address [ip address]
- 2 Configure the Terminal Server's IP subnet mask. Enter:  
define server ip subnet mask [ip address]

- 3 Configure the Terminal Server's IP primary gateway address. Enter:  
define server ip primary gateway address [ip address]
- 4 Check Terminal Server configuration. Enter:  
list server ip

Example commands:

```
define server ip address 172.16.3.50
define server ip subnet mask 255.255.255.0
define server ip primary gateway address 172.16.3.1
```

---

**End of Procedure**

---

## Telnet Terminal Server virtual management port

Connect the Terminal Server ethernet port to the ELAN using a CAT5 ethernet cable. The virtual management port 0 is accessible from an online PC using a telnet session. The Terminal Server can now be configured from the on-line PC.

### **Procedure 51** **Run telnet from PC**

- 1 Use **Start > Run**  
Input telnet command: telnet ip-address port#  
  
Where:  
ip-address: Terminal Server IP address  
Port#: The target port number on Terminal Server=2000+(xx x 100)  
  
For Terminal Server virtual management port xx=0  
  
Example: telnet 172.16.3.50 2000
- 2 Press <CR> until the MRV login prompt appears.
- 3 Input login password and username to log in to the virtual management port. The default password is "access".

---

**End of Procedure**

---

---

## Telnet CS 1000E COM port from a PC

Connect port xx (xx = 1 - 19) of the Terminal Server to COM1 port of the CS 1000E Call Server.

Follow Procedure 52 to establish access to a Call Server from a PC through telnet Terminal Server. Use the same port number for each procedure step.

### Procedure 52

#### Accessing a CS 1000E from a PC through telnet Terminal Server

- 1 Disable IP TCP Keepalive Timer so that the telnet session is always on and LAN traffic is reduced. Enter:

```
DEFINE PORT xx IP TCP KEEPALIVE TIMER 0
```

Where: xx = 1-19

**Note:** Do not change the configuration for the default console (port 20).

- 2 Specify the character to be transferred for <CR> in telnet. Enter:

```
define port xx TELNET NEWLINE FILTERING CR
```

- 3 Define the port baud rate to equal the baud rate of the CS 1000E COM port. Enter:

```
define port xx speed [BAUDRATE]
```

Where: xx = Port number from 1-19 and BAUDRATE = the baud rate of the connected Call Server COM port.

- 4 Logout. Enter:

```
logout port xx
```

- 5 Check the configuration. Enter:

```
list port xx alternate chara
```

```
list port xx telnet chara
```

- 6 Run telnet on the PC.

- a. In Windows:

**Start > Run**

- b. Enter the Input telnet command. Enter the command:

```
TELNET xxx.xx.x.xx xxxx
```

Where:

xxx.xx.x.xx = Terminal Server IP Address

xxxx = telnet port (for port 1 to 19)

**Note:** The value of the target telnet port, xxxx, is determined using the following formula:

$$\text{TELNET PORT} = 2\,000 + (\text{port number} \times 100)$$

For example, if the telnet port is 7, then:

$$\begin{aligned}\text{TELNET PORT} &= 2\,000 + (\text{port number} \times 100) \\ &= 2\,000 + (700) \\ &= 2700\end{aligned}$$

If the Terminal Server IP Address is 172.16.3.50 and the telnet port is 7, then TELNET command line is:

```
TELNET 172.16.3.50 2700
```

Example:

```
telnet 172.16.3.50 2000 (telnet to virtual management port)
```

```
telnet 172.16.3.50 2700 (telnet port 7)
```

---

**End of Procedure**

---

## Configuring a transparent rlogin port

The CS 1000E system uses Pseudo TTY (PTY) ports as TTY ports. All serial applications, such as CDR and Traffic, can be implemented through PTY ports. PTY ports are configured in LD 17. An external device, such as a printer, can access a Call Server PTY port through the Terminal Server by using a remote login (rlogin) session. Using HyperTerminal, follow Procedure 53 to configure a transparent rlogin port.

### **Procedure 53** **Configuring a transparent rlogin port**

- 1 Enable keepalive timer 1 for the port. Enter the command:

```
DEFINE PORT XX IP TCP KEEPALIVE TIMER 1
```

Where:

xx = port number

- 2 Enable a dedicated service using rlogin. Enter the command:

```
DEFINE PORT XX RLOGIN DEDICATED SERVICE xx.xx.xx.xx
```

Where:

xx = port number

xx.xx.xx.xx = port IP address

- 3 Enable the port to be accessible only by local command and from a serial connection only. Enter the command:

```
DEFINE PORT xx ACCESS LOCAL
```

Where:

xx = port number

- 4 Enable the In-Reach Element Manager to complete a ZMODEM transfer using the rlogin feature. Enter the command:

```
DEFINE PORT xx RLOGIN TRANSPARENT MODE ENABLED
```

Where:

xx = port number

**Note 1:** When the rlogin transparent mode is enabled, characters are passed raw (without interpretation) and transparently within an rlogin session. This allows the ZMODEM transfer to complete. See Table 17 for ZMODEM requirements.

**Table 17**  
**ZMODEM requirements**

Feature	Setting
Typeahead	1024
TCP window size	1024
telnet CSI ES	Enabled
telnet NEW LINE FILTER	LF or Standard

- 5 Enable autoconnect for the port. Enter the command:

```
DEFINE PORT xx AUTOCONNECT ENABLED
```

Where:

xx = port number

- 6 Enable autodedicate for the port. Enter the command:

```
DEFINE PORT xx AUTODEDICATED ENABLED
```

Where:

xx = port number

- 7 Define a user name for the port. Enter the command:

```
DEFINE PORT xx USERNAME "ptyxx"
```

Where:

xx = port number

ptyxx = User Name is the pty port set during Call Server configuration for rlogin connection. The pty port is set using LD 17. For example, in LD 17, configure TTY 2 as pty. The port # username on Terminal Server becomes "pty2", not "PTY2" or "pty02".

**Note 1:** Ignore the following MRV information message during using DEFINE command. "In-Reach -729- Parameter cannot be modified by a set command". This is informational only that you must use DEFINE and not the more general SET command. It is not an error.

**Note 2:** The quotation marks (""") are also required around "PTYxx"

- 8 Log out of the port. Enter the command:

```
LOGOUT PORT xx
```

Where:

xx = port number

- 9** Check port configuration. Enter the command:

```
LIST PORT xx
```

```
LIST PORT xx ALTERNATE CHARA
```

Where:

xx = port number

---

**End of Procedure**

---

## Configuring a transparent rlogin port with sample data

Sample data has been incorporated into Procedure 54. This configuration shows that a device connected to MRV Port 2 will rlogin 47.11.166.76 through pty 10.

### **Procedure 54**

#### **Configuring a transparent rlogin port**

- 1** Enable keepalive timer 1 for the port. Enter the command:

```
DEFINE PORT 2 IP TCP KEEPALIVE TIMER 1
```

- 2** Enable a dedicated service using rlogin. Enter the command:

```
DEFINE PORT 2 RLOGIN DEDICATED SERVICE 47.11.166.76
```

- 3** Enable the port to be accessible only by local command and from a serial connection only. Enter the command:

```
DEFINE PORT 2 ACCESS LOCAL
```

- 4** Enable the In-Reach Element Manager to complete a ZMODEM transfer using the rlogin feature. Enter the command:

```
DEFINE PORT 2 RLOGIN TRANSPARENT MODE ENABLED
```

- 5** Enable autoconnect for the port. Enter the command:

```
DEFINE PORT 2 AUTOCONNECT ENABLED
```

- 6** Enable autodedicate for the port. Enter the command:

```
DEFINE PORT 2 AUTODEDICATED ENABLED
```

- 7 Define a user name for the port. Enter the command:

```
DEFINE PORT 2 USERNAME "pty7"
```

**Note:** When typing the letters "pty", they must be lower case letters. The number must equal the pty number configured on the system.

- 8 Log out of the port. Enter the command:

```
LOGOUT PORT 2
```

---

**End of Procedure**

---

## Accessing an MRV Console Port through the on-board modem

The MRV IR-8020M Terminal Server is equipped with a V.90/K56flex 56 Kbps on-board modem. The modem port is 23. Follow Procedure 55 to access an MRV Console Port through the on-board modem.

### Procedure 55

#### Accessing an MRV Console Port through the on-board modem

- 1 Connect an analog telephone line to the MRV telephone line port.
- 2 Set up the remote PC connection.
- 3 Dial in to the MRV onboard modem from the PC.
- 4 From the PC, run HyperTerminal. Enter the command:

```
ATD [phone number]
```

Screen response:

```
CONNECT 9600/ARQ/V34/LAPM/V42BIS
```

```
Login
```

- 5 Log in to the In-Reach Element Manager using the default password, (see steps 4,5,6,and 7 in Procedure 49 on [page 254](#)).

---

**End of Procedure**

---

Once logged in to the on-board modem, it is possible to telnet to ports 1-20. It is also possible to rlogin to different IPs.

## CS 1000E COM port types

Table 18 lists various components of the CS 1000E system and their COM port types.

**Table 18**  
**System components and COM port type**

<b>System component</b>	<b>COM port type</b>
Baystack 460	9-pin DCE (male)
Baystack 470	9-pin DCE (male)
NTDU27 Signaling Server	9-pin DTE (male)  <i>Note:</i> Signaling Server comes with a six-foot female-to-female null modem cable.
NT4N64AA CPPII	9-pin DTE (male)
A0852632 Media Card L-adapter	9-pin DCE (female)
A0870611 MIRAN L-adapter	9-pin DCE (female)
P0609204 Media Card L-adapter	9-pin DTE (male)
P0609205 MIRAN L-adapter	9-pin DTE (male)
NTDU14 Gateway	9-pin DTE (male) (modified to isolate pins 6, 7, and 8)  Use PORT 0 of NTBK48AA 3-port SDI cable.



---

# Connecting an MRV LX8020S-102AC-R Terminal Server

---

## Contents

This section contains information on the following topics:

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## Introduction

Many third-party applications require serial port interfaces to provide a connection to a PBX. As well, support staff traditionally use serial ports to connect maintenance terminals and modems to a system for maintenance. As the CS 1000E Call Server provides only two local serial ports for these purposes, an IP-based Terminal Server is required to provide the necessary standard serial ports for applications.

The CS 1000E system currently supports two Terminal Servers, the MRV LX8020S-102AC-R (ROHS) and the IR-8020M-101 (non-ROHS). This chapter contains information on connecting the LX8020S-102AC-R.

For information on connecting the IR-8020M-101, see “Connecting an IR-8020M-101 Terminal Server” on [page 251](#).

Differences between the two Terminal Servers include:

- The IR-8020M-101 Management port is port 20. The LX8020S-102AC-R contains a Diag Port at the front.
- The IR-8020M-101 contains an external PC card slot; the LX8020S-102AC-R does not.
- Commands , command modes and command line interfaces are different
- Default passwords are different for both

The Terminal Servers can be located anywhere on the LAN. One connection from each Call Server COM1 port is connected to the Terminal Server.

Up to 16 TTY ports can be configured with the CS 1000E Call Server. The Terminal Servers can be used as a central point to manage several devices through their serial ports.

Both Terminal Servers are used with the CS 1000E system to provide serial connections for accessing the CS 1000E COM ports. The user can access each COM port from a local PC through telnet sessions or from a remote PC by dialing the on-board modem.

The Terminal Servers provide IP connections to each Pseudo TTY (PTY) ports 0-15 for monitoring CDR and traffic reports.

The LX8020S-102AC-R – LX Series Standalone has 20 Console Ports and a V.90 internal modem. A 19-inch rack-mount kit is provided with the unit.

The DIAG port at the front end of the MRV LX8020S-102AC-R is the default management port. It will be used for primary configuration of the IP address,

mask address and gateway address. The 20 Ports at the rear can be configured for Serial Data Interface for CS 1000E system components.

**IMPORTANT!**

Before connecting the Terminal Server to another component of the CS 1000E system, read and understand the documentation provided by the Terminal Server's manufacturer including the Quick Start Guide for MRV server, LX Series Configuration Guide and MRV LX Series Commands Reference Guide.

This chapter contains the following procedures:

- Procedure 56: "Connecting a Terminal Server to the system" on [page 269](#)
- Procedure 57: "Configure IP address for the Terminal Server" on [page 270](#)
- Procedure 58: "Running telnet from PC" on [page 271](#)
- Procedure 59: "Accessing a CS 1000E from a PC through telnet Terminal Server" on [page 272](#)
- Procedure 60: "Configuring an rlogin port for various applications" on [page 273](#)
- Procedure 61: "Accessing an MRV Console Port through the on-board modem" on [page 276](#)

## Configuring a Terminal Server

Follow Procedure 56 to connect a Terminal Server with a CS 1000E system. Table 19 lists the MRV cables required to install the LX8020S-102AC-R Terminal Server in a CS 1000E system.

**Table 19**  
**Required MRV serial cables and connectors**

Order Code	Description
NTDU6302	Connects MRV Terminal Server to any standard DTE port or DCE port when a Null modem is used
NTDU6303	Used for telnet, rlogin connections
P/N-151-3028	Male RJ-45 to Male RJ-45 with connectors, 10 feet
P/N-350-0308	Female RJ-45 to Female DB9

Customer-made cables with the following pin out can also be used. See Table 20.

**Table 20**  
**Customer made cable pin out (same as NTDU6302)**

Pins on DB9 Female		Pins on RJ-45 Male (MRV Terminal Server)	
1	DCD	2	DTR
6	DSR		
2	RXD	3	TxD
3	TXD	6	RxD
4	DTR	7	DSR/DCD
5	S GND	4	TxD GND
		5	RxD GND
7	RTS	1	CTS

**Table 20**  
**Customer made cable pin out (same as NTDU6302)**

Pins on DB9 Female		Pins on RJ-45 Male (MRV Terminal Server)	
8	CTS	8	RTS
9	N/C		

**Procedure 56**

**Connecting a Terminal Server to the system**

- 1 Connect the above mentioned MRV serial cable from the Terminal Server Diag port at the front of the Terminal Server to the PC COM port.
- 2 Start the MRV HyperTerminal application. In Windows:  
**Start > Programs > Accessories > Communication > HyperTerminal.exe**
- 3 Configure HyperTerminal to communicate with the Terminal Server's management port:
  - a. Set baud rate to 9600.
  - b. Set data bits to 8.
  - c. Set parity to none.
  - d. Set stop bit to 1.
  - e. Set flow control to "None".
  - f. Set Terminal Emulation to VT100.
  - g. Press <CR> until you receive a log-in prompt.
- 4 Log in to the Terminal Server. Enter:  
Log in: InReach <Enter>  
Password access
- 5 To log into Superuser mode:  
InReach: 0 >enable <enter>
- 6 Enter the default password. Enter:

System

————— End of Procedure —————

## Configuring the Terminal Server IP address

### Procedure 57

#### Configure IP address for the Terminal Server

**Note:** The IP address can be configured or changed only from the local Management/ DIAG port.

- 1 Configure the Terminal Server's IP address:

```
InReach:0 >>config interface 1 address <ip address>
```

- 2 Configure the Terminal Server's IP subnet mask:

```
InReach:0 >>config interface 1 mask <subnet mask>
```

- 3 Configure the Terminal Server's IP primary gateway address:

```
InReach:0 >>config gateway <gateway ip address>
```

- 4 Save the configuration and check it:

```
InReach:0 >>save config flash
```

```
InReach:0 >>show system chara
```

```
InReach:0 >>show interface1 chara
```

Example commands:

```
InReach:0 >>config interface 1 address 47.11.244.101
```

```
InReach:0 >>config interface 1 mask 255.255.255.0
```

```
InReach:0 >>config gateway 47.11.244.101
```

————— End of Procedure —————

## Telnet Terminal Server virtual management port

Connect the Terminal Server ethernet port to the ELAN subnet using a CAT5 ethernet cable. The virtual management port 0 is accessible from an online PC using a telnet session. The Terminal Server can now be configured from the on-line PC.

### Procedure 58

#### Running telnet from PC

- 1 In Windows, input the Telnet command  
>**Start** > **Run**  
telnet IP address port#

Where:

IP address = Terminal Server IP address

Port# = port no. (calculation of port shown below in Procedure 60 on [page 273](#))

Example: telnet 47.11.244.101 2100 (if it is port 1)

**Note:** No port is used for the virtual management port.

- 2 Press <CR> until the MRV login prompt appears.
- 3 Input login password and username to log in to the virtual management port.

---

**End of Procedure**

---

## Telnet to CS 1000E COM port from a PC

Connect port xx (xx = 1 - 20) of the Terminal Server to COM1 port of the CS 1000E Call Server.

Follow Procedure 59 to establish access to a Call Server from a PC through telnet Terminal Server. Use the same port number for each procedure step.

**Procedure 59**

**Accessing a CS 1000E from a PC through telnet Terminal Server**

- 1 Connect to the management port or virtual management port as shown in Procedure 58 on [page 271](#) or Procedure 56 on [page 269](#).

- 2 Define the port baud rate to equal the baud rate of the CS 1000E COM port. Enter:

```
InReach:0 >>config port async <xx> speed <Baudrate>
```

```
InReach:0 >>config port async 1 speed 9600
```

Where: xx = Port number from 1-20 and BAUDRATE = the baudrate of the connected Call Server com port.

- 3 To avoid autohangup:

```
InReach:0 >>config port async <xx> no autohangup
```

```
InReach:0 >>config port async 1 no autohangup
```

- 4 Turn off authentication. Then save the configuration and check it:

```
InReach:0 >> config port async <xx> no authentication  
outbound
```

```
InReach:0 >>save config flash
```

```
InReach:0 >>show port async <xx> chara
```

```
InReach:0 >> config port async 1 no authentication  
outbound
```

```
InReach:0 >>save config flash
```

```
InReach:0 >>show port async 1 chara
```

- 5 Run telnet on the PC.

- a. In Windows:

**Start > Run**

- b. Enter the Input telnet command.

```
TELNET xxx.xx.x.xx xxxx
```

Where:

xxx.xx.x.xx = Terminal Server IP Address

xxxx = telnet port (for port 1 to 20)

**Note:** The value of the target telnet port, xxxx, is determined using the following formula:

$$\text{TELNET PORT} = 2\ 000 + (\text{port number } xx \times 100)$$

For example, if the telnet port is 1, then:

$$\begin{aligned}\text{TELNET PORT} &= 2\ 000 + (1 \times 100) \\ &= 2\ 000 + (100) \\ &= 2100\end{aligned}$$

If the Terminal Server IP Address is 47.11.244.101 and the telnet port is 1, then TELNET command line is:

```
telnet 47.11.244.101 2100
```

Example:

```
telnet 47.11.244.101 (telnet to virtual management port)
```

---

**End of Procedure**

---

## Configuring an rlogin port for various applications

The CS 1000E system uses Pseudo TTY (PTY) ports as TTY ports. All serial applications, such as CDR and Traffic, can be implemented through PTY ports. PTY ports are configured in LD 17. An external device, such as a printer, can access a Call Server PTY port through the Terminal Server by using a remote login (rlogin) session. Using HyperTerminal, follow Procedure 60 to configure a transparent rlogin port.

### **Procedure 60** **Configuring an rlogin port for various applications**

- 1 Enable TCP keep alive timer.

TCP Keepalive feature allows to change polling intervals, number retries, etc. The TCP keep alive timer is mainly required to check if the link is up.

This procedure explains how to modify the sysctl.conf file, which contains the TCP Keepalive settings.

- 2 To modify the sysctl.conf file:

- a. Connect to the management port or virtual management port
- b. At the InReach: 0>> prompt, type shell. The shell window opens.

```
InReach: 0 >>shell
```

```
BusyBox v1.1.3 (2006.10.20-12:27+0000) Built-in shell  
(ash)
```

- c. It will then go to the LX prompt as shown below. Type the below command to start editing.

```
LX:/config# vi sysctl.conf.
```

- d. Once the VI editor starts, start by pressing the letter “i” to enter the insert mode. Using the arrow keys, the cursor can be moved to the place where the settings of the keep alive timer are there so that they can be changed if required.
- e. Hit the “Esc” to exit insert mode followed by a “ZZ” to QUIT and WRITE only if changes were made, to exit and not saving changes type: q! After the “Esc”.
  - i. The following command fixes a problem with zmodem. It limits the size of the tcp window:

```
sysctl -w net.ipv4.tcp_rmem="128 256 512"
```

**Note:** The above command is typed in the sysctl.conf.

Similarly many other parameters of the keep alive timer can be modified.

Use the command: sysctl -a

Examples are (the 3 numbers are the minimum, average and maximum values):

```
net.ipv4.tcp_keepalive_intvl=75 ; inseconds
```

```
net.ipv4.tcp_keepalive_probes = 9
```

```
net.ipv4.tcp_keepalive_time = 180; in Seconds
```

Here the TCP keep alive timer has been changed to 3 min.

- f. After saving the changes using vi editor, exit to Inreach prompt and reboot the LX server.

```
InReach:0 >>reboot.
```

- 3 Enable the RLOGIN daemon on the LX.

```
InReach:0>>configure rlogin enable.
```

**4** Configure the rlogin port for various applications.

```
InReach: 0>> config port async xx connect command rlogin  
-l user_name host_ip_address
```

```
InReach: 0 >>config port async 1 connect command rlogin -l  
pty8 47.11.244.101
```

Here PTY8 is the user name.It is the port no. used while configuring the PTY. It has to be configured in overlay 17 of the switch

**5** To bring up a connection from the LX to some device on LAN

```
InReach: 0>> config port async xx access local
```

**6** To build up the autoconnection to a specified IP client

```
InReach:0>>config port async n connect command telnet  
n.n.n.n
```

where n = the port number you are configuring, and n.n.n.n = the IP address of the host

**7** Prevent authentication inbound or outbound. These commands disable authentication on the LX port which would prevent the ability to make a connection without intervention.

```
InReach:0>>config port async n no authentication outbound
```

```
InReach:0>>config port async n no authentication inbound
```

**8** To avoid autohangup:

```
InReach:0 >>config port async <nn> no autohangup
```

Here are the commands you would perform on an IR to do the same thing;

Note: DEFINE/SET PORT port-list AUTOCONNECT ENABLED

DEFINE/SET PORT port-list AUTOHANGUP DISABLED

**9** Enable the transparency mode and save the configuration information.

```
InReach:0>> config port async xx no telnet negotiation
```

```
InReach:0>> config port async xx transparency enable
```

```
InReach:0>> config port async xx flowcontrol cts
```

```
InReach:0 >>save config flash
```

**Note 1:** It is not advisable to use putty software while trying to do rlogin

**Note 2:** MRV definition of autoconnect: In Procedure 59 on [page 272](#) and Procedure 60 on [page 273](#) this feature of autoconnect is required.

This command is used to specify whether or not the port will automatically connect to either a dedicated service or a preferred service when the user logs onto a port. Autoconnect is automatically enabled for a port when a dedicated or preferred service is defined for that port. However, it is not disabled when service is disabled. Autoconnect also specifies whether or not the port should attempt to re-connect a session when a connection failure occurs.

Re-connection attempts occur at intervals specified by the SERVER KEEPALIVE TIMER command (between 10 and 180 seconds), and a status message displays whenever ports that are not configured with a dedicated service attempt to connect (no messages are given for ports that are configured with a dedicated service). Re-connection attempts continue until a connection is made or the user terminates further attempts by entering the local command mode.

Finally, Autoconnect helps control In-Reach Element Manager activity when the port uses modem control signals (for example, a port connected to a dial-up line). Before you can enable Autoconnect, you must define the port for LOCAL access, enable MODEM CONTROL, and define a dedicated service.

---

**End of Procedure**

---

## Accessing an MRV Console Port through the on-board modem

### Procedure 61

#### Accessing an MRV Console Port through the on-board modem

- 1 Connect an analog phone line to the MRV phone line (Telco) port.
- 2 Set up the rlogin connection using Procedure 60 on [page 273](#).
- 3 Dial in to the MRV onboard modem from the PC. This can be done after configuring the modem port as Rlogin.
- 4 From the PC, run HyperTerminal. Enter the command:

```
ATD [phone no.]
```

Screen response:

```
CONNECT 9600/ARQ/V34/LAPM/V42BIS
```

Login

- 5 Log in to the LX-series Element Manager using the default password, (see steps 4,5,6,and 7 in Procedure 56 on [page 269](#)).

Once logged into the onboard modem, it is possible to telnet to ports 1-20. It is also possible to rlogin to different IPs.

### **IMPORTANT!**

For this version of the LX series, always remember that the modem port is 21. And this port can be configured as telnet or rlogin port.

**End of Procedure**

## CS 1000E COM port types

Table 21 lists various components of the CS 1000E system and their COM port types.

**Table 21**  
**System components and COM port type (Part 1 of 2)**

<b>System component</b>	<b>COM port type</b>
Baystack 460	9-pin DCE (male)
Baystack 470	9-pin DCE (male)
NTDU27 Signaling Server	9-pin DTE (male)  Signaling Server comes with a six-foot female-to-female null modem cable.
NT4N64AA CP PII	9-pin DTE (male)
A0852632 Media Card L-adapter	9-pin DCE (female)
A0870611 MIRAN L-adapter	9-pin DCE (female)
P0609204 Media Card L-adapter	9-pin DTE (male)

**Table 21**  
**System components and COM port type (Part 2 of 2)**

<b>System component</b>	<b>COM port type</b>
P0609205 MIRAN L-adapter	9-pin DTE (male)
NTDU14 Gateway	9-pin DTE (male) (modified to isolate pins 6, 7, and 8)  Use PORT 0 of NTBK48AA 3-port SDI cable.

---

# Configuring a terminal and SDI ports

---

## Contents

This section contains information on the following topics:

<a href="#">Introduction</a> . . . . .	279
<a href="#">Setting the TTY terminal port</a> . . . . .	280
<a href="#">Traditional terminal SDI connection</a> . . . . .	280
<a href="#">CS 1000E CP PM Call Server COM Port connections</a> . . . . .	281
<a href="#">MG 1000E SDI connection</a> . . . . .	282
<a href="#">Controlling the baud rate</a> . . . . .	283
<a href="#">BayStack 470 SDI connection</a> . . . . .	285
<a href="#">BayStack 470 SDI connection</a> . . . . .	285
<a href="#">Media Card SDI connection</a> . . . . .	285

## Introduction

In the CS 1000E system, each component (CP PM Call Server, MG 1000E, MG 1000T, Signaling Server, and Baystack switch) has a Serial Data Interface (SDI) port to be used for software installation and maintenance access. The SDI port can be accessed by running a Telnet session through the Terminal Server locally or remotely. See “Configuring a Terminal Server” on [page 253](#) for Terminal Server Setup. The SDI port can also be accessed by a local terminal through the SDI connection.

## Setting the TTY terminal port

A TTY terminal can be any standard PC running terminal software, (for example, HyperTerminal). The TTY terminal port must be configured as:

- Bits per second - Baud rate must be the same as the speed of SDI port.
- Data bits - 8
- Parity- None
- Stop bit – 1
- Flow control – None
- Terminal Emulation- VT100

## Traditional terminal SDI connection

Figure 127 shows the setup values for a traditional terminal setup.

**Figure 127**  
**VT220 setup values**

Global Set-Up	Comm1=RS232	70Hz
On Line		
Sessions on Comm1	Printer Shared	
CRT Saver		
Display Set-Up	Light Text, Dark Screen	
80 Columns	Cursor	
Interpret Controls	Block Style Cursor	
Auto Wrap		
Jump Scroll		
General Set-up	Application Keypad	
VT200 Mode, 7-bit Controls	Normal Cursor Keys	
User Defined Keys Unlocked	No New Line	
User Features Unlocked		
Multinational		
Communications Set-Up	No Local Echo	
Transmit=2400	Data Leads Only	
Receive=Transmit	Disconnect, 2 s Delay	
Xoff at 64	Limited Transmit	
8bits, No Parity		
1 Stop Bit		
Printer Set-Up	Print Full Page	
Speed=9600	Print National Only	
Normal Print Mode	No Terminator	
8bits, No Parity,		
1 Stop bit		
Keyboard Set-up	Warning Bell	
Typewriter Keys	Break	
Caps Lock	Answerback=	
Auto Repeat	Not Concealed	
Keyclick High		
Margin Bell		
Tab Set-Up Screen		
Leave this screen at the default values		

## CS 1000E CP PM Call Server COM Port connections

There are 2 serial ports on the CP PM Call Server, Port 0 and Port 1. They are accessed through a special cable that attaches to the MDF port at the back of the cabinet. Both ports are standard RS232 DTE ports. The supported TTY settings for both ports are:

- Baud rate - 9600
- Data bit - 8
- Stop bit - 1

- Parity - none
- Flow control - none

The baudrate setting can be changed in Overlay 17, however changing this setting is not recommended since it will only be used when SL1 is loaded.

Note that only the Port 0 serial port displays the boot sequence from BIOS, Bootrom & OS before the call server application is started. Port 1 will only start displaying output when the call server application is started (Sysload Phase1).

## MG 1000E SDI connection

SDI connection to the MG 1000E is made at the back. See Figure 128 on [page 284](#) for location of the 9-pin DTE (male) connector. It is modified to isolate pins 6, 7, and 8. Use PORT0 of NTBK48AA 3-port SDI cable for terminal connection.

*Note:* Connection must be made initially to each MG 1000E to set the IP address.

## MGC serial ports

Each MGC installed in a CS 1000E provides 3 remote SDIs. The maximum number of TTYs does not change. Therefore, once the maximum TTYs are configured, no additional TTYs are supported.

The MGC has three serial ports: SDI0, SDI1 and SDI2.

The serial ports can be used for local debug purposes or can be configured in the CS 1000E Call Server as system terminals in Overlay 17 (see 4.3.1 MGC TTY Configuration).

During initial configuration either SDI0 or SDI1 must be connected to access the installation menu.

*Note:* Only SDI0 has full modem support, as SDI1 and SDI2 do not have hardware flow control.

SDI2 is not available during the MGC bootup, it cannot be used to access the installation menus.

All of the SDI ports on the MGC are configured via software. There are no DIP switches on the MGC for configuring the baud rate of SDI0.

## Controlling the baud rate

You can use a switch setting on the SSC's faceplate to control the baud rate for port 0. Use LD 17 to configure port 1 and port 2. Make sure the baud rate and device option settings are set correctly.

- Use Port 0 for software installation and upgrades. Port 0 is the only system terminal (SDI) port that you can use for software installation and upgrades.
- You can use all three ports on the SSC to connect terminals or modems.
- Use an NTBK48 3-port SDI cable with the SSC.

Table 22 shows the SDI port numbering.

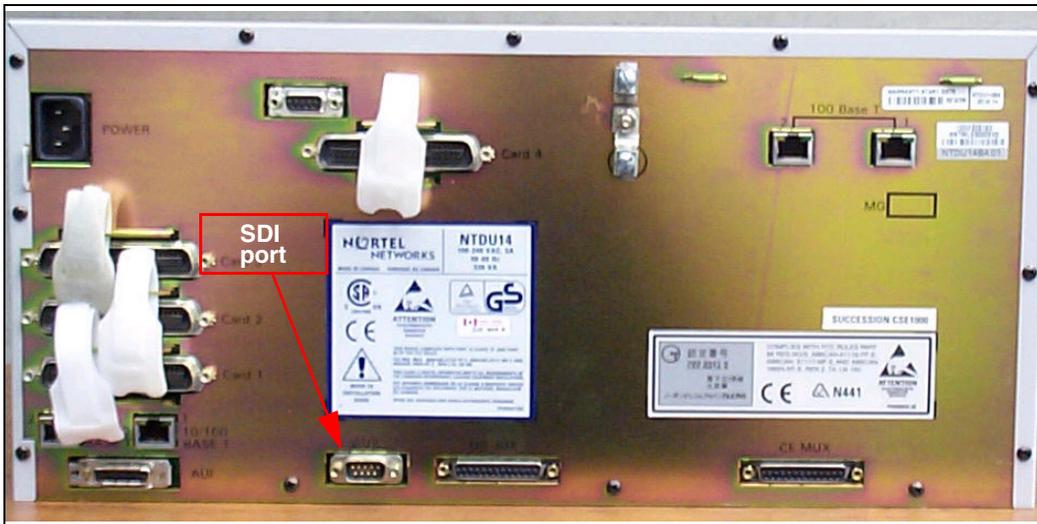
**Table 22**  
**SDI port numbering**

Port	Use	Baud rate	Data bits	Stop bits	Parity
0	MTC/SCH/BUG	Set by a DIP switch	8	1	None
1	MTC/SCH/BUG	1200	8	1	None
2	MTC/SCH/BUG	1200	8	1	None

**Procedure 62**  
**Connecting SDI ports on the Media Gateways**

- 1    Connect the NTBK48 3-port SDI cable to the 9-pin SDI port (RS-232) at the rear of the Media Gateways (see Figure 128).

**Figure 128**  
**SDI port access to the Media Gateway SSC card**



- 2    Connect the system terminal to the cable marked “port 0” on the NTBK48 3-port cable. You require a Modem Eliminator adapter to connect the system to a TTY terminal. This adapter is included in the CS 1000E and the Media Gateway cable kits.
- 3    If the system is accessed remotely, connect the system modem to the cable marked “port 1” on the NTBK48 cable.
- 4    When instructed, connect the modem to an outside line.
- 5    When instructed, test the modem for correct operation when the system is operating.

**Note:** You can use the remaining ports for other equipment, such as CDR devices or TTYs.

---

**End of Procedure**

---

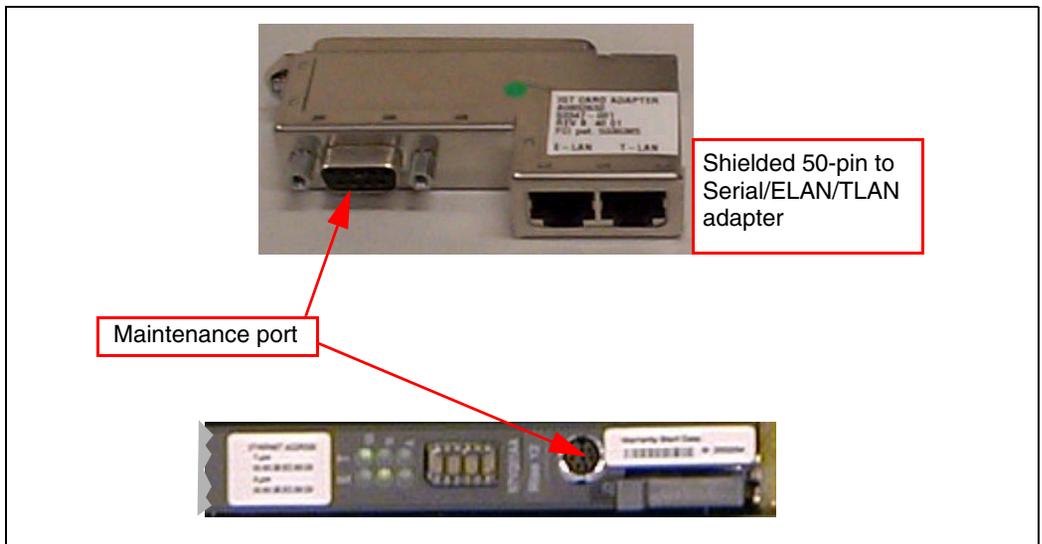
## BayStack 470 SDI connection

The SDI port on the Bay Stack 470 can be used for basic configuration and maintenance. The SDI port is located on the faceplate. It is a DCE port with a default speed of 9600 bps.

## Media Card SDI connection

The SDI ports on a Media Card can be used for basic configuration or maintenance. Figure 129 shows the maintenance port location on the Media Card and the Shielded 50-pin to Serial/ELAN/TLAN adapter.

**Figure 129**  
**Maintenance port location on the Media Card and the**  
**Shielded 50-pin to Serial/ELAN/TLAN adapter**



The Media Card faceplate provides a female 8-pin mini-DIN serial maintenance port connection. The maintenance port on the Shielded 50-pin

to Serial/ELAN/TLAN adapter provides an alternative to the faceplate maintenance port. Both are DTE ports with a speed of 9600 bit/s.



**CAUTION — Service Interruption**

Do not connect maintenance terminals or modems to the faceplate and I/O panel DB-9 male serial maintenance port at the same time.

---

# Installing and cross-connecting a trunk card

---

## Contents

This section contains information on the following topics:

Introduction . . . . .	287
Circuit card options . . . . .	291
Digital trunk cards . . . . .	291
Connecting a trunk . . . . .	292
Universal Trunk card connections . . . . .	293
E&M Trunk card connections . . . . .	296
Trunk connections (Europe) . . . . .	298
Trunk connections (UK) . . . . .	308
Verifying trunk functionality . . . . .	316

## Introduction

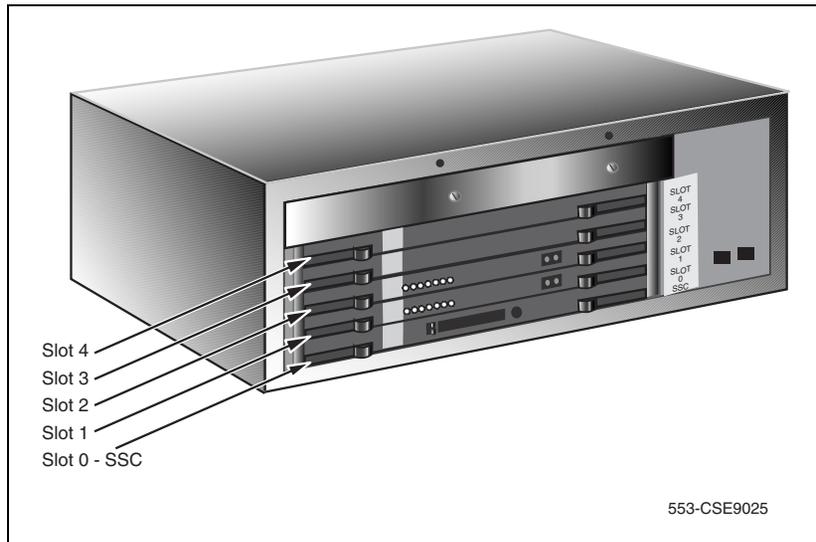
The work order outlines the placement of circuit cards in the Media Gateway and Media Gateway Expander. Analog trunks can be installed in both Media Gateway and Media Gateway Expander. However, digital trunk cards can only be installed in slots 1 to 4 of the MG 1000T. See *Circuit Card: Description and Installation* (NN43001-311) for card placement into card slots.

**IMPORTANT!**

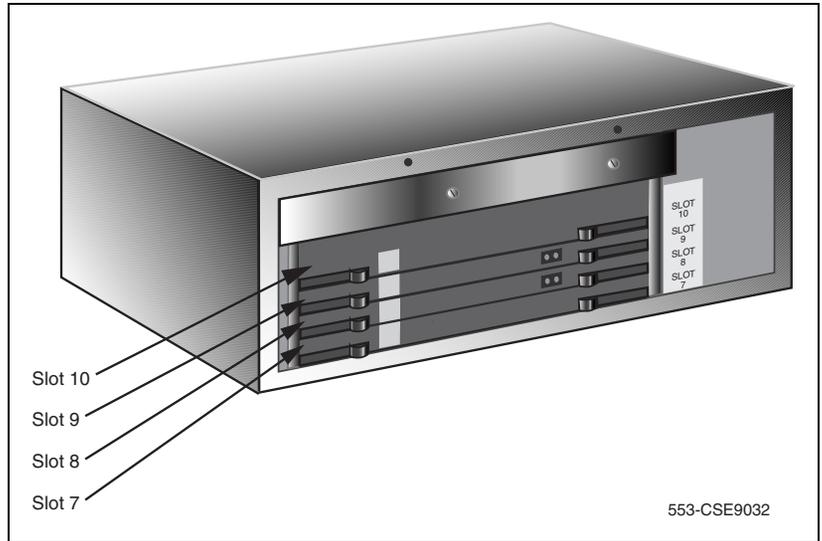
Digital Trunk cards can be installed only in slots 1 to 4 of the Media Gateway.

Figure 130 shows the circuit card slots in a Media Gateway. To view the circuit card slots available in a Media Gateway Expander, see Figure 131 on [page 289](#).

**Figure 130**  
**Circuit card assignments in the Media Gateway**



**Figure 131**  
**Circuit card assignments in the Media Gateway Expander**



**WARNING**

Use caution when installing or modifying telephone lines. Avoid installing telephone wiring during a lightning storm. Do not install telephone jacks in wet locations unless the jacks are designed for wet locations. Never touch uninsulated telephone wiring unless the line is disconnected at the network interface.

Before you proceed, install the cable from the slot that contains the Line card associated with the telephone being connected. Refer to “Installing the Main Distribution Frame” on [page 351](#), if you require additional cable installation.



#### **DANGER OF ELECTRIC SHOCK**

Always use caution when installing or modifying telephone lines. Do not install telephone wiring during a lightning storm. Do not install telephone jacks in wet locations unless the jacks are designed for wet locations. Never touch uninsulated telephone wiring unless the line is disconnected at the network interface.

Refer to the *Circuit Card: Description and Installation* (NN43001-311) for full descriptions of country-specific circuit cards and their installation procedures.

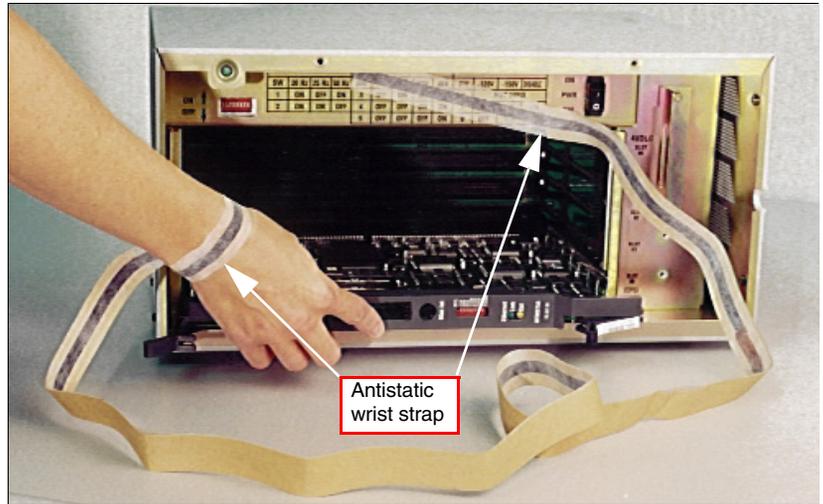


#### **CAUTION WITH ESDS DEVICES**

Always handle circuit cards with caution to avoid damage caused by static electricity. Always store circuit cards that are not in use in an antistatic bag or the original packaging

Wear an antistatic wrist strap, such as the one shown in Figure 132 on [page 291](#), when handling circuit cards. Static electricity can damage circuit card components.

**Figure 132**  
**Antistatic wrist strap**



## Circuit card options

A circuit card that has a switch symbol on its faceplate is equipped with option switches, strapping plugs, or both. Ensure that the option switches or strapping plugs are set correctly. Circuit cards can also have daughterboards or other add-on devices installed on them.

## Digital trunk cards

Digital trunk cards can be installed only in slots 1 to 4 in a Media Gateway. The following Digital trunk cards can be installed:

- NTAK09 1.5 Mbit DTI/PRI
- NTAK10 2.0 Mbit DTI
- NTAK79 2.0 Mbit PRI
- NTBK22 MISP
- NTBK50 2.0 Mbit BRI

- NTRB21 TMDI 1.5 Mbit DTI/PRI
- NT6D70 SILC
- NT6D71 UILC

For additional information about installing Digital trunk cards, refer to the following documents:

- *ISDN Primary Rate Interface: Installation and Configuration* (NN43001-301)
- *ISDN Basic Rate Interface: Installation and Configuration* (NN43001-318)
- *ISDN Primary Rate Interface: Maintenance* (NN43001-717)
- *ISDN Basic Rate Interface: Maintenance* (NN43001-718)

## Connecting a trunk

Follow Procedure 63 to connect a trunk.

### **Procedure 63** **Connecting a trunk**

- 1 From the assignment record, determine the location of the trunk connection and its associated Terminal Number (TN) at the cross-connect terminal.
- 2 With cross-connect wire, connect the trunk to the TN.

Make sure that the wiring is not reversed and that it is on the correct terminals.

- Table 23 on [page 293](#) to Table 25 on [page 296](#) list the connections for trunks.
- For European trunk connections, see Table 26 on [page 298](#) to Table 34 on [page 307](#).
- For UK trunk connections, see Table 35 on [page 309](#) to Table 41 on [page 316](#).

**Note:** See “Installing and cross-connecting a Power Fail Transfer Unit” on [page 441](#) for connecting trunks with the PFTU.

---

**End of Procedure**

---

## Universal Trunk card connections

The Universal Trunk card (NT8D14) provides eight Analog trunks that can function in the modes identified in Table 23. Refer to Table 24 on [page 294](#) for the connections to the Universal trunk at the cross-connect terminal.

**Table 23**  
**NT8D14 Universal Trunk card – modes and option settings**

<b>Modes</b>	<b>Location</b>	<b>Jumper strap</b>
Central (CO)	J1, J2	OFF
2-way TIE trunk (loop Dial Repeat)	J1, J2	OFF
2-way TIE trunk (Outgoing Incoming Dial)	J1, J2	OFF
Recorded Announcement (RAN)	J1, J2	OFF
Paging trunk	J1, J2	OFF
Japan CO/DID operation	J1, J2	OFF
DID operation Loop length >2000 ohms	J1, J2	ON
DID operation Loop length <2000 ohms	J1, J2	OFF
<b>Note 1:</b> OFF indicates that no strap is present.		
<b>Note 2:</b> J1 and J2 locations apply to all eight trunks.		

**Table 24**  
**NT8D14 Universal Trunk connections (Part 1 of 2)**

Cable from equipment		Unit	RAN mode	Paging mode	All other modes
Pair	Color		Designations		
1T 1R	W-BL BL-W	0	T0 R0	T0 R0	T0 R0
2T 2R	W-O O-W		CP MB	A PG	
3T 3R	W-G G-W	1	T1 R1	T1 R1	T1 R1
4T 4R	W-BR BR-W		CP MB	A PG	
5T 5R	W-S S-W	2	T2 R2	T2 R2	T2 R2
6T 6R	R-BL BL-R		CP MB	A PG	
7T 7R	R-O O-R	3	T3 R3	T3 R3	T3 R3
8T 8R	R-G G-R		CP MB	A PG	
9T 9R	R-BR BR-R	4	T4 R4	T4 R4	T4 R4
10T 10R	R-S S-R		CP MB	A PG	
11T 11R	BK-BL BL-BK	5	T5 R5	T5 R5	T5 R5
12T 12R	BK-O O-BK		CP MB	A PG	

**Table 24**  
**NT8D14 Universal Trunk connections (Part 2 of 2)**

Cable from equipment		Unit	RAN mode	Paging mode	All other modes
Pair	Color		Designations		
13T 13R	BK-G G-BK	6	T6 R6	T6 R6	T6 R6
14T 14R	BK-BR BR-BK		CP MB	A PG	
15T 15R	BK-S S-BK	7	T7 R7	T7 R7	T7 R7
16T 16R	Y-BL BL-Y		CP MB	A PG	
<b>Note:</b> Remaining pairs are spare.					

## E&M Trunk card connections

Table 25 lists the connections required by the E&M Trunk card (NT8D15).

**Table 25**  
**NT8D15 E&M Trunk card (Part 1 of 2)**

Cables Card 1 through Card 10 from equipment		Unit	2W Paging mode	2W Type 1 mode	4W Type 1 mode	4W Type 2 mode
Pair	Color		Designations			
1T 1R	W-BL BL-W	0	T0 R0	T0 R0	TA TB	TA TB
2T 2R	W-O O-W				RA RB	RA RB
3T 3R	W-G G-W		E M	E M	EA EB	
4T 4R	W-BR BR-W		A PG	ESC ESCG	MA MB	
5T 5R	W-S S-W	1	T1 R1	T1 R1	TA TB	TA TB
6T 6R	R-BL BL-R				RA RB	RA RB
7T 7R	R-O O-R		E M	E M	EA EB	
8T 8R	R-G G-R		A PG	ESC ESCG	MA MB	

**Table 25**  
**NT8D15 E&M Trunk card (Part 2 of 2)**

Cables Card 1 through Card 10 from equipment		Unit	2W Paging mode	2W Type 1 mode	4W Type 1 mode	4W Type 2 mode
Pair	Color		Designations			
9T 9R	R-BR BR-R	2	T2 R2	T2 R2	TA TB	TA TB
10T 10R	R-S S-R				RA RB	RA RB
11T 11R	BK-BL BL-BK		E M	E M	EA EB	
12T 12R	BK-O O-BK		A PG	ESC ESCG	MA MB	
13T 13R	BK-G G-BK	3	T3 R3	T3 R3	TA TB	TA TB
14T 14R	BK-BR BR-BK				RA RB	RA RB
15T 15R	BK-S S-BK		E M	E M	EA EB	
16T 16R	Y-BL BL-Y		A PG	ESC ESCG	MA MB	

**Note:** A and B are the transmit and receive pairs, where:  
 TA = Transmit Tip, and RA = Receive Tip  
 TB = Transmit Ring, and RB = Receive Ring

## Trunk connections (Europe)

Trunk connections for Europe are provided in the following tables:

- Table 26: “E&M TIE trunk card (2-Wire)” on [page 298](#)
- Table 27: “E&M 2-wire Type 2” on [page 299](#)
- Table 28: “E&M TIE Trunk card (4-Wire)” on [page 300](#)
- Table 29: “E&M TIE Trunk card” on [page 302](#)
- Table 30: “E&M 2280 Hz TIE Trunk connections” on [page 303](#)
- Table 31: “E&M 2-wire Recorded Announcement Trunk connections” on [page 304](#)
- Table 32: “E&M 2-wire Music Trunk connections” on [page 305](#)
- Table 33: “Central Office & Direct Dial Inward Trunk connections” on [page 305](#)
- Table 34: “Central Office Trunk connections” on [page 307](#)

**Table 26**  
**E&M TIE trunk card (2-Wire) (Part 1 of 2)**

Cables Card 1 through Card 10 from equipment				Column 1 Paging	Column 2 Paging	Column 3 Type 5 (BPO)
Pair	Color	Unit	Pins	Lead Designations		
1T 1R	W-O O-W	0	27 2	T0 R0	T0 R0	T0 R0
2T 2R	W-BR BR-W		29 4	A PG	SIGB SIGA	E M
3T 3R	R-BL BL-R	1	31 6	T1 R1	T1 R1	T1 R1
4T 4R	R-G G-R		33 8	A PG	SIGB SIGA	E M

**Table 26**  
**E&M TIE trunk card (2-Wire) (Part 2 of 2)**

Cables Card 1 through Card 10 from equipment				Column 1 Paging	Column 2 Paging	Column 3 Type 5 (BPO)
5T 5R	R-S S-R	2	35 10	T2 R2	T2 R2	T2 R2
6T 6R	BK-O O-BK		37 12	A PG	SIGB SIGA	E M
7T 7R	BK-BR BR-BK	3	39 14	T3 R3	T3 R3	T3 R3
8T 8R	Y-BL BL-Y		41 16	A PG	SIGB SIGA	E M

**Table 27**  
**E&M 2-wire Type 2 (Part 1 of 2)**

Lead designations	Pins	Pair color	Unit number
T0 R0	27 2	W-O O-W	0
E1 E2	28 3	W-G G-W	
M1 M2	29 4	W-G G-W	
T1 R1	31 6	R-BL BL-R	1
E1 E2	32 7	R-O O-R	
M1 M2	33 8	R-G G-R	

**Table 27**  
**E&M 2-wire Type 2 (Part 2 of 2)**

T2	35	R-S	2
R2	10	S-R	
E1	36	BK-BL	
E2	11	BL-BK	
M1	37	BK-O	3
M2	12	O-BK	
T3	39	BK-BR	
R3	14	BR-BK	
E1	40	BK-S	
E2	15	S-BK	
M1	41	Y-BL	
M2	16	BL-Y	

**Table 28**  
**E&M TIE Trunk card (4-Wire) (Part 1 of 2)**

Cables Card 1 through Card 10 from equipment				Column 1 Type 1 & 5	Column 2 Type 1 & 5
Pair	Color	Unit #	Pins	Lead Designations	
1T 1R	W-BL BL-W	0	26 1	RA RB	TA TB
2T 2R	W-O O-W		27 2	TA TB	RA RB
3T 3R	W-G G-W		28 3	E M	E M

**Table 28**  
**E&M TIE Trunk card (4-Wire) (Part 2 of 2)**

Cables Card 1 through Card 10 from equipment				Column 1 Type 1 & 5	Column 2 Type 1 & 5
4T	W-S	1	30	RA	TA
4R	S-W		5	RB	TB
5T	R-BL		31	TA	RA
5R	BL-R		6	TB	RB
6T	R-O	2	32	E	E
6R	O-R		7	M	M
7T	R-BR		34	RA	TA
7R	BR-R		9	RB	TB
8T	R-S	3	35	TA	RA
8R	S-R		10	TB	RB
9T	BK-BL		36	E	E
9R	BL-BK		11	M	M
10T	BK-G	3	38	RA	TA
10R	G-BK		13	RB	TB
11T	BK-BR-		39	TA	RA
11R	BR-BK		14	TB	RB
12T	BK-S	3	40	E	E
12R	S-BK		15	M	M

**Note:** The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.

**Table 29**  
**E&M TIE Trunk card (Part 1 of 2)**

Cables Card 1 through Card 10 from equipment				Column 1 Type 2	Column 2 Type 2
Pair	Color	Unit #	Pins	Lead Designations	
1T 1R	W-BL BL-W	0	26 1	RA RB	RA RB
2T 2R	W-O O-W		27 2	TA TB	TA TB
3T 3R	W-G G-W		28 3	E1 E2	E M
4T 4R	W-BR BR-W		29 4	M1 M2	SIG0A SIG0B
5T 5R	W-S S-W	1	30 5	RA RB	RA RB
6T 6R	R-BL BL-R		31 6	TA TB	TA TB
7T 7R	R-O O-R		32 7	E1 E2	E M
8T 8R	R-G G-R		33 8	M1 M2	SIG1A SIG1B
9T 9R	R-BR BR-R	2	34 9	RA RB	RA RB
10T 10R	R-S S-R		35 10	TA TB	TA TB
11T 11R	BK-BL BL-BK		36 11	E1 E2	E M
12T 12R	BK-O O-BK		37 12	M1 M2	SIG2A SIG2B

**Table 29**  
**E&M TIE Trunk card (Part 2 of 2)**

Cables Card 1 through Card 10 from equipment				Column 1 Type 2	Column 2 Type 2
13T 13R	BK-G G-BK		38 13	RA RB	RA RB
		3			
14T 14R	BK-BR BR-BK		39 14	TA TB	TA TB
15T 15R	BK-S S-BK		40 15	E1 E2	E M
16T 16R	Y-BL BL-Y		41 16	M1 M2	SIG3A SIG3B
<p><b>Note:</b> The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.</p>					

**Table 30**  
**E&M 2280 Hz TIE Trunk connections (Part 1 of 2)**

Lead designations	Pins	Pair color	Unit number
TA TB	26 1	W-BL BL-W	0
RA RB	27 2	W-O O-W	
TA TB	30 5	W-S S-W	1
RA RB	31 6	R-BL BL-R	

**Table 30**  
**E&M 2280 Hz TIE Trunk connections (Part 2 of 2)**

TA	34	R-BR	2
TB	9	BR-R	
RA	35	R-S	
RB	10	S-R	
TA	38	BK-G	3
TB	13	G-BK	
RA	39	BK-BR	
RB	14	BR-BK	

**Table 31**  
**E&M 2-wire Recorded Announcement Trunk connections**

Lead designations	Pins	Pair color	Unit number
T0	26	W-BL	0
R0	1	BL-W	
SIG B	29	W-BR	1
SIG A	4	BR-W	
T1	30	W-S	2
R1	5	S-W	
SIG B	33	R-G	3
SIG A	8	G-R	
T2	34	R-BR	2
R2	9	BR-R	
SIG B	37	BK-O	3
SIG A	12	O-BK	
T3	38	BK-G	3
R3	13	G-BK	
SIG B	41	Y-BL	3
SIG A	16	BL-Y	

**Table 32**  
**E&M 2-wire Music Trunk connections**

Lead designations	Pins	Pair color	Unit number
T0 R0	26 1	W-BL BL-W	0
T1 R1	30 5	W-S S-W	1
T2 R2	34 9	R-BR BR-R	2
T3 R3	38 13	BK-G G-BK	3

**Table 33**  
**Central Office & Direct Dial Inward Trunk connections (Part 1 of 2)**

Cable from equipment		Unit	Pins	Column 1	Column 2	Column 3
Pair	Color			Lead designations		
1T 1R	W-BL BL-W	0	26 1	T0 R0	T0 R0	A0 B0
2T 2R	W-O O-W		27 2		PPM0 —	C0 Spare
3T 3R	W-G G-W	1	28 3	T1 R1	T1 R1	A1 B1
4T 4R	W-BR BR-W		29 4		PPM1 —	C1 Spare
5T 5R	W-S S-W	2	30 5	T2 R2	T2 R2	A2 B2
6T 6R	R-BL BL-R		31 6		PPM2 —	C2 Spare

**Table 33**  
**Central Office & Direct Dial Inward Trunk connections (Part 2 of 2)**

Cable from equipment		Unit	Pins	Column 1	Column 2	Column 3
Pair	Color			Lead designations		
7T 7R	R-O O-R	3	32 7	T3 R3	T3 R3	A3 B3
8T 8R	R-G G-R		33 8		PPM3 —	C3 Spare
9T 9R	R-BR BR-R	4	34 9	T4 R4	T4 R4	A4 B4
10T 10R	R-S S-R		35 10		PPM4 —	C4 Spare
11T 11R	BK-BL BL-BK	5	36 11	T5 R5	T5 R5	A5 B5
12T 12R	BK-O O-BK		37 12		PPM5 —	C5 Spare
13T 13R	BK-G G-BK	6	38 13	T6 R6	T6 R6	A6 B6
14T 14R	BK-BR BR-BK		39 14		PPM6 —	C6 Spare
15T 15R	BK-S S-BK	7	40 15	T7 R7	T7 R7	A7 B7
16T 16R	Y-BL BL-Y		41 16		PPM7 —	C7 Spare

**Table 34**  
**Central Office Trunk connections (Part 1 of 2)**

Cable from equipment		Unit	Pins	Lead designations
Pair	Color			
1T 1R	W-BL BL-W	0	26 1	T0 R0
2T 2R	W-O O-W		27 2	
3T 3R	W-G G-W		28 3	
4T 4R	W-BR BR-W		29 4	
5T 5R	W-S S-W	1	30 5	T1 R1
6T 6R	R-BL BL-R		31 6	
7T 7R	R-O O-R		32 7	
8T 8R	R-G G-R		33 8	
9T 9R	R-BR BR-R	2	34 9	T2 R2
10T 10R	R-S S-R		35 10	
11T 11R	BK-BL BL-BK		36 11	
12T 12R	BK-O O-BK		37 12	

**Table 34**  
**Central Office Trunk connections (Part 2 of 2)**

Cable from equipment		Unit	Pins	Lead designations
Pair	Color			
13T	BK-G	3	38	T3
13R	G-BK		13	R3
14T	BK-BR		39	
14R	BR-BK			
15T	BK-S		40	
15R	S-BK			
16T	Y-BL		41	
16R	BL-Y			

## Trunk connections (UK)

Trunk connections for the UK are provided in the following tables:

- Table 35: “NT5K17 Direct Inward Dial card terminations” on [page 309](#)
- Table 36: “NT5K18 Exchange line trunk card cross-connect terminations” on [page 310](#)
- Table 37: “NT5K19 2W paging mode terminations” on [page 312](#)
- Table 38: “NT5K19 2W Type 1 mode terminations” on [page 312](#)
- Table 39: “NT5K19 4W Type 1 mode terminations” on [page 314](#)
- Table 40: “NT5K19 AC15 mode pair terminations” on [page 315](#)
- Table 41: “NT5K19 Recorded Announcement mode pair terminations” on [page 316](#)

**Table 35**  
**NT5K17 Direct Inward Dial card terminations (Part 1 of 2)**

<b>Pair</b>	<b>Pins</b>	<b>Pair color</b>	<b>Unit</b>
T0 R0	26 1	W-BL BL-W	0
	27 2	W-O O-W	
T1 R1	28 3	W-G G-W	1
	29 4	W-BR BR-W	
T2 R2	30 5	W-S S-W	2
	31 6	R-BL BL-R	
T3 R3	32 7	R-O O-R	3
	33 8	R-G G-R	
T4 R4	34 9	R-BR BR-R	4
	35 10	R-S S-R	
T5 R5	36 11	BK-BL BL-BK	5
	37 12	BK-O O-BK	
T6 R6	38 13	BK-G G-BK	6

**Table 35**  
**NT5K17 Direct Inward Dial card terminations (Part 2 of 2)**

Pair	Pins	Pair color	Unit
	39 14	BK-BR BR-BK	
T7 R7	40 15	BK-S S-BK	7
	41 16	Y-BL BL-Y	

*Note:* The connections on the NT5K18 Exchange Line Trunk card are polarity-sensitive. Make sure the ground side of the trunk is connected to the A leg of the NT5K18 circuit. Make sure the -50 Volt side of the trunk is connected to the B leg of the NT5K18 circuit.

**Table 36**  
**NT5K18 Exchange line trunk card cross-connect terminations (Part 1 of 2)**

Pair	Pins	Pair color	Unit
T0 R0	26 1	W-BL BL-W	0
	27 2	W-O O-W	
T1 R1	28 3	W-G G-W	1
	29 4	W-BR BR-W	
T2 R2	30 5	W-S S-W	2
	31 6	R-BL BL-R	

**Table 36**  
**NT5K18 Exchange line trunk card cross-connect terminations**  
**(Part 2 of 2)**

<b>Pair</b>	<b>Pins</b>	<b>Pair color</b>	<b>Unit</b>
T3 R3	32 7	R-O O-R	3
	33 8	R-G G-R	
T4 R4	34 9	R-BR BR-R	4
	35 10	R-S S-R	
T5 R5	36 11	BK-BL BL-BK	5
	37 12	BK-O O-BK	
T6 R6	38 13	BK-G G-BK	6
	39 14	BK-BR BR-BK	
T7 R7	40 15	BK-S S-BK	7
	41 16	Y-BL BL-Y	

*Note:* The speech pairs on the NT5K19 card are polarity-insensitive. The E&M signaling pairs, however, are polarity-sensitive. Make sure the ground side of the trunk is connected to the A leg of the NT5K19 circuit. Make sure the -50 Volt side of the trunk is connected to the B leg.

**Table 37**  
**NT5K19 2W paging mode terminations**

Pair	Pins	Pair color	Unit
T0 R0	27 2	W-O O-W	0
A PG	29 4	W-BR BR-W	
T1 R1	31 6	R-BL BL-R	1
A PG	33 8	R-G G-R	
T2 R2	35 10	R-S S-R	2
A PG	37 12	BK-O O-BK	
T3 R3	39 14	BK-BR BR-BK	3
A PG	41 16	Y-BL BL-Y	

**Table 38**  
**NT5K19 2W Type 1 mode terminations (Part 1 of 2)**

Pair	Pins	Pair color	Unit
T0 R0	27 2	W-O O-W	0
E M	28 3	W-G G-W	

**Table 38**  
**NT5K19 2W Type 1 mode terminations (Part 2 of 2)**

<b>Pair</b>	<b>Pins</b>	<b>Pair color</b>	<b>Unit</b>
T1 R1	31 6	R-BL BL-R	1
E M	32 &	R-O O-R	
T2 R2	35 10	R-S S-R	2
E M	36 11	BK-BL BL-BK	
T3 R3	39 14	BK-BR BR-BK	3
E M	40 15	BK-S S-BK	

**Table 39**  
**NT5K19 4W Type 1 mode terminations**

Pair	Pins	Pair color	Unit
TA TB	26 1	W-BL BL-W	
RA RB	27 2	W-O O-W	0
E M	28 3	W-G G-W	
RA RB	30 5	W-S S-W	
TA RB	31 6	R-BL BL-R	1
E M	32 7	R-O O-R	
TA TB	34 9	R-BR BR-R	
RA RB	35 10	R-S S-R	2
E M	36 11	BK-BL BL-BK	
TA TB	38 13	BK-G G-BK	
RA TB	39 14	BK-BR BR-BK	3
E M	40 15	BK-S S-BK	

**Table 40**  
**NT5K19 AC15 mode pair terminations**

<b>Pair</b>	<b>Pins</b>	<b>Pair color</b>	<b>Unit</b>
TA TB	26 1	W-BL BL-W	0
RA RB	27 2	W-O O-W	
TA TB	30 5	W-S S-W	1
RA RB	31 6	R-BL BL-R	
TA TB	34 9	R-BR BR-R	2
RA RB	35 10	R-S S-R	
TA TB	38 13	BK-G G-BK	3
RA TB	39 14	BK-BR BR-BK	

**Table 41**  
**NT5K19 Recorded Announcement mode pair terminations**

Pair	Pins	Pair color	Unit
T0 R0	26 1	W-BL BL-W	0
SIG B SIG A	29 4	W-BR BR-W	
T1 R1	30 5	W-S S-W	1
SIG B SIG A	33 8	R-G G-R	
T2 R2	34 9	R-BR BR-R	2
SIG B SIG A	37 12	BK-O O-BK	
T3 R3	38 13	BK-G G-BK	3
SIG B SIG A	41 16	Y-BL BL-Y	

## Verifying trunk functionality

You can now use the trunks. To test the trunks, make trunk calls.

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# Installing and configuring a Voice Gateway Media Card

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## Contents

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## Introduction

The Voice Gateway Media Card provides access to the voice gateway and functions as a Follower to the Signaling Server, which is the node Leader and which, by default, acts as a Master for the node. In the absence of the Signaling Server a Voice Gateway Media Card may be an active Leader, a backup Leader, or a Follower. Each customer in a system has only one Leader.

A Voice Gateway Media Card runs the IP Line 3.1 software. It provides voice gateway channels (DSPs) to transcode voice data between IP and TDM (analog/digital). The card's node properties, as well as the voice gateway channels, must be configured. The cards are installed in a Media Gateway or a Media Gateway Expander.

The Voice Gateway Media Card is represented by a Media Card 32-Port IP Line 3.1/Voice Gateway.

For details, see *IP Line: Description, Installation, and Operation* (NN43100-500).

This chapter contains the following procedures:

- Procedure 64: "Adding a Voice Gateway Media Card to an IP telephony node" on [page 319](#)
- Procedure 65: "Adding voice gateway channels using Element Manager" on [page 323](#)
- Procedure 66: "Configuring voice gateway channels using LD 14" on [page 326](#)
- Procedure 67: "Installing the CompactFlash" on [page 330](#)
- Procedure 68: "Installing a Voice Gateway Media Card in a card slot" on [page 336](#)
- Procedure 69: "Displaying the Voice Gateway Media Card status" on [page 338](#)
- Procedure 70: "Displaying the Voice Gateway status for all voice gateway channels" on [page 339](#)

- Procedure 71: "Displaying the status of Voice Gateway Media Card units" on [page 342](#)
- Procedure 72: "Displaying the status of one unit on a Voice Gateway Media Card" on [page 345](#)
- Procedure 73: "Disabling a Voice Gateway Media Card using Element Manager" on [page 345](#)
- Procedure 74: "Disabling a Voice Gateway Media Card unit using Element Manager" on [page 346](#)
- Procedure 75: "Enabling a Voice Gateway Media Card using Element Manager" on [page 347](#)
- Procedure 76: "Enabling a Voice Gateway Media Card unit using Element Manager" on [page 348](#)

## Configuring a card

A Voice Gateway Media Card requires configuration of:

- the IP telephony properties defined with Element Manager (the Voice Gateway Media Cards are assigned to an IP telephony node). See “Configuring an IP telephony node” on [page 363](#).
- the voice gateway channels defined on the CS 1000E. See “Configuring voice gateway channels using Element Manager” on [page 323](#).

## Adding a card to an IP telephony node

The Voice Gateway Media Card is added to an IP telephony node using Element Manager only. See *Element Manager: System Administration* (NN43001-632) for details.

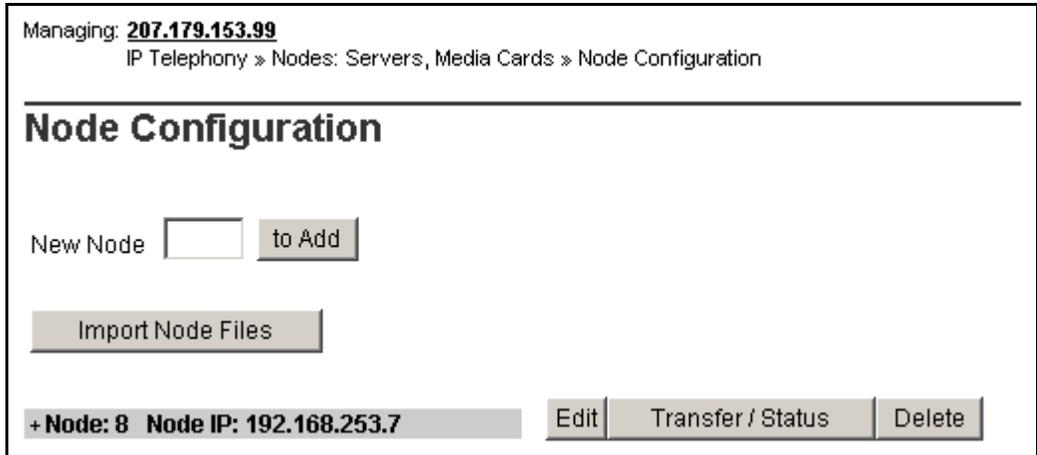
### Procedure 64

#### Adding a Voice Gateway Media Card to an IP telephony node

- 1 Log in to Element Manager.
- 2 Select **IP Network > Nodes: Servers, Media Cards** from the navigator.

The **Node Configuration** web page opens, as shown in Figure 133.

**Figure 133**  
**Node Configuration web page**



- 3 Click **Edit** next to the Node to which the Voice Gateway Media Card is to be added.

The **Edit** web page opens, as shown in Figure 134 on [page 321](#).

**Figure 134**  
**Edit web page**

Managing: **207.179.153.99**  
IP Telephony » Nodes: Servers, Media Cards » [Node Configuration](#) » IP Telephony: Node ID 8 » Edit

### Edit

**- Node**

**Node ID 8**

**Voice LAN (TLAN) Node IP address**  \*

**Management LAN (ELAN) gateway IP address**

**Management LAN (ELAN) subnet mask**

**Voice LAN (TLAN) subnet mask**

**+ SNMP**

**+ VGW and IP phone codec profile**

**+ QoS**

**+ LAN configuration**

**+ SNTP**

**+ H323 GW Settings**

**+ Firmware**

**+ SIP GW Settings**

**+ SIP URI Map**

**+ SIP CD Services**

**+ Cards**

**+ Signaling Servers**

- 4 Click **Add** next to the **Cards** tab.  
The Cards tab expands (see Figure 135 on [page 322](#)).
- 5 Enter your data for this Voice Gateway Media Card. The ELAN MAC address is on a faceplate sticker. The TN is the Voice Gateway Media Card logical card slot (See Table 44 on [page 336](#)).

**Note:** For more detail on Voice Gateway Media Card properties, see *IP Line: Description, Installation, and Operation* (NN43100-500).

**Figure 135**  
**Cards**

- Cards	Add
- Card 0.0.0.0 Properties	Remove
Role	Unknown
Embedded LAN (ELAN) IP address	0.0.0.0 *
Embedded LAN (ELAN) MAC address	00:00:00:00:00:00 *
Telephony LAN (TLAN) IP address	0.0.0.0 *
Voice LAN (TLAN) gateway IP address	0.0.0.1
Hostname	Hostname *
Card TN	*
Card processor type	Voice Gateway Media Card ▾
H323 ID	CS1000E_PM1
Enable Line TPS	<input checked="" type="checkbox"/>
	<small>If Telephony LAN(TLAN) IP address and Telephony LAN(TLAN) gateway IP address are not in the same subnet as Telephony LAN(TLAN) Node IP address when Line TPS is enabled, then the TPS application will not run.</small>
Primary Call Server IP address	192.167.104.53 *
Alternate Call Server1 IP address	0.0.0.0 *
Alternate Call Server2 IP address	0.0.0.0 *

- 6 Save the node.
  - a. Click **Save and Transfer** at the bottom of the **Edit** web page
  - b. Click **OK** to save this node.

————— End of Procedure —————

## Configuring a card as a node Leader

A Voice Gateway Media Card remains at the default “Follower” setting in a CS 1000E system. A Signaling Server is the IP telephony node Leader.

In an IP telephony node without a Signaling Server, one of the Voice Gateway Media Cards must be configured as a Leader. If this is your configuration, see the *IP Line: Description, Installation, and Operation* (NN43100-500) for a detailed configuration procedure.

Normally, Voice Gateway Media Cards default as Followers. If you need to configure a Voice Gateway Media Card as a Follower, see the *IP Line:*

*Description, Installation, and Operation* (NN43100-500) for a detailed configuration procedure.

## Configuring voice gateway channels using Element Manager

The voice gateway channels are also called “DSP channels” or the card’s “physical TNs”. Follow Procedure 65 to configure the voice gateway channels using Element Manager.

**Note:** The voice gateway channels can also be configured using LD 14. To configure the voice gateway channels using LD 14, follow Procedure 66 on [page 326](#).

### Procedure 65

#### Adding voice gateway channels using Element Manager

- 1 Select **IP Network > Nodes: Servers, Media Cards** from the navigator.

The **Node Configuration** web page opens, as shown in Figure 133 on [page 320](#).

- 2 Click the + next to the desired node to expand it.
- 3 Click **VGW Channels** next to the desired card.

If no VGW channels are configured yet, an alert box is displays. Click **OK** to close the alert box.

The **VGW channels** configuration for this card opens, as shown in Figure 136.

**Figure 136**  
VGW Channel web page

Managing: <a href="#">192.167.102.3</a>					
System » IP Network » <a href="#">Node Configuration</a> » VGW Channels - IP Telephony Node 9, Card 192.167.102.18, TN 4 0 1					
<b>VGW Channels - IP Telephony Node 9, Card 192.167.102.18, TN 4 0 1</b>					
TN	Description	Customer	ZONE	Add	Delete

- 4 Click **Add**.

The **Add VGW channels** web page opens, as shown in Figure 137.

**Figure 137**  
**Add VGW channels**

Managing: 192.167.102.3  
System > IP Network > Node Configuration > VGW Channels - IP Telephony Node 9\_Card 192.167.102.18, TN 4 0 1 > Add VGW channels

### Add VGW channels

Number of VGW Channels:

Trunk data block:

Terminal Number:

Designator field for trunk:

Extended Trunk:

Customer number:

- 5 Enter the appropriate parameters to configure the VGW channels.

The TN is the logical TN of the first Voice Gateway Media Card unit. See Table 44 on [page 336](#) for the logical slot numbers.

**Note:** The Media Card has 8 or 32 channels. The ITG-P card has 24 channels.

- 6 Click **Submit**.

The VGW channels for this card are displayed. See Figure 138 on [page 325](#).

**Note:** If you receive an error that a pad category table does not exist for this customer, go back to your DTI configuration step, (see “Basic system telephony configuration” on [page 477](#)) and create a default DTI Data Block (DDB), and then perform this procedure again.

**Figure 138**  
**VGW channels list**

Managing: [192.167.102.3](#)  
 System » IP Network » [Node Configuration](#) » VGW Channels - IP Telephony Node 9, Card 192.167.102.18, TN 4 0 1

**VGW Channels - IP Telephony Node 9, Card 192.167.102.18, TN 4 0 1**

TN	Description	Customer	ZONE	Add	Delete
004 0 01 00	MC32S	0	000	Edit	
004 0 01 01	MC32S	0	000	Edit	
004 0 01 02	MC32S	0	000	Edit	
004 0 01 03	MC32S	0	000	Edit	
004 0 01 04	MC32S	0	000	Edit	
004 0 01 05	MC32S	0	000	Edit	
004 0 01 06	MC32S	0	000	Edit	
004 0 01 07	MC32S	0	000	Edit	
004 0 01 08	MC32S	0	000	Edit	
004 0 01 09	MC32S	0	000	Edit	
004 0 01 10	MC32S	0	000	Edit	

**End of Procedure**

## Configuring voice gateway channels using LD 14

The voice gateway channels are also called “DSP channels” or the card’s “physical TNs.” Follow Procedure 66 on [page 326](#) to configure the voice gateway channels using LD 14.

**Note:** The voice gateway channels can also be configured using Element Manager. To configure the voice gateway channels using Element Manager, follow Procedure 65 on [page 323](#).

**Procedure 66**  
**Configuring voice gateway channels using LD 14**

- 1 Log in to the CS 1000E.
  - a. Enter the command:  
 LOGI  
 System response:  
 PASS?
  - b. Enter the default password:  
 0000
- 2 Access LD 14. Enter the command:  
 LD 14
- 3 Enter responses shown in Table 42.

**Table 42**  
**LD 14 – Configure physical TNs (Part 1 of 2)**

Prompt	Response	Description
REQ	NEW 24	Create 24 voice Media Gateway channels on an ITG-P Line card. Not supported on MG 1000E.
	NEW 32	Create 32 voice Media Gateway channels on a Media Card.
TYPE	VGW	Voice Gateway.
TN	l s c u	TN of the first Voice Gateway Media Card unit. See Table 43 on <a href="#">page 335</a> for TN assignments.
DES	aa.....a	Description for gateway channels. Identify the channels using the card's TLAN IP address or MAC address.
XTRK	MC32	Media Card 32-port

**Table 42**  
**LD 14 – Configure physical TNs (Part 2 of 2)**

Prompt	Response	Description
MAXU	32  24	32 is the maximum number of voice Media Gateway channels on the Media Card.  For MG 1000T when XTRK = ITG2  24 is the maximum number of voice Media Gateway channels on the ITG-P Line card.
IPTN	YES	ITG Physical TN.
ZONE	0-255	MG 1000T Zone number to which the Voice Gateway Media Card Physical TNs belong.  Verify that the zone exists in LD 117.  The ZONE prompt is not available when configuring VGW in an MG 1000E. The VGWs are assigned the same zone as the MG 1000E.  <b>Note:</b> If the Zone of an MG 1000E is changed, all VGW in the MG 1000E must be removed and reconfigured to assume the new Zone of the MG 1000E.
CUST	xx	The customer to which the IPTN resources are assigned.  <b>Note:</b> This means that for multi-customer CS 1000E systems, each customer must have a dedicated IP Telephony node for IP Phones.

4 Exit from LD 14. Enter the command:

\*\*\*\*

————— **End of Procedure** —————

## Saving configuration changes

Perform a datadump to save configuration changes. Complete the steps in Procedure 85: "Performing a datadump using Element Manager" on [page 378](#).

## Installing a CompactFlash

The Voice Gateway Media Card requires a CompactFlash card to operate. The CompactFlash card contains the IP Line 3.1 software.



### **CAUTION WITH ESDS DEVICES**

Wear an antistatic device to avoid damage to the Voice Gateway Media Card.

The Voice Gateway Media Card package includes the following:

- Media Card
- CompactFlash card and Retaining Pin (nylon pillar)
- Shielded 50-pin to Serial/ELAN/TLAN adapter

The CompactFlash card must be installed on the Voice Gateway Media Card prior to installing the Voice Gateway Media Card in the system. Figure 139 on [page 329](#) shows the CompactFlash card location on the Voice Gateway Media Card.

**Figure 139**  
**CompactFlash card location**

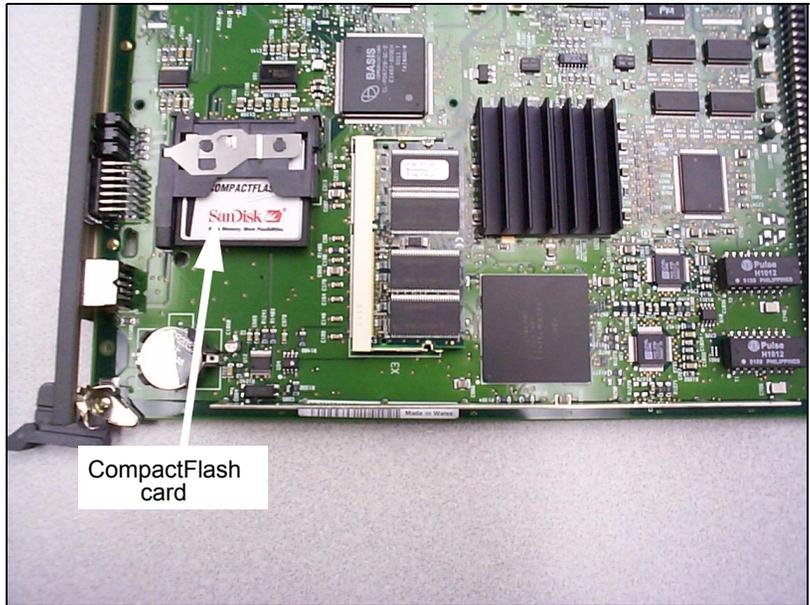


Figure 140 shows the CompactFlash card and Retaining Pin.

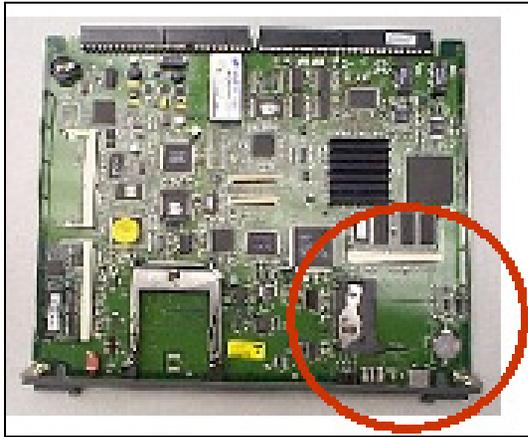
**Figure 140**  
**CompactFlash card and Retaining Pin**



**Procedure 67**  
**Installing the CompactFlash**

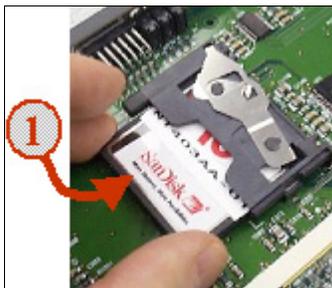
- 1 Remove the Media Card, CompactFlash card, and Retaining Pin from the packaging.
- 2 Locate the CompactFlash socket in the lower left-hand corner of the Voice Gateway Media Card (see Figure 141).

**Figure 141**  
**CompactFlash socket on Voice Gateway Media Card**



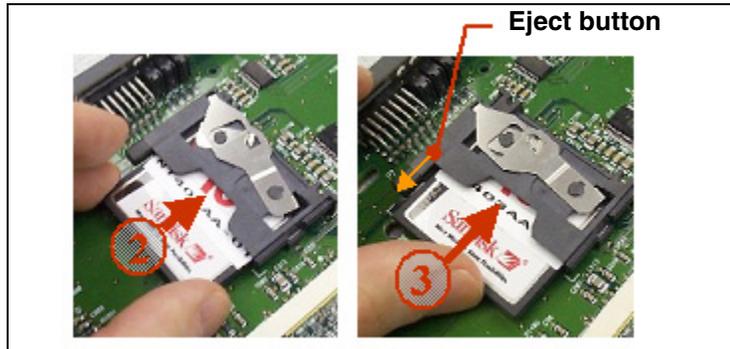
- 3 Position the CompactFlash card with the label facing up and contact pins toward the socket, as shown in Figure 142.

**Figure 142**  
**Position the CompactFlash in socket**



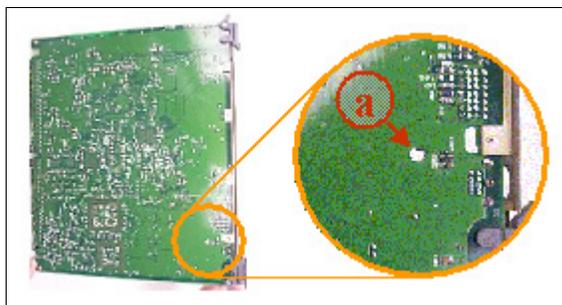
- 4 Insert the CompactFlash card in the socket.  
Press firmly until it is fully seated and the Eject button extends (see Figure 143).

**Figure 143**  
**Insert CompactFlash to extend Eject button**



- 5 Turn the Voice Gateway Media Card over to view the back of the card.  
Identify the hole for the Retaining Pin. The hole (labeled **a** in Figure 144) is located approximately 1 inch (2.5 cm) above the lower lock latch and 1 inch (2.5 cm) from the card's faceplate.

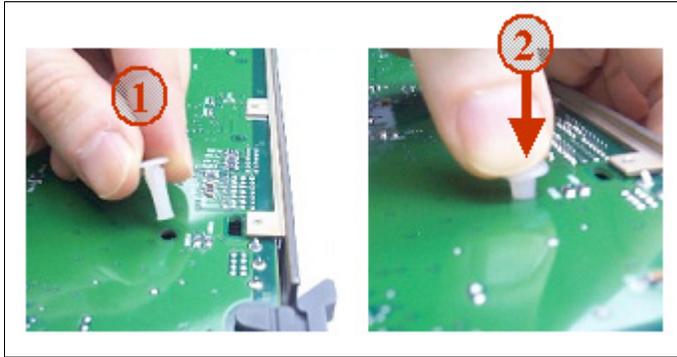
**Figure 144**  
**Retaining Pin hole**



- 6 Insert the Retaining Pin in this hole (labeled **1** in Figure 145).

Press the Retaining Pin into the hole until the pin clicks as it locks into position (labeled **2** in Figure 145). The underside of the head of the Retaining Pin should be flat against the card.

**Figure 145**  
**Inserting the Retaining Pin**



- 7 Turn the card over to view the front of the card. Ensure the Retaining Pin is in place, as shown Figure 146 on [page 332](#).

**Figure 146**  
**Retaining Pin fully inserted**



---

**End of Procedure**

---

## Installing a card in a Media Gateway

A Voice Gateway Media Card can be installed in a Media Gateway or a Media Gateway Expander slot. See Figure 147 on [page 333](#) and Figure 148 on [page 334](#) to make sure that you insert the Voice Gateway Media Card in the correct slot.

**Note:** See your installation worksheet, provided by your Planning and Engineering group for the correct slot for the Voice Gateway Media Cards.

Figure 147 shows the circuit card assignments in the Media Gateway.

**Figure 147**  
**Media Gateway card slot location**

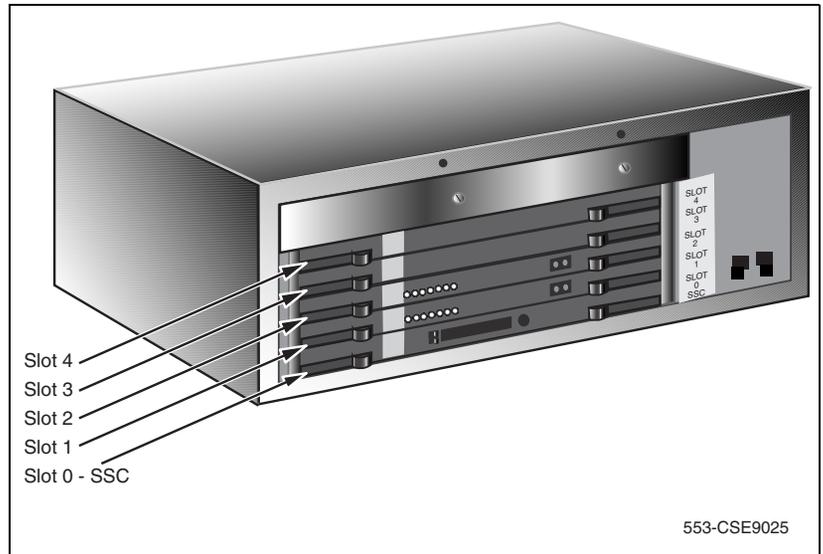


Figure 148 on [page 334](#) shows the circuit card assignments in the Media Gateway Expander.

**Figure 148**  
**Media Gateway Expander card slot location**

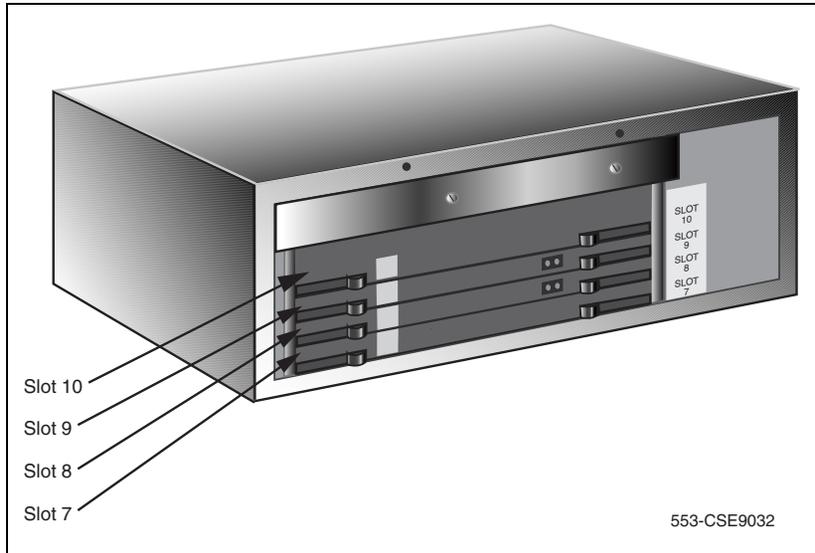


Table 43 on [page 335](#) shows the TN assignments for the MG 1000E. Communication Server 1000 Release 5.0 supports up to 30 MG 1000E.

**Table 43**  
**TN assignments for MG 1000E**

Slots TN	MG 1000E				MG 1000E Expander			
	1 I s c	2 I s c	3 I s c	4 I s c	7 I s c	8 I s c	9 I s c	10 I s c
MG 1000E								
1	000 0 01	000 0 02	000 0 03	000 0 04	000 0 07	000 0 08	000 0 09	000 0 10
2	000 1 01	000 1 02	000 1 03	000 1 04	000 1 07	000 1 08	000 1 09	000 1 10
3	004 0 01	004 0 02	004 0 03	004 0 04	004 0 07	004 0 08	004 0 09	004 0 10
4	004 1 01	004 1 02	004 1 03	004 1 04	004 1 07	004 1 08	004 1 09	004 1 10
5	008 0 01	008 0 02	008 0 03	008 0 04	008 0 07	008 0 08	008 0 09	008 0 10
6	008 1 01	008 1 02	008 1 03	008 1 04	008 1 07	008 1 08	008 1 09	008 1 10
7	012 0 01	012 0 02	012 0 03	012 0 04	012 0 07	012 0 08	012 0 09	012 0 10
8	012 1 01	012 1 02	012 1 03	012 1 04	012 1 07	012 1 08	012 1 09	012 1 10
9	016 0 01	016 0 02	016 0 03	016 0 04	016 0 07	016 0 08	016 0 09	016 0 10
10	016 1 01	016 1 02	016 1 03	016 1 04	016 1 07	016 1 08	016 1 09	016 1 10
11	020 0 01	020 0 02	020 0 03	020 0 04	020 0 07	020 0 08	020 0 09	020 0 10
12	020 1 01	020 1 02	020 1 03	020 1 04	020 1 07	020 1 08	020 1 09	020 1 10
13	024 0 01	024 0 02	024 0 03	024 0 04	024 0 07	024 0 08	024 0 09	024 0 10
14	024 1 01	024 1 02	024 1 03	024 1 04	024 1 07	024 1 08	024 1 09	024 1 10
...								
...								
127	252 0 01	252 0 02	252 0 03	252 0 04	252 0 07	252 0 08	252 0 09	252 0 10
128	252 1 01	252 1 02	252 1 03	252 1 04	252 1 07	252 1 08	252 1 09	252 1 10
<b>Note:</b> The bottom most card slot in the Media Gateway is reserved for the SSC card.								

Table 44 shows the slot assignments for the MG 1000T Media Gateway and Media Gateway Expansion

**Table 44**  
**MG 1000T Media Gateway/Expansion card slot assignments**

	Media Gateway/Media Gateway Expansion									
	Media Gateway 0		Media Gateway 1		Media Gateway 2		Media Gateway 3		Media Gateway 4	
	Physical card slot	Logical card slot	Physical card slot	Logical card slot	Physical card slot	Logical card slot	Physical card slot	Logical card slot	Physical card slot	Logical card slot
Media Gateway	1	1	1	11	1	21	1	31	1	41
	2	2	2	12	2	22	2	32	2	42
	3	3	3	13	3	23	3	33	3	43
	4	4	4	14	4	24	4	34	4	44
	5	*	5	*	5	*	5	*	5	*
	6	*	6	*	6	*	6	*	6	*
Media Gateway Expansion	7	7	7	17	7	27	7	37	7	47
	8	8	8	18	8	28	8	38	8	48
	9	9	9	19	9	29	9	39	9	49
	10	10	10	20	10	30	10	40	10	50

**Note:** The bottom most card slot in the Media Gateway is reserved for the SSC card.

**Procedure 68**  
**Installing a Voice Gateway Media Card in a card slot**

The ELAN subnet and TLAN subnet should already be connected on the back of the Media Gateway. If not, refer back to “Connecting CS 1000E system components” on [page 101](#).

Optionally, you can connect a maintenance terminal to the maintenance port on the Voice Gateway Media Card, to see the Voice Gateway Media Card's boot messages or to perform maintenance on it. See "Connecting CS 1000E system components" on [page 101](#) for more detail.

- 1 Install the Voice Gateway Media Card into the card slot.
  - a. Pull the top and bottom locking devices away from the card faceplate.
  - b. Insert the Voice Gateway Media Card into the card guides and gently push it until it makes contact with the backplane connector.
  - c. Hook the locking devices.

**Note:** The Voice Gateway Media Card boots automatically. If the Voice Gateway Media Card is a Follower, then it retrieves the node configuration files from the IP telephony node Leader. If it is a Leader, then you must configure it. See *IP Line: Description, Installation, and Operation* (NN43100-500) for a detailed configuration procedure.

- 2 Observe the Voice Gateway Media Card faceplate display.

The red LED remains lit until the card is configured and enabled, at which point it turns off. When the card has finished booting, the display is either "Fxxx" or "Lxxx" (where xxx is the number of telephones registered to the card), indicating that the card is a Follower or Leader.

- 3 If required, you can now perform maintenance on the card using Element Manager, or through the card's maintenance port if you connected a maintenance terminal to it. See *IP Line: Description, Installation, and Operation* (NN43100-500) for detailed maintenance procedures.

---

**End of Procedure**

---

## Verifying a card

Verifying a card involves:

- Procedure 69: "Displaying the Voice Gateway Media Card status" on [page 338](#)
- Procedure 70: "Displaying the Voice Gateway status for all voice gateway channels" on [page 339](#)
- Procedure 71: "Displaying the status of Voice Gateway Media Card units" on [page 342](#)

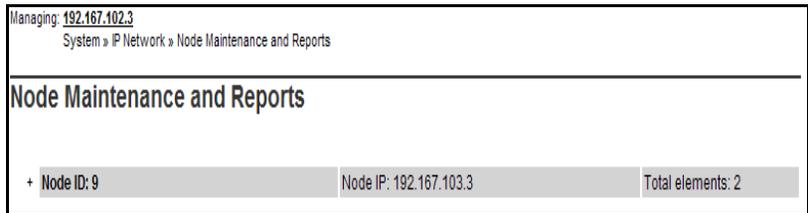
- Procedure 72: "Displaying the status of one unit on a Voice Gateway Media Card" on [page 345](#)

**Procedure 69**  
**Displaying the Voice Gateway Media Card status**

- 1 In Element Manager, select **IP Network > Nodes: Servers, Media Cards > Maintenance and Reports** from the navigator.

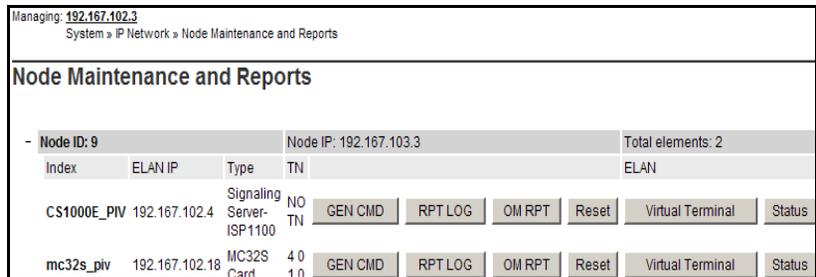
The **Node Maintenance and Reports** web page opens, as shown in Figure 149.

**Figure 149**  
**Node Maintenance and Reports web page**



- 2 Open the desired node by clicking on the + next to the **Node ID**.  
 This displays the Signaling Servers and Voice Gateway Media Cards belonging to the node, as shown in Figure 150 on [page 338](#).

**Figure 150**  
**Node Maintenance and Reports – expanded node**



- 3 Click **Status** for the desired Voice Gateway Media Card.

The output from this command is displayed in the window pane (result box).

The output can be one of the following:

```
xx.xxx.xxx.xxx : Disabled
```

```
xx.xxx.xxx.xxx : Enabled
```

```
xx.xxx.xxx.xxx : Unequipped
```

Where xx.xxx.xxx.xxx is the ELAN IP address of the Voice Gateway Media Card and the meaning of the status is:

- **Disabled** – The card is configured but out-of-service.
- **Enabled** – The card is configured and operational.
- **Unequipped** – The card is not configured in the Call Server.

---

**End of Procedure**

---

#### **Procedure 70**

##### **Displaying the Voice Gateway status for all voice gateway channels**

- 1 In Element Manager, select **IP Network > Nodes: Servers, Media Cards > Maintenance and Reports** from the navigator.

The **Node Maintenance and Reports** web page opens, as shown in Figure 149 on [page 338](#).

- 2 Open the desired node by clicking on the + next to the **Node ID**.

This displays the Signaling Servers and Voice Gateway Media Cards belonging to the node, as shown in Figure 150 on [page 338](#).

- 3 Click **GEN CMD** for the desired Voice Gateway Media Card.

The **General Commands** web page opens, as shown in Figure 151.

**Figure 151**  
**General Commands**

Managing: 192.167.102.3  
System » IP Network » [Node Maintenance and Reports](#) » General Commands

### General Commands

Element IP : 192.167.102.18 Element Type : MC32S Card

Group  Command -- Select A Group --

IP address 192.167.102.3 Number of Pings 3

Click a button to invoke a command.

- 4 From the **Group** drop-down list, select **Vgw**.
- 5 From the **Command** drop-down list, select **vgwShowAll**.
- 6 Click **RUN**.

Figure 152 on [page 341](#) shows the **General Commands** web page with the output from the **vgwShowAll** command. The output shows information about all the voice gateway channels.

**Figure 152**  
**vgwShowAll result**

Managing: 192.167.102.3  
System > IP Network > Node Maintenance and Reports > General Commands

**General Commands**

Element IP: 192.167.102.18 Element Type: MC32S Card

Group: Vgw Command: vgwShowAll RUN

IP address: 192.167.102.3 Number of Pings: 3 PING

VGW Service is: Enabled

Chan	ChanState	DspMode	Codec	Tn	Reg	AirTime	rxTsap	txTsap
0	Idle	Closed	n/a	0x0404	yes	0	0.0.0.0:0000	0.0.0.0:
1	Idle	Closed	n/a	0x0405	yes	0	0.0.0.0:0000	0.0.0.0:
2	Idle	Closed	n/a	0x0406	yes	0	0.0.0.0:0000	0.0.0.0:
3	Idle	Closed	n/a	0x0407	yes	0	0.0.0.0:0000	0.0.0.0:
4	Idle	Closed	n/a	0x0444	yes	0	0.0.0.0:0000	0.0.0.0:
5	Idle	Closed	n/a	0x0445	yes	0	0.0.0.0:0000	0.0.0.0:
6	Idle	Closed	n/a	0x0446	yes	0	0.0.0.0:0000	0.0.0.0:
7	Idle	Closed	n/a	0x0447	yes	0	0.0.0.0:0000	0.0.0.0:
8	Idle	Closed	n/a	0x0484	yes	0	0.0.0.0:0000	0.0.0.0:
9	Idle	Closed	n/a	0x0485	yes	0	0.0.0.0:0000	0.0.0.0:
10	Idle	Closed	n/a	0x0486	yes	0	0.0.0.0:0000	0.0.0.0:

The following information is provided for each VGW channel:

- Chan – Channel number
- ChanState – State of channel (Idle/Busy/Disabled/Unequipped)
- DspMode – Mode DSP is in (Voice/Closed)
- Codec – Codec frame-size used for the call
- Tn – Channel's physical TN in packed format
- Reg – Status of channel's gateway registration
- Air Time – Duration of audio stream connection in seconds. Zero when the audio stream is closed.
- txTsap – IP address and port the Voice Gateway Media Card is using to send RTP packets.

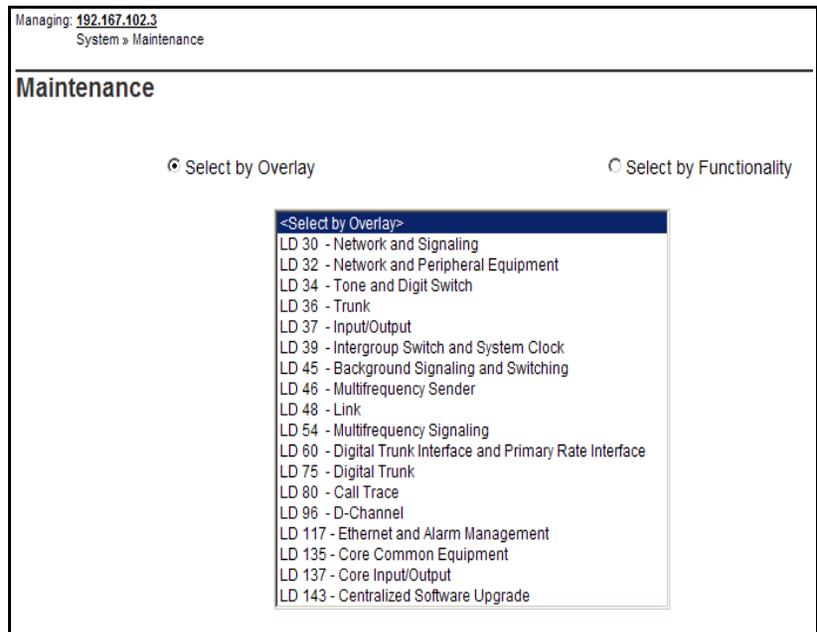
**End of Procedure**

**Procedure 71**  
**Displaying the status of Voice Gateway Media Card units**

- 1 Select **System > Maintenance** from the navigator.

The **Maintenance** web page opens as shown in Figure 153. This page allows you to perform maintenance using overlays or using a selected functionality. The default is overlay, as shown in Figure 153.

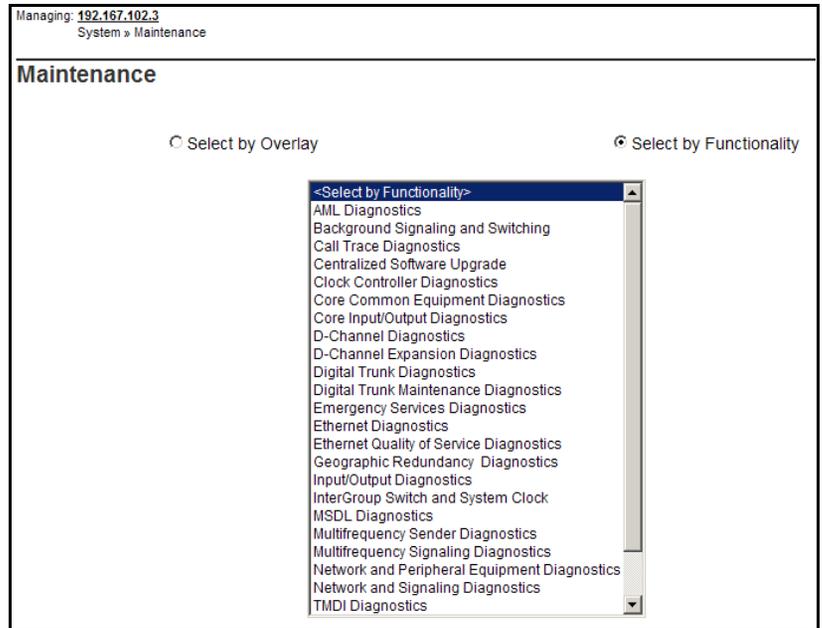
**Figure 153**  
**Maintenance (by Overlay) web page**



- 2 Select **Select by Functionality**.

The list in the web page changes to show a list of diagnostics you can use, as shown in Figure 154 on [page 343](#).

**Figure 154**  
**Maintenance (by functionality) web page**



- 3 Select **Network & Peripheral Equipment Diagnostics** from the list in Figure 154.

The **Network and Peripheral Diagnostics** web page opens, as shown in Figure 155 on [page 344](#).

**Figure 155**  
**Network & Peripheral Diagnostics web page**

Managing: 192.167.102.3  
System » Maintenance » Network & Peripheral Diagnostics

### Network & Peripheral Diagnostics

Diagnostic Commands	Command Parameters	Act
- --- Loop Commands ---	<input type="text"/>	Sub
- --- Shelf Commands ---	<input type="text"/>	Sub
- --- Card Commands ---	<input type="text"/>	Sub
- --- Unit Commands ---	<input type="text"/>	Sub
- --- M39XX Unit Commands ---	<input type="text"/>	Sub
- --- DSL Commands ---	<input type="text"/>	Sub
- --- Application Commands ---	<input type="text"/>	Sub

Instruction: Select command, add value and click on [Submit]

- 4 Choose the **STAT — Get card status** command from the **Card Commands** drop-down list.
  - 5 Enter the card number in the corresponding **Command Parameter** text box.
  - 6 Click **Submit** to the right of the text box.
- The output from this command is shown in the text box in the lower half of the web page.

**End of Procedure**

**Procedure 72****Displaying the status of one unit on a Voice Gateway Media Card**

- 1 Select **System > Maintenance** from the navigator.  
The **Maintenance** web page opens as shown in Figure 153 on [page 342](#). This page allows you to perform maintenance using overlays or using a selected functionality. The default is overlay, as shown in Figure 153.
- 2 Select **Select by Functionality**.  
The list in the web page changes to show a list of diagnostics you can use, as shown in Figure 154 on [page 343](#).
- 3 Select **Network & Peripheral Equipment Diagnostics** from the list in Figure 154 on [page 343](#).  
The **Network and Peripheral Diagnostics** web page opens, as shown in Figure 155 on [page 344](#).
- 4 Choose the **STAT — Get unit status** command from the **Unit Commands** drop-down list.
- 5 Enter the card number and unit number in the corresponding **Command Parameter** text box.
- 6 Click **Submit** to the right of the text box.  
The output from this command is shown in the text box in the lower half of the web page.

---

**End of Procedure**

---

## Disabling a card

Follow Procedure 73 to disable a Voice Gateway Media Card using Element Manager.

**Procedure 73****Disabling a Voice Gateway Media Card using Element Manager**

- 1 Select **System > Maintenance** from the navigator.  
The **Maintenance** web page opens as shown in Figure 153 on [page 342](#). This page allows you to perform maintenance using overlays or using a selected functionality. The default is overlay, as shown in Figure 153.
- 2 Select **Select by Functionality**.

The list in the web page changes to show a list of diagnostics you can use, as shown in Figure 154 on [page 343](#).

- 3 Select **Network & Peripheral Equipment Diagnostics** from the list in Figure 154 on [page 343](#).

The **Network and Peripheral Diagnostics** web page opens, as shown in Figure 155 on [page 344](#).

- 4 Select the **DISC – Disable Peripheral card** command from the **Card Commands** drop-down list.
- 5 Enter the card number in the corresponding **Command Parameter** text box.
- 6 Click **Submit** to the right of the text box.

The output from this command is shown in the text box in the lower half of the web page.

---

**End of Procedure**

---

*Note:* For graceful disabling of the voice gateway channels refer to “Graceful Disable” in *IP Line: Description, Installation, and Operation* (NN43100-500).

## Disabling a card unit

Follow Procedure 74 to disable a Voice Gateway Media Card unit in Element Manager.

### **Procedure 74** **Disabling a Voice Gateway Media Card unit using Element Manager**

- 1 Select **System > Maintenance** from the navigator.

The **Maintenance** web page opens as shown in Figure 153 on [page 342](#). This page allows you to perform maintenance using overlays or using a selected functionality. The default is overlay, as shown in Figure 153.

- 2 Select **Select by Functionality**.

The list in the web page changes to show a list of diagnostics you can use, as shown in Figure 154 on [page 343](#).

- 3 Select **Network & Peripheral Equipment Diagnostics** from the list in Figure 154 on [page 343](#).

The **Network and Peripheral Diagnostics** web page opens, as shown in Figure 155 on [page 344](#).

- 4 Select the **DISU – Disable unit** command from the **Unit Commands** drop-down list.
- 5 Enter the card number and unit number in the corresponding **Command Parameter** text box.
- 6 Click **Submit** to the right of the text box.

The output from this command is shown in the text box in the lower half of the web page.

---

**End of Procedure**

---

## Enabling a card

Follow Procedure 75 to enable a Voice Gateway Media Card using Element Manager.

### **Procedure 75**

#### **Enabling a Voice Gateway Media Card using Element Manager**

- 1 Select **System > Maintenance** from the navigator.

The **Maintenance** web page opens as shown in Figure 153 on [page 342](#). This page allows you to perform maintenance using overlays or using a selected functionality. The default is overlay, as shown in Figure 153.

- 2 Select **Select by Functionality**.

The list in the web page changes to show a list of diagnostics you can use, as shown in Figure 154 on [page 343](#).

- 3 Select **Network & Peripheral Equipment Diagnostics** from the list in Figure 154 on [page 343](#).

The **Network and Peripheral Diagnostics** web page opens, as shown in Figure 155 on [page 344](#).

- 4 Select the **ENLC – Enable and reset card** command from the **Card Commands** drop-down list.
- 5 Enter the card number in the corresponding **Command Parameter** text box.
- 6 Click **Submit** to the right of the text box.

The output from this command is shown in the text box in the lower half of the web page.

---

**End of Procedure**

---

## Enabling a card unit

Follow Procedure 76 to enable a Voice Gateway Media Card unit using Element Manager.

### **Procedure 76** **Enabling a Voice Gateway Media Card unit using Element Manager**

- 1 Select **System > Maintenance** from the navigator.

The **Maintenance** web page opens as shown in Figure 153 on [page 342](#). This page allows you to perform maintenance using overlays or using a selected functionality. The default is overlay, as shown in Figure 153.

- 2 Select **Select by Functionality**.

The list in the web page changes to show a list of diagnostics you can use, as shown in Figure 154 on [page 343](#).

- 3 Select **Network & Peripheral Equipment Diagnostics** from the list in Figure 154 on [page 343](#).

The **Network and Peripheral Diagnostics** web page opens, as shown in Figure 155 on [page 344](#).

- 4 Select the **ENLU – Enable unit** command from the **Unit Commands** drop-down list.

- 5 Enter the card number and unit number in the corresponding **Command Parameter** text box.

- 6 Click **Submit** to the right of the text box.

The output from this command is shown in the text box in the lower half of the web page.

---

**End of Procedure**

---

## Verifying functionality

You can now use the Voice Gateway Media Card to transcode voice data between IP and TDM. To test the voice gateway channels (DSPs), perform a variety of analog or digital calls to IP Phones and vice-versa.

*Note:* You require analog or digital telephones or trunks to perform this test.

## Upgrading loadware

Refer to *Communication Server 1000E: Upgrade Procedures* (NN43041-458) to check for the latest Voice Gateway Media Card loadware version and how to upgrade to the latest Voice Gateway Media Card loadware.



---

# Installing the Main Distribution Frame

---

## Contents

This section contains information on the following topics:

<a href="#">Introduction</a> . . . . .	351
<a href="#">Terminal block requirements</a> . . . . .	352
<a href="#">Installing a BIX cross-connect terminal</a> . . . . .	352
<a href="#">Installing a Krone Test Jack Frame for the UK</a> . . . . .	354
<a href="#">Connecting the cables to the Media Gateways</a> . . . . .	358

## Introduction

This chapter describes how to install and connect a CS 1000E system using the BIX, or Krone Test Jack Frame (UK) cross-connect terminals.

This chapter contains the following procedures:

- 1 Procedure 77: “Installing a BIX cross-connect terminal” on [page 352](#).
- 2 Procedure 78: “Installing the Krone Test Jack Frame (UK)” on [page 356](#).
- 3 Procedure 79: “Connecting the cables to the Media Gateways” on [page 358](#).

**Note:** The use of the BIX system is not mandatory; however, it is the recommended option.

## Terminal block requirements

The cross-connect terminal requires enough connecting blocks to terminate up to four 25 pair cables for each Media Gateway and each Media Gateway Expander. When Ethernet connections are used instead of traditional cabling, the Media Card Input/Output adapter is used:

- For the 1.5 Mbit DTI/PRI circuit card NTRB21, use the NTBK04 cable.
- For the 2.0 Mbit DTI circuit card NTAK10, 2.0 Mbit PRI circuit card NTAK79, and 2.0 Mbit PRI circuit card NTBK50, use the NTBK05 cable.
- Each IPE card slot equipped with a Line or Trunk card requires a 25-pair cable from the host Media Gateway or Media Gateway Expander.
- Four conductors for the AUX cable from the Media Gateway.
- One 25-pair cable from each Power Fail Transfer Unit (PFTU) QUA6.
- Wiring from telephones and trunks



### **DANGER**

Do not install telephone wiring during a lightning storm.  
Never touch uninsulated telephone wiring, unless the line is disconnected at the network interface.

## Installing a BIX cross-connect terminal

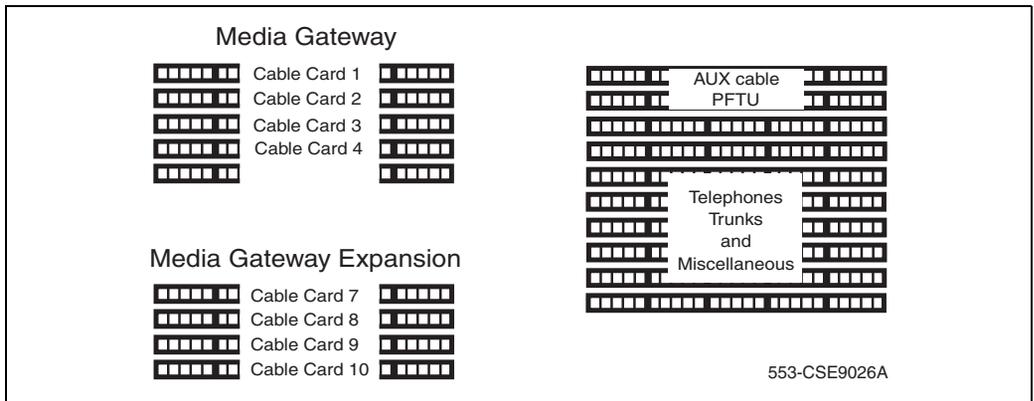
Procedure 77 describes how to install a BIX cross-connect terminal. For detailed information, refer to the Nordex BIX documentation.

### **Procedure 77** **Installing a BIX cross-connect terminal**

- 1 Refer to the equipment layout plan to determine where to place the cross-connect terminal.
- 2 Lay out the terminal blocks as shown in Figure 156 on [page 353](#).

- 3 Attach labels on the cross-connect terminal to indicate the terminal blocks assigned to the following:
  - 25-pair cables from the system
  - AUX wiring
  - PFTUs
  - Telephones and consoles
  - Trunks
  - Miscellaneous equipment

**Figure 156**  
**Typical BIX cross-connect terminal layout**



**End of Procedure**

## Installing a Krone Test Jack Frame for the UK

The Krone Test Jack Frame provides terminating strips that hold ten pairs of cable. Generally, only eight of ten pairs are used. As a result, one 25-pair cable requires three terminating strips (8 pairs/strip x 3 strips = 24 pairs).

Figure 157 on [page 355](#) shows how one 25-pair cable is divided among three terminating strips on the Krone Test Jack Frame.

**Figure 157**  
**25-pair cable on three Krone strips**

Pair	Pin Number	Wire Colour	Krone Strip
1T	26	W-BL	
1R	1	BL-W	
2T	27	W-O	
2R	2	O-W	
3T	28	W-G	1
3R	3	G-W	
4T	29	W-BR	
4R	4	BR-W	
5T	30	W-S	
5R	5	S-W	
6T	31	R-BL	
6R	6	BL-R	
7T	32	R-O	
7R	7	O-R	
8T	33	R-G	
8R	8	G-R	
9T	34	R-BR	
9R	9	BR-R	
10T	35	R-S	
10R	10	S-R	
11T	36	BK-BL	
11R	11	BL-BK	2
12T	37	BK-O	
12R	12	O-BK	
13T	38	BK-G	
13R	13	G-BK	
14T	39	BK-BR	
14R	14	BR-BK	
15T	40	BK-S	
15R	15	S-BK	
16T	41	Y-BL	
16R	16	BL-Y	
17T	42	Y-O	
17R	17	O-Y	
18T	43	Y-G	
18R	18	G-Y	
19T	44	Y-BR	
19R	19	BR-Y	
20T	45	Y-S	3
20R	20	S-Y	
21T	46	V-BL	
21R	21	BL-V	
22T	47	V-O	
22R	22	O-V	
23T	48	V-G	
23R	23	G-V	
24T	49	V-BR	
24R	24	BR-V	
25T	50	V-S	
25R	25	S-V	

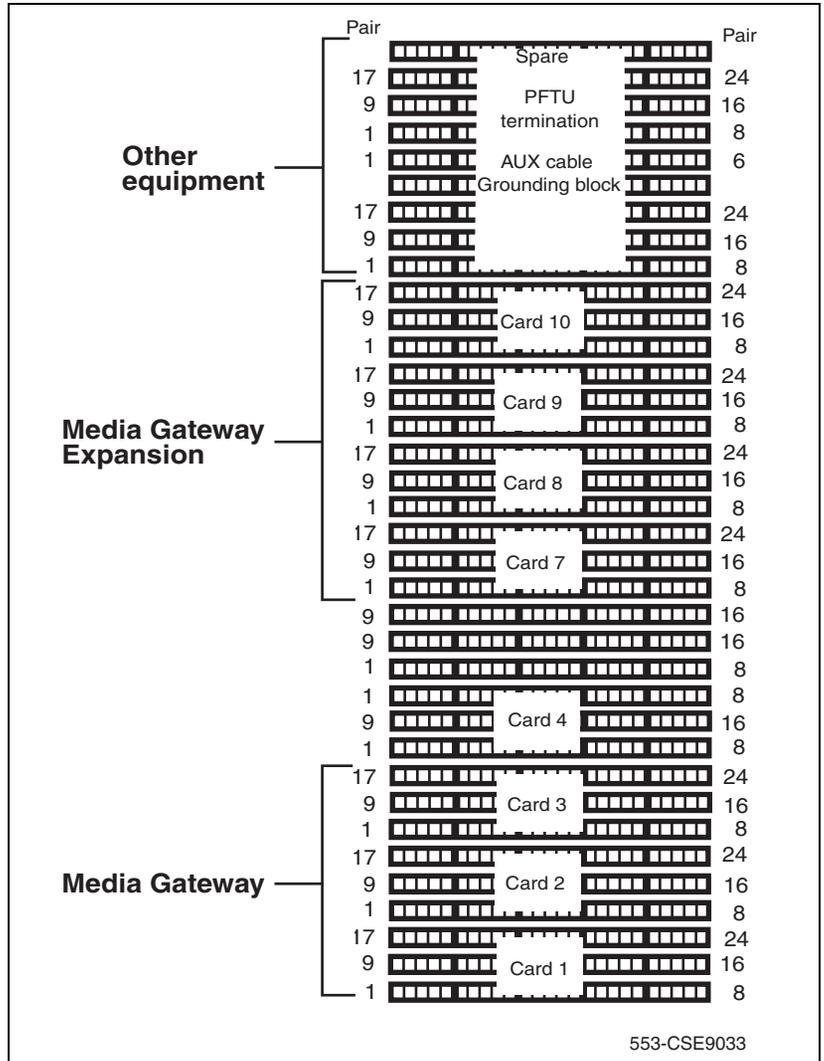
553-CSE0019

Procedure 78 describes how to install the Krone Test Jack Frame for the UK. For detailed information, refer to the Krone documentation.

**Procedure 78**  
**Installing the Krone Test Jack Frame (UK)**

- 1 Refer to the equipment layout plan to determine where to place the cross-connect terminal.
- 2 Lay out the terminal blocks as shown in Figure 158 on [page 357](#).
- 3 Attach labels on the cross-connect terminal to indicate the terminal blocks assigned to the following:
  - Analog Line cards
  - DC15/AC15/RAN/PAG cards
  - Data Access cards
  - AUX wiring
  - Power Fail Transfer Units
  - Digital Line cards
  - Telephones
  - Exchange Line Trunk cards
  - Direct Dialing Inward trunk cards
  - Miscellaneous equipment

**Figure 158**  
**Typical Krone cross-connect terminal layout (UK)**



**End of Procedure**

## Connecting the cables to the Media Gateways



### DANGER

Always use caution when installing or modifying telephone lines. Do not install telephone wiring during a lightning storm. Never touch uninsulated telephone wiring unless the line is disconnected at the network interface.

Each Media Gateway and each Media Gateway Expander requires up to four 25-pair cables. The CS 1000E requires an additional terminal block at the cross-connect terminal to terminate the 9-pin conductor auxiliary cable for the QUA6 Power Fail Transfer Unit (PFTU).



### WARNING

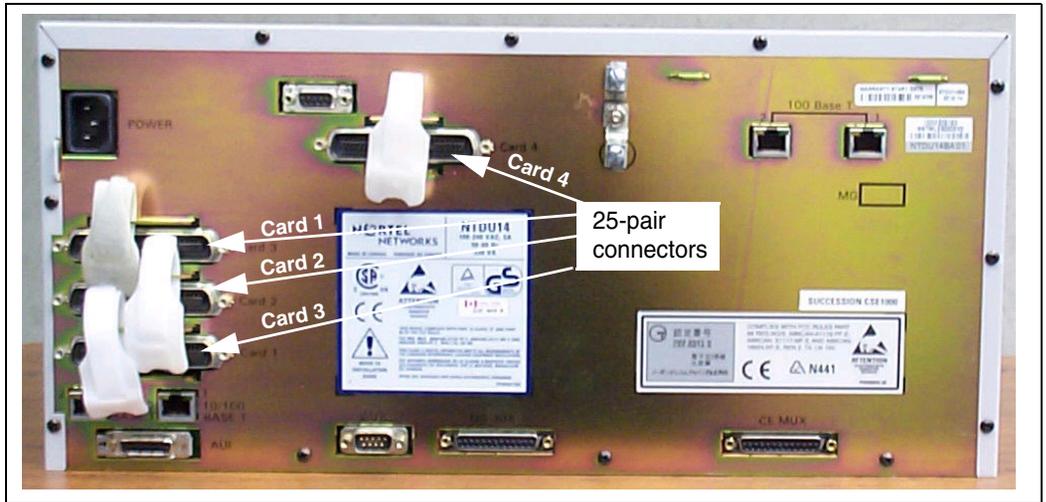
Do not use the NE-A25B cable with the NTRB21, NTAK10, NTBK50, or NTAK79 circuit cards.

### Procedure 79

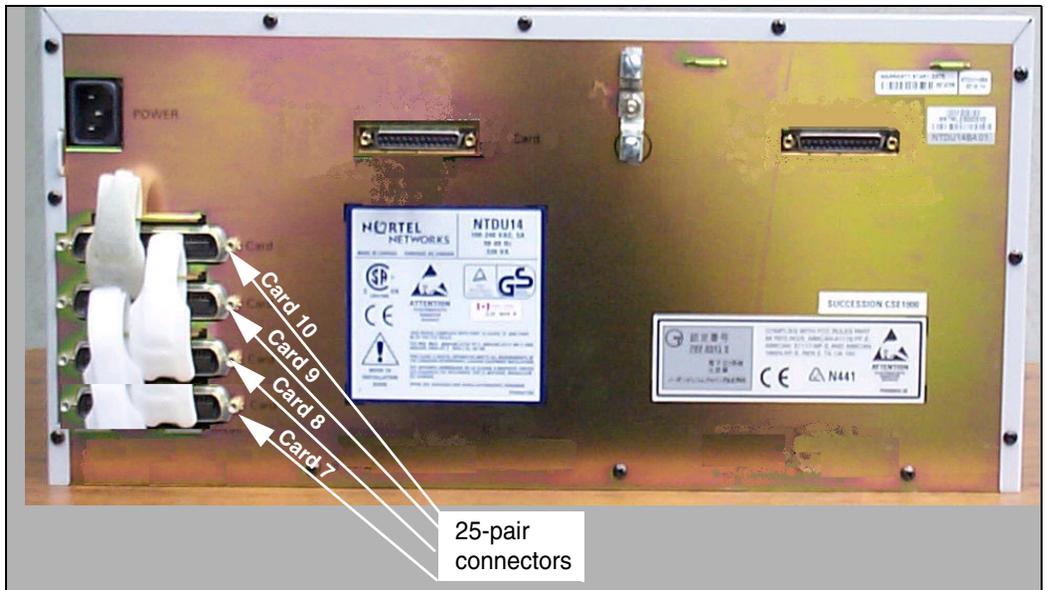
#### Connecting the cables to the Media Gateways

- 1 Loosen the velcro straps at each connector you plan to use.
- 2 Connect a 25-pair cable to each of the connectors that contains a line or trunk card. Refer to the card slot assignment plan.
- 3 Tag both ends of each cable with the equipment and connector numbers. See Figure 159 on [page 359](#) and Figure 160 on [page 359](#).

**Figure 159**  
Cable connectors at the back of the Media Gateway

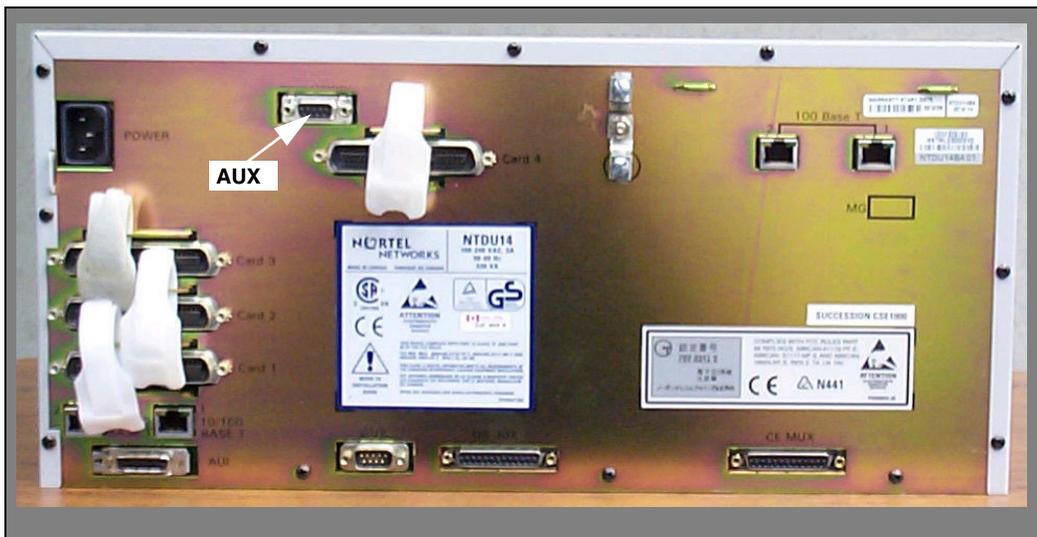


**Figure 160**  
Cable connectors at the back of the Media Gateway Expander



- 4 Tighten the velcro straps when you have connected each cable to the system.
- 5 Terminate all the 25-pair cables installed at the cross-connect terminal.
- 6 Label all the cables at the cross-connect terminal blocks according to the card slot assignment plan.
- 7 Connect the AUX cable in the upper 9-pin connector located on the top left-hand side of the Media Gateway. See Figure 161 on [page 360](#).

**Figure 161**  
**AUX cable connector**



- 8 When auxiliary power is required from the QUA6 PFTU, terminate the AUX cable at the PFTU cross-connect terminal, according to Table 45.

**Table 45**  
**AUX cable termination information**

<b>Color</b>	<b>Wire number</b>	<b>Designation</b>	<b>Connection</b>
W-BL	1	BRTN	to QUA6-J1 1R
BL-W	2	BRTN	to QUA6-J1 2R
O-W	3	-48V AUX (250mA)	to QUA6-J1 25T, 25R
W-O	4	PFTS	to QUA6-J1 2T
G-W	5	Not used	Not used
W-G	6	Not used	Not used

**End of Procedure**



---

# Configuring an IP telephony node

---

## Contents

This section contains information on the following topics:

Introduction . . . . .	363
Before you begin . . . . .	364
Configuring MS Internet Explorer . . . . .	365
Logging in to Element Manager . . . . .	368
Importing preconfigured IP telephony files . . . . .	370
Reviewing and submitting IP telephony node configuration files . . . .	372
Adding a Follower Signaling Server to an IP telephony node . . . . .	376
Performing a datadump . . . . .	377

## Introduction

An IP Telephony node is defined as a collection of Signaling Servers and Voice Gateway Media Cards. Each network node has a unique Node ID, which is an integer value. A node has only one Leader Signaling Server. All other Signaling Servers and Voice Gateway Media Cards are defined as Followers. An IP Telephony node must be configured to make a CS 1000 system operational. For more information about IP Telephony nodes and their configuration, refer to IP Line: Description, Installation, and Operation (553-3001-365).

The IP Telephony node database files are backed up, along with the customer database, by using the EDD command in LD 43. Refer to Software Input/Output: Maintenance (553-3001-511) for details about this command.

The preconfigured IP telephony configuration files from the leader Signaling Server must be imported. These files are saved on the CS 1000E as:

- `c:/u/db/node/nodex.cfg` where *x* is the node number
- `c:/u/db/node/nodex.btp` where *x* is the node number

**IMPORTANT!**

Do not attempt to alter the configuration files either manually or with OTM's ITG or IP Phone management. Use Element Manager only.

This chapter contains the following procedures:

- Procedure 80: "Turning off browser caching in Internet Explorer" on [page 365](#)
- Procedure 81: "Logging in to Element Manager" on [page 368](#)
- Procedure 82: "Importing an existing node" on [page 370](#)
- Procedure 83: "Reviewing and submitting IP telephony node configuration" on [page 372](#)
- Procedure 84: "Adding a Follower Signaling Server to the IP telephony node in Element Manager" on [page 376](#)
- Procedure 85: "Performing a datadump using Element Manager" on [page 378](#)

## Before you begin

### Perform a datadump

Use Element Manager to perform a datadump before making any changes to the IP telephony node. A datadump backs up both the IP telephony node configuration files and the customer database files. The datadump procedure using Element Manager is outlined in Procedure 85 on [page 378](#).

### Enable the multi-user option

Enable the multi-user option to access Command Line Interface (CLI) overlays and Element Manager at the same time. For more information about

Limited Access to Overlays, see *Features and Services* (NN43001-106) and *Software Input/Output: Administration* (NN43001-611).

## Configuring MS Internet Explorer

Element Manager is available to configure IP telephony parameters on the system. It is accessed by pointing MS Internet Explorer (version 6.0.2600 or higher) to the ELAN subnet, TLAN subnet, or node IP address of the Signaling Server.

**Note:** Element Manager requires Microsoft Internet Explorer 6.0.2600 or higher. The Netscape browser is not supported.

### **IMPORTANT!**

Internet Explorer caching must be turned off. If Internet Explorer caching is on, the user cannot see the changes in real-time.

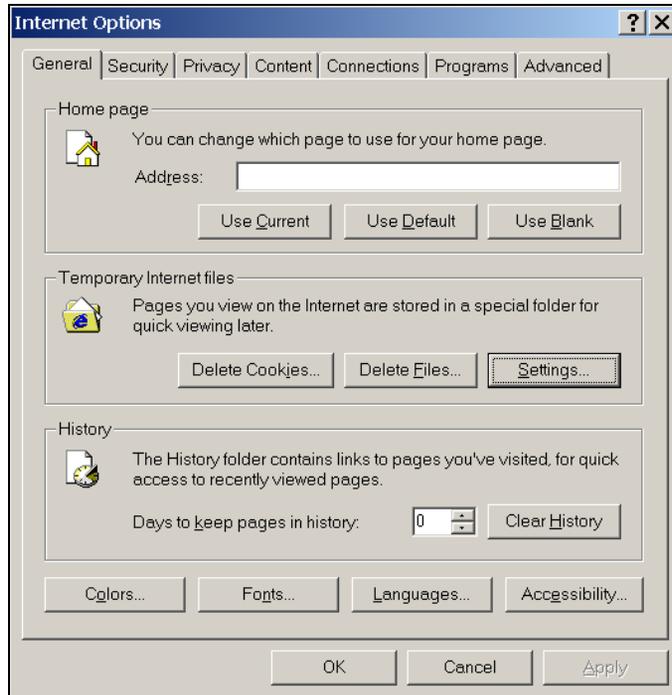
Follow Procedure 80 to prevent caching of web pages by Internet Explorer.

#### **Procedure 80**

##### **Turning off browser caching in Internet Explorer**

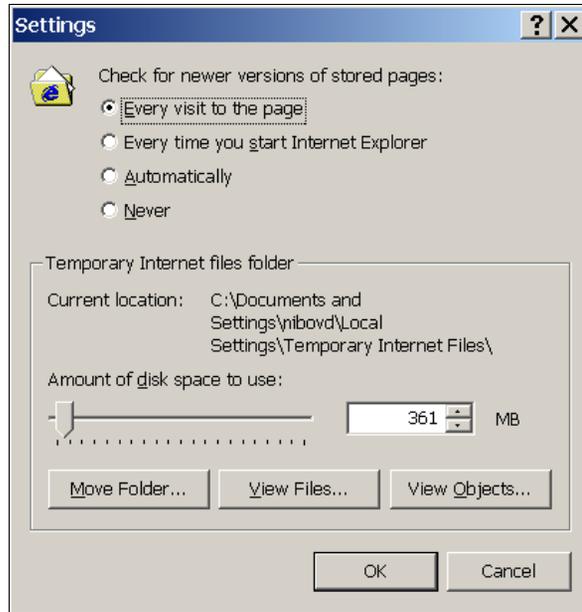
- 1 Launch Internet Explorer.
- 2 Click **Tools > Internet Options**. The **Internet Options** window opens (see Figure 162 on [page 366](#)).

**Figure 162**  
**Internet Explorer – Internet Options**



- 3 On the **General** tab, under the **Temporary Internet files** section, click **Settings**. The **Settings** window opens (see Figure 163 on [page 367](#)).

**Figure 163**  
**Temporary Internet files – Settings window**



- 4 Click **Every visit to the page**. This checks for new versions of stored pages on every visit to the web page.
- 5 Click **OK** in the Settings window.
- 6 Click **OK** in the Internet Options window.

---

**End of Procedure**

---

## Logging in to Element Manager

Follow Procedure 81 to log in to Element Manager.

### Procedure 81

#### Logging in to Element Manager

- 1 Open the web browser.
- 2 Enter the **Signaling Server Node IP address** in the Address Bar of the browser window, and press **Enter** on the keyboard.

**Note:** This address can be the ELAN IP, TLAN IP, or Node IP, depending on the network in use. The ELAN IP address may be required, instead of the Node IP address, to access to the Element Manager login web page in secure environments.

- 3 Element Manager opens and the **Login** web page appears (see Figure 164 on [page 369](#)).
  - a. Enter the **User ID** and **Password** of the CS 1000E.
    - User ID = `admin1` or any LAPW
    - Password = `0000`
  - b. Enter the ELAN IP address of the CS 1000E in the **CS IP Address** field.
  - c. Click **Login**.

**Figure 164**  
**Element Manager login**

>CS 1000 ELEMENT MANAGER

>THIS IS NORTEL.

User ID:

Password:

Call Server IP Address:

Login Reset

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---

**End of Procedure**

---

## Importing preconfigured IP telephony files

Follow Procedure 82 to import the preconfigured IP telephony files from the Signaling Server.

### Procedure 82 Importing an existing node

Figure 165 displays the **Element Manager System Information** home page.

**Figure 165**  
**Element Manager – System Overview web page**

The screenshot shows the Element Manager web interface. The header is purple with the Nortel logo on the left and 'CS 1000 ELEMENT MANAGER' in the center, with 'Help | Logout' on the right. A left-hand navigation menu lists various system components like Home, Links, System, Customers, Routes and Trunks, etc. The main content area displays 'Managing: 192.167.104.53' and 'System Overview'. A central box contains the following system information:

- IP Address: 192.167.104.53
- Type: Nortel Communication Server 1000E CPPM
- Version: 4021
- Release: 500F

Below this box are two blue links: [Signaling Server Details](#) and [Active Sessions](#).

- 1 Select **IP Network > Node: Servers, Media Cards** from the navigator.  
The **Node Configuration** web page opens, as shown in Figure 166. If this is the first node to be added, the “**No nodes are configured**” message is displayed.

**Figure 166**  
**Node Configuration web page**

Managing: [192.167.104.53](#)  
System » IP Network » Node Configuration

## Node Configuration

New Node

+ Node: 11 Node IP: 192.167.105.53	<input type="button" value="Edit..."/>	<input type="button" value="Transfer / Status"/>	<input type="button" value="Delete"/>
------------------------------------	--	--	---------------------------------------

- 2 Import the Node files from the leader Signaling Server.
  - a. Click **Import Node Files**.  
The **Import Node Files** screen as shown in Figure 167 on [page 372](#) appears.
  - b. Enter the ELAN IP address of the leader Signaling Server in the input box.

**Figure 167**  
**Import Node Files web page**

Managing: 192.167.102.3  
System > IP Network > Node Configuration > Import Node Files

### Import Node Files

Embedded LAN (ELAN) IP address of the leader from where to retrieve the node files

Click a button to invoke a command.

- 3 Click **Import**.

Click **OK** in the dialog when the operation is complete. The Node Summary web page is re-displayed showing the new node.

---

**End of Procedure**

---

## Reviewing and submitting IP telephony node configuration files

Follow Procedure 83 to review and submit IP telephony node configuration files.

### Procedure 83 Reviewing and submitting IP telephony node configuration

- 1 From the Node Summary web page (see Figure 133 on [page 320](#)), click **Edit** to view the node parameters.

The **Edit** web page appears as shown in Figure 134 on [page 321](#).

**Note 1:** Clicking **Transfer / Status** displays the **Transfer / Status** web page (see Figure 171 on [page 375](#)). This sends the node configuration files to all IP Telephony components in the node.

- If any element within the node fails to transfer either BOOTP or CONFIG files, **Transfer / Status** is highlighted in red.
- **Transfer / Status** is highlighted in yellow if the transfer status of the node elements is unavailable.

**Note 2: Delete** is used to delete the corresponding node. The node is not automatically deleted. A message displays and asks if you are sure you want to delete the node.

- 2 Review the node parameters by opening each tab.

**Note:** For detailed information on each of the node parameters, refer to *IP Line: Description, Installation, and Operation* (NN43100-500).

- 3 Click **Save and Transfer**.
- 4 Click **OK** to save the node configuration to the CS 1000E and transfer the configuration to all elements.

After a few seconds, the **Transfer Progress** web page opens and displays each of the elements in the node (see Figure 168 on [page 374](#)).

The Voice Gateway Media Cards retrieve the CONFIG.INI and BOOTP.TAB files from the CS 1000E. A check mark is added to each field as the card receives its CONFIG.INI and BOOTP.TAB files.

The status column provides the progress of the transfer:

- The Status column displays “Starting” as the transfer begins (see Figure 168 on [page 374](#)).
- The Status column displays “Transfer” as the node configuration is transferred to the elements (see Figure 169 on [page 374](#)).
- The Status column displays “Complete” if the transfer is successful for an element (see Figure 170 on [page 375](#)).
- The Status column displays “Fail” if the transfer is unsuccessful.

**Figure 168**  
**Transfer Progress – Starting**

Managing: [192.167.102.3](#)  
 System » IP Network » [Node Configuration](#) » IP Telephony: Node ID 9 » [Transfer / Status](#) » Transfer Progress

---

### Transfer Progress

 Transfer in Progress Please Wait

Card	Status	bootp	config
192.167.102.4	Starting	<input type="checkbox"/>	<input type="checkbox"/>
192.167.102.18	Starting	<input type="checkbox"/>	<input type="checkbox"/>

**Figure 169**  
**Transfer Progress – Transferring**

Managing: [192.167.102.3](#)  
 System » IP Network » [Node Configuration](#) » IP Telephony: Node ID 9 » [Transfer / Status](#) » Transfer Progress

---

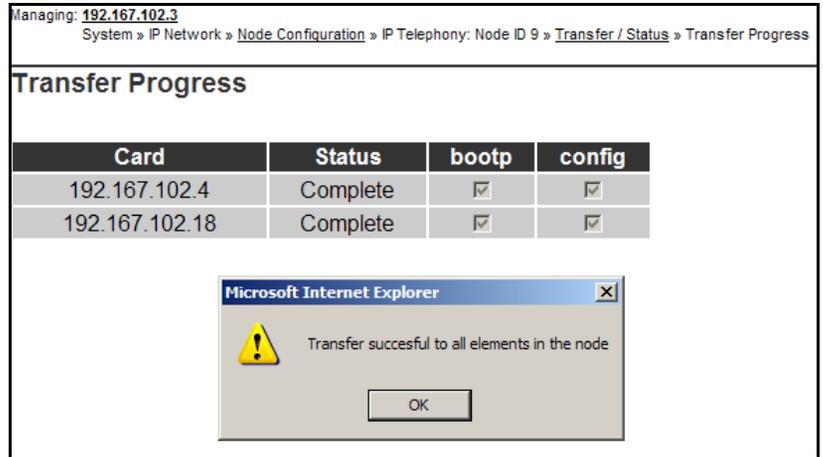
### Transfer Progress

 Transfer in Progress Please Wait

Card	Status	bootp	config
192.167.102.4	Transferring	<input checked="" type="checkbox"/>	<input type="checkbox"/>
192.167.102.18	Transferring	<input checked="" type="checkbox"/>	<input type="checkbox"/>

When the file transfer is complete, the Transfer Progress web page displays a status of complete (see Figure 170 on [page 375](#)).

**Figure 170**  
**Transfer Progress – Complete**

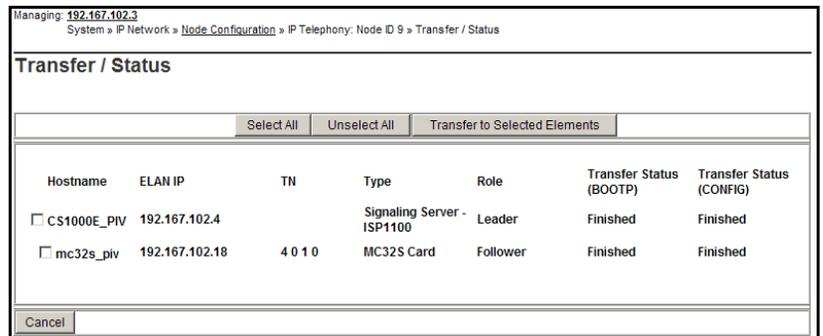


5 Click **OK** in the dialog box.

The **Transfer / Status** web page displays.

**Note:** The Transfer / Status web page (see Figure 171) can also be displayed from the **Node Summary** web page by clicking **Transfer / Status**. This web page indicates if the transfer was successful or not. For example, Figure 171 shows some elements as unreachable; you can transfer to these elements again.

**Figure 171**  
**Transfer / Status web page**



The previous status of the node displays, and the failure reason is displayed for elements in nodes that failed to get configuration files (BOOTP.TAB and CONFIG.INI) from the CS 1000E.

The **Transfer / Status** web page has five buttons:

- **Selected All.** Selects all the elements in the node (that is, it adds a check mark in each element's check box).
- **Unselect All.** Unselects all the elements in the node (that is, it removes the check marks for all the selected elements).
- **Transfer to Selected Elements.** Re-transfers node configuration files only to selected elements, regardless of a "Transfer Failed" state.
- **Transfer to Failed Elements.** Transfers only node configuration files to elements in a "Transfer Failed" state. The Transfer to Failed Elements button is displayed only when at least one element on the Node failed to transfer either a BOOTP.TAB or CONFIG.INI in the previous operation.
- **Cancel.** Closes the **Transfer / Status** pages without performing any action, and displays the Node Summary web page.

- 6 If the Signaling Server configuration was changed on the Edit web page, reboot the Signaling Server.

---

**End of Procedure**

---

## Adding a Follower Signaling Server to an IP telephony node

Follow Procedure 84 to add a Follower Signaling Server to the IP telephony node in Element Manager.

### **Procedure 84** **Adding a Follower Signaling Server to the IP telephony node in Element Manager**

**Note:** After software installation and reboot, the Follower Signaling Server sends out BootP requests and waits for a response. Because the Follower Signaling Server has not booted successfully before, it waits for a non-existing BootP response. Do not wait for this response; proceed to the next steps.

In Element Manager:

- 1 Click **Edit** on the **Node Configuration** web page (see Figure 166 on [page 371](#)).
- 2 Click **Add** beside the Signaling Server row.
- 3 Enter the Follower Signaling Server data to an IP telephony node. Include the ELAN MAC address (used to answer BootP requests).
- 4 Click **Save and Transfer** to save the changes and the Leader Signaling Server then obtains a copy of the node files.
- 5 Click **OK** to save the node configuration to the CS 1000E and transfer the configuration to all elements.

When the file transfer is complete, the **Transfer/ Status** web page appears.

The Leader Signaling Server responds to the Follower Signaling Server's BootP request.

The Follower Signaling Server initializes its network interfaces.

The Follower Signaling Server attempts to FTP the BOOTP.TAB file from the node master (Leader Signaling Server).

**Note:** Since the Follower cannot obtain the system login and password, the FTP fails (for first-time Follower Signaling Server installation only). It does not have the current CONFIG.INI file that contains the CS 1000E IP address. Subsequent FTPs succeed.

- 6 Transfer the node files again, so that the Follower Signaling Server obtains a copy of CONFIG.INI.
- 7 Reboot the Follower Signaling Server so that all its applications can start based on the new CONFIG.INI file.

The Signaling Server uses BootP to obtain its network data, and it then FTPs the BOOTP.TAB file from the node master (Leader Signaling Server).

---

**End of Procedure**

---

## Performing a datadump

Follow Procedure 85 to perform a datadump using Element Manager. This procedure is an alternative to using CLI to perform a datadump. The

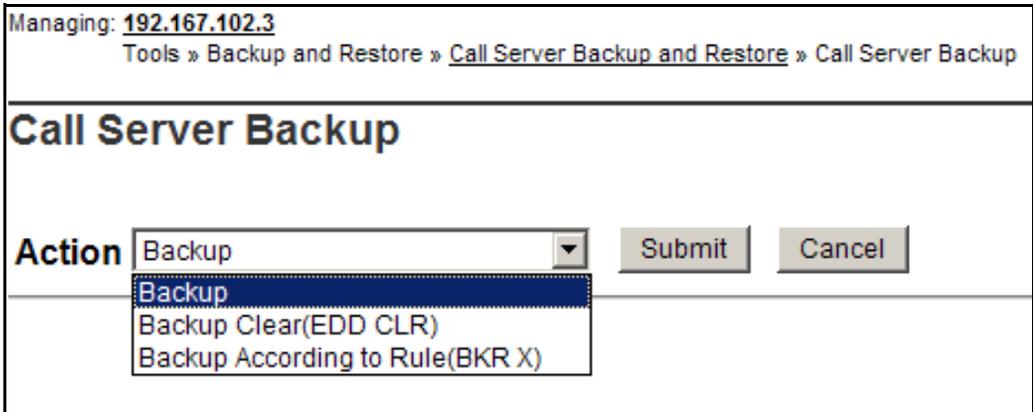
datadump backs up new IP Telephony node files on the CS 1000E at the same time that it backs up the customer database.

**Procedure 85**  
**Performing a datadump using Element Manager**

From within Element Manager (see Figure 81 on [page 368](#) for details on logging in), do the following:

- 1 Choose **Tools > Backup and Restore > Call Server** from the navigator.
- 2 The **Call Server Backup and Restore** web page opens, as shown in Figure 53 on [page 162](#).

**Figure 172**  
**CS 1000E Backup**



- 3 Select **Backup**.  
The **Call Server Backup** web page appears (see Figure 172 on [page 378](#)).
- 4 Select **Backup** from the **Action** drop-down list box.
- 5 Click **Submit**.  
The message displays indicating “Backup in progress. Please wait...”
- 6 Click **OK** in the EDD complete dialog box.  
The Backup function displays information in a tabular form indicating the actions that were performed.

**End of Procedure**

---



---

# Installing Line cards and cross-connecting telephones

---

## Contents

This section contains information on the following topics:

<a href="#">Introduction</a> . . . . .	381
<a href="#">Card placement in a Media Gateway or a Media Gateway Expansion</a> . . . . .	384
<a href="#">Cross-connecting telephones</a> . . . . .	384
<a href="#">Connecting a telephone without a PFTU</a> . . . . .	386
<a href="#">Connecting an off-premise telephone</a> . . . . .	387
<a href="#">Connecting an attendant console</a> . . . . .	389

## Introduction

This chapter contains instructions for connecting telephone Line cards located in the Media Gateway and Media Gateway Expander to the MDF cross-connect terminal.

This chapter contains the following procedures:

- Procedure 86: "Cross-connecting telephones" on [page 384](#)
- Procedure 87: "Connecting a telephone without a PFTU" on [page 387](#)
- Procedure 88: "Connecting an off-premise telephone" on [page 388](#)
- Procedure 89: "Connecting an attendant console" on [page 389](#)

Before you proceed, install the cable from the slot that contains the Line card associated with the telephone being connected. Refer to “Installing the Main Distribution Frame” on [page 351](#), if you require additional cable installation.



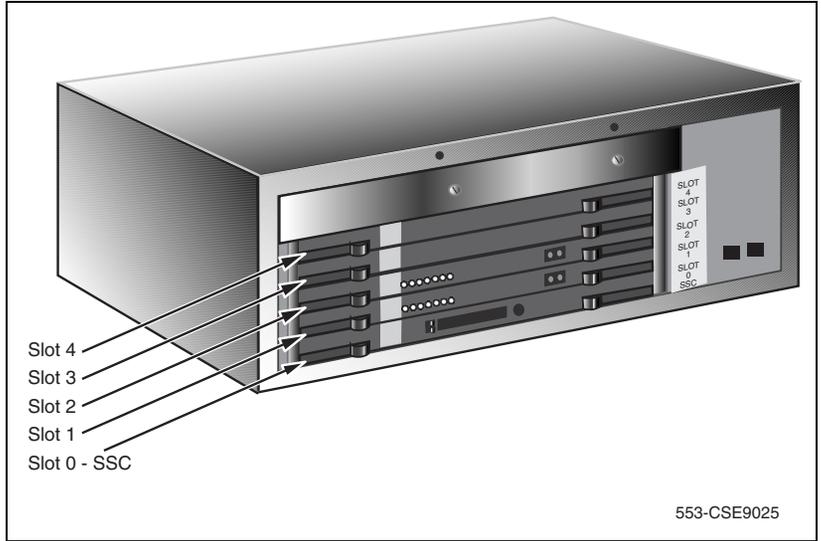
**DANGER OF ELECTRIC SHOCK**

Always use caution when installing or modifying telephone lines. Do not install telephone wiring during a lightning storm. Do not install telephone jacks in wet locations unless the jacks are designed for wet locations. Never touch uninsulated telephone wiring unless the line is disconnected at the network interface.

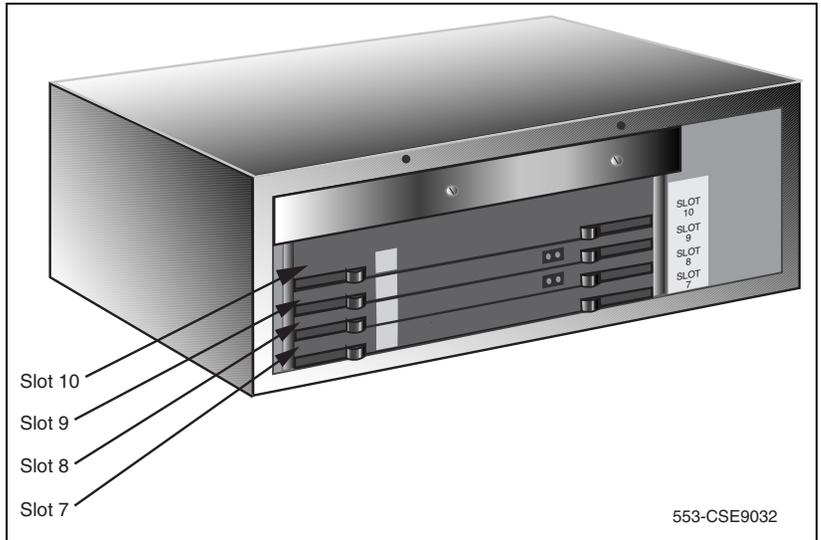
Refer to the *Circuit Card: Description and Installation* (NN43001-311) for full descriptions of country-specific IPE cards and their installation procedures

Figure 173 and Figure 174 on [page 383](#) show the circuit card assignments for the Media Gateway and Media Gateway Expander. Refer to these figures to make sure that you have all circuit cards inserted in the correct slots.

**Figure 173**  
**Circuit card assignments in a Media Gateway**



**Figure 174**  
**Circuit card assignments in a Media Gateway Expander**



## Circuit cards features

If a circuit card has a switch symbol on its faceplate, it is equipped with option switches, strapping plugs, or both. Make sure that the circuit cards with option switches or strapping plugs are set correctly. Some circuit cards can have daughterboards and other add-on devices installed on them.

## Card placement in a Media Gateway or a Media Gateway Expansion

The work order developed by the planning and engineering department outlines the placement of peripheral cards in the Media Gateway and Media Gateway Expander slots. See *Circuit Card: Description and Installation* (NN43001-311) for card placement into card slots. The 48-port Digital Line Card is not supported.

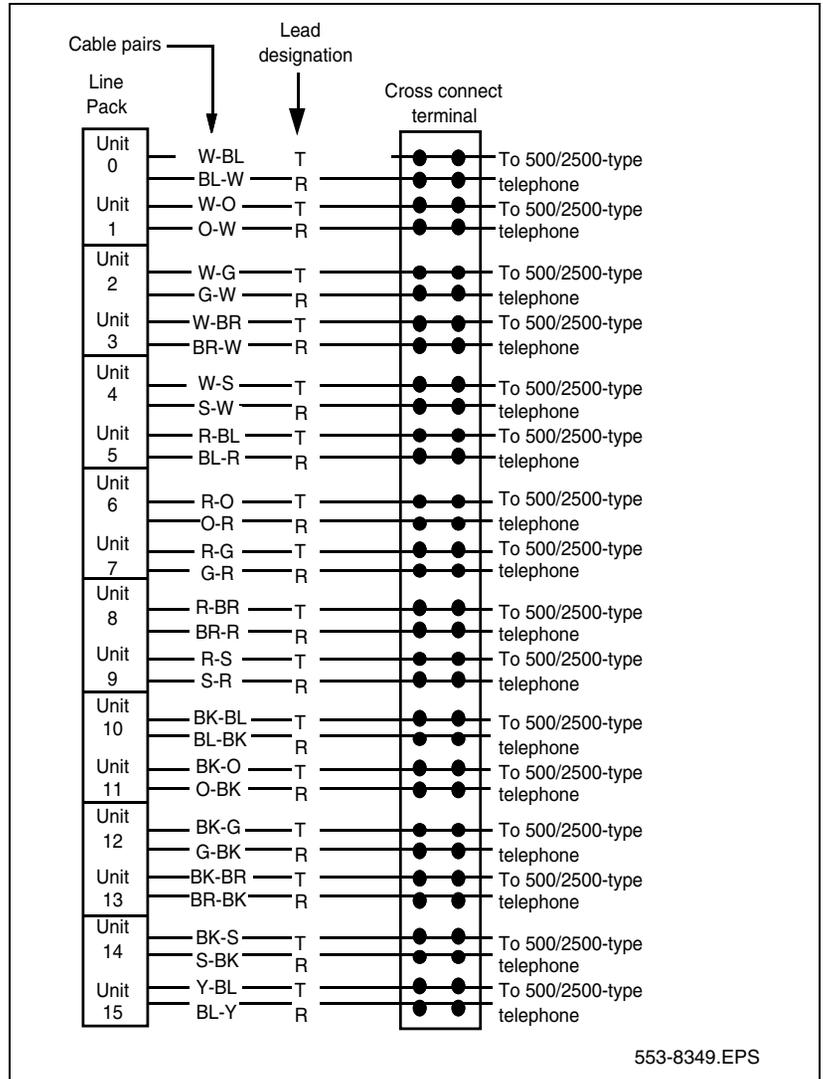
## Cross-connecting telephones

Connect the telephones according to Figure 175 on [page 385](#) and Figure 176 on [page 386](#).

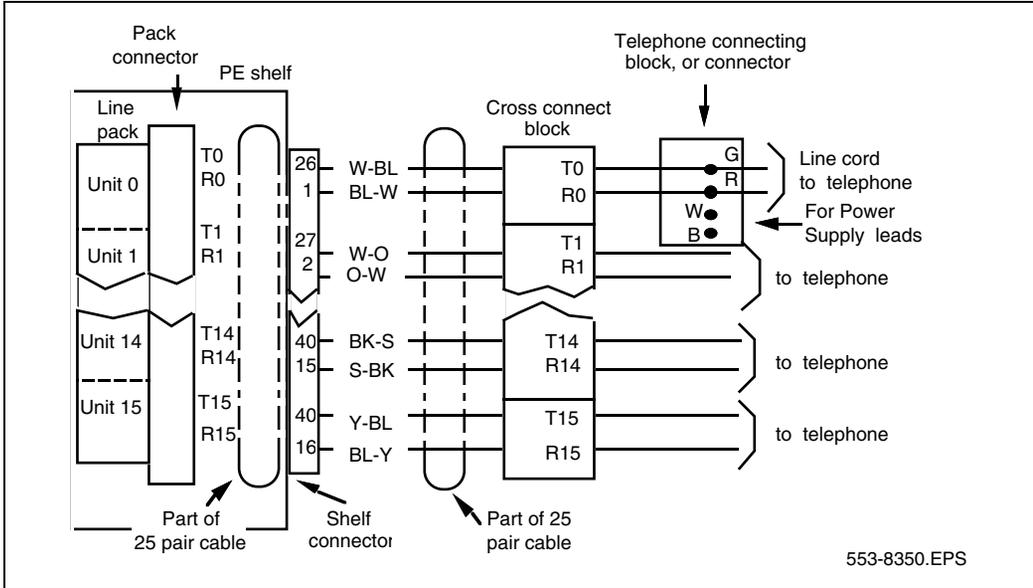
### **Procedure 86** **Cross-connecting telephones**

- 1 Locate the telephone terminations at the cross-connect terminal.
- 2 Connect the Z-type cross-connect wire to the leads of the telephone.
- 3 Locate line circuit card (TN) terminations at the cross-connect terminal.
- 4 Connect the other end of the cross-connect wire to the assigned TN terminal block.

**Figure 175**  
**NE-500/2500-type telephone cross connections**



**Figure 176**  
**Digital telephone cross connections**



End of Procedure

## Connecting a telephone without a PFTU

See “Installing and cross-connecting a Power Fail Transfer Unit” on [page 441](#) for connecting telephones with the PFTU.

**Procedure 87****Connecting a telephone without a PFTU**

- 1 Locate the telephone terminations on the cross-connect terminal.
- 2 Connect one end of the cross-connect wire to the leads of the telephone.
- 3 Locate the Line card terminations on the cross-connect terminal.
- 4 Connect the other end of the cross-connect wire to the assigned TN terminal block.
- 5 Activate the telephone.

---

**End of Procedure**

---

## Connecting an off-premise telephone

Connect off-premise analog (500/2500-type) telephones through an NT1R20 Off-premise Line card or NTAK92AA Off-Premise Protection Module. Each NTAK92AA module can connect up to four analog (500/2500-type) telephones and can interface with the NT8D09 Message Waiting Line card.

**DANGER OF ELECTRIC SHOCK**

The message-waiting Line card produces -150 volts, which is considered hazardous on off-premise telephones. Make sure that the -150 volts are disabled on off-premise telephones.

The voltage is disabled when the telephone's Class of Service (CLS) is Message Waiting Lamp Denied (LPD) and Message Waiting Denied (MWD) in LD 10.

Refer to the *Software Input/Output: Administration* (NN43001-611) for information about LD 10.

Do not assign a Class of Service of LPA or MWA to an off-premise telephone.

**Procedure 88**

**Connecting an off-premise telephone**

- 1 Install the NTAK92BA Off-Premise Protection Module on the wall using four #10 1/2-in (minimum) screws.
- 2 Connect a #6 AWG from the grounding lug at the bottom of the NTAK92AA Off-Premise Protection Module to the system ground. Refer to Figure 177 on [page 389](#).

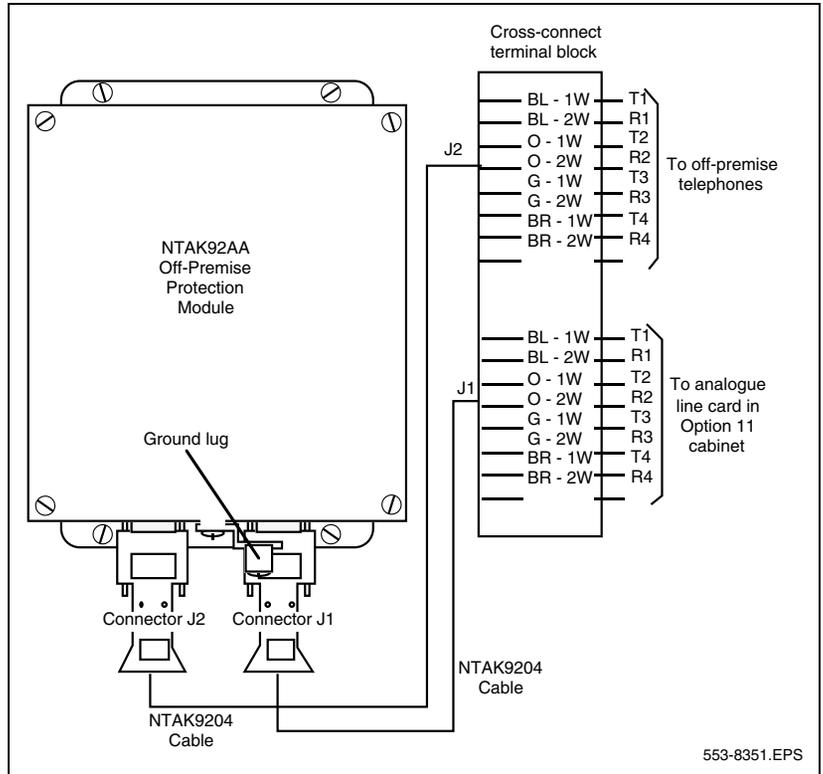


**DANGER OF ELECTRIC SHOCK**

If connecting to a message-waiting Line card, unseat the card from its assigned slot before continuing with the next step.

- 3 Connect two NTAK9204 cables (one from connector J1 and one from connector J2) from the protection module to the cross-connect terminal.
- 4 Terminate the cables as shown in Figure 175 on [page 385](#).
- 5 Cross-connect the J1 cable to the Tip and Ring connections coming from the Line card.
- 6 Cross-connect the J2 cable to the off-premise telephone.
- 7 Install the regulatory label provided with the Off-Premise Protection Module on the inside right-hand wall of the Media Gateway.
- 8 Install the Line card in its assigned position.
- 9 Activate the telephone.

**Figure 177**  
**NTAK92BA Off-Premise Protection Module connections**



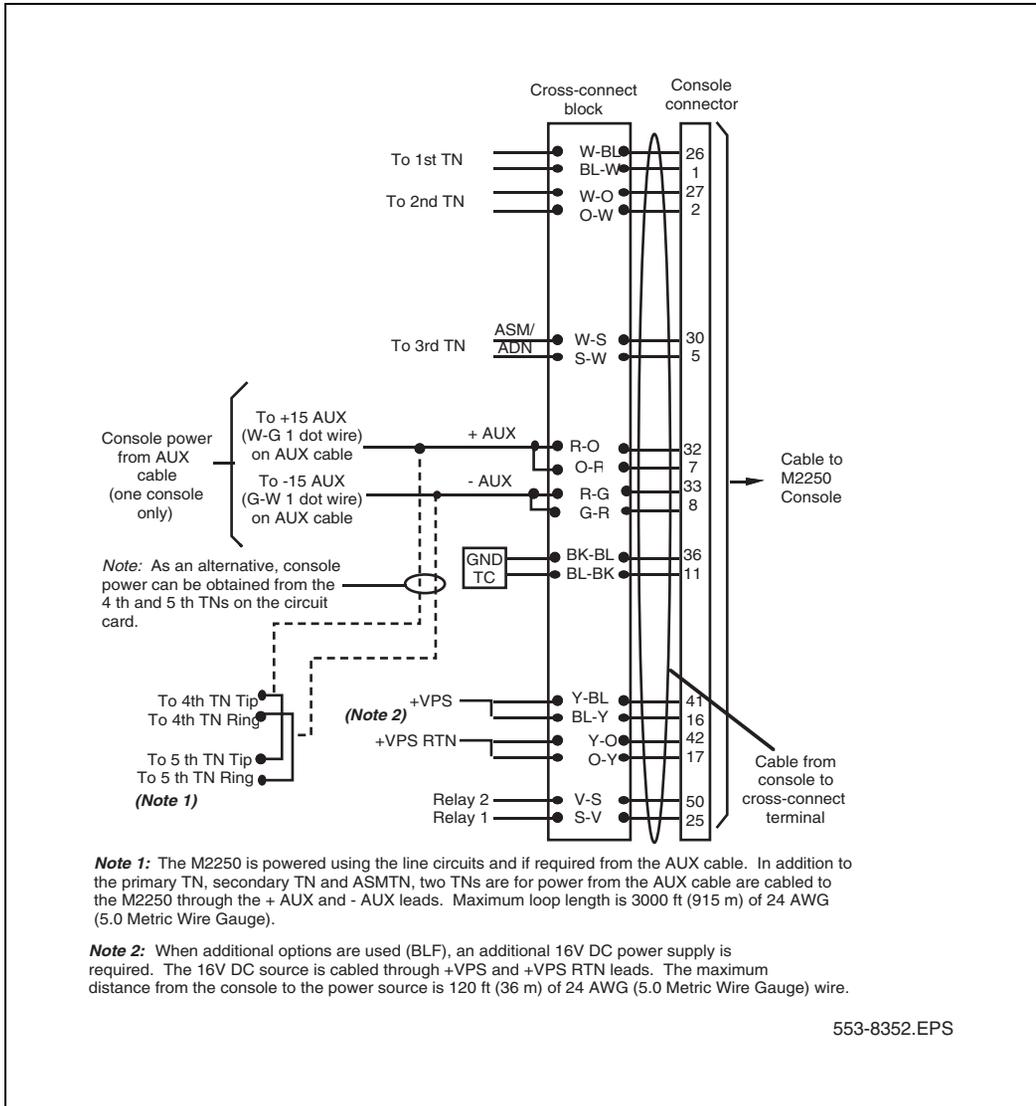
**End of Procedure**

## Connecting an attendant console

### Procedure 89 Connecting an attendant console

- 1 Locate the attendant console terminations at the cross-connect terminal.
- 2 Locate the Line card terminations at the cross-connect terminal.
- 3 With cross-connect wire, connect the Line card and other connections to the console, as shown in Figure 178 on [page 390](#).

**Figure 178**  
**Attendant console connections**



553-8352.EPS

**Table 46**  
**Color combinations of cable pairs**

<b>Color</b>	W-BI BI-W	W-O O-W	W-G G-W	W-BR BR-W	W-S S-W	R-BL BL-R	R-O O-R	R-G G-R
<b>Unit</b>	0	1	2	3	4	5	6	7
<b>Color</b>	R-BR BR-R	R-S S-R	BK-BL BL-BK	BK-O O-BK	BK-G G-BK	BK-BR BR-BK	BK-S S-BK	Y-B B-Y
<b>Unit</b>	8	9	10	11	12	12	14	15

————— **End of Procedure** —————



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# Installing and configuring Nortel IP Phones

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## Contents

This section contains information on the following topics:

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## Introduction

For detailed information on the various telephones supported on the CS 1000E system, refer to *Telephones and Consoles: Description, Installation, and Operation* (NN43001-567) and *IP Phones: Description, Installation, and Operation* (NN43001-368).

The following Nortel IP Phones can be installed on a CS 1000E system:

- Nortel IP Phone 2001, Nortel IP Phone 2002, Nortel IP Phone 2004 and Nortel IP Phone 2007
- Nortel IP Softphone 2050
- Nortel IP Audio Conference Phone 2033
- Nortel IP Phone 1120E, Nortel IP Phone 1140E and Nortel IP Phone 1150E
- Nortel IP Phone 1110
- Expansion Module for IP Phone 1100 Series
- WLAN Handsets 2210/2211/2212
- MVC 2050

The system must be configured before the Nortel IP Phones can be installed. The configuration includes:

- The Nortel IP Phone TN blocks must be defined on the Call Server (See “Configuring VoIP bandwidth management zones” on [page 408](#) or “Using Set-Based Installation” on [page 433](#)).
- The IP Phones are assigned to an IP telephony node, and use the IP telephony node properties defined using Element Manager (see “Configuring an IP telephony node” on [page 363](#)).
- The IP Phones require local boot parameter configuration (see “Configuring the Nortel IP Phone boot parameters” on [page 424](#)).

## Package components for the Nortel IP Phones

Table 47 lists the Nortel IP Phone 2001 package components and product codes.

**Table 47**  
**Nortel IP Phone 2001 components list (Part 1 of 2)**

<b>Nortel IP Phone 2001 package contents include:</b>	
<ul style="list-style-type: none"> <li>• Nortel IP Phone 2001</li> <li>• Handset</li> <li>• Handset cord</li> <li>• Footstand</li> <li>• 7 ft. Cat5 Ethernet cable</li> <li>• Getting Started card</li> </ul>	
Nortel IP Phone 2001(Ethergray) with Icon keycaps	NTDU90AA16/A0533387
Nortel IP Phone 2001 (Ethergray) with English text label keycaps	NTDU90BA16/A0533388
Nortel IP Phone 2001 (Charcoal) with Icon keycaps	NTDU90AA70/A0053389
Nortel IP Phone 2001 (Charcoal) with English text label keycaps	NTDU90BA70/A0533390
Nortel IP Phone 2001 (Charcoal with Bezel) with Icon keycaps	NTDU90AB70
Nortel IP Phone 2001 (Charcoal with Bezel) with Icon keycaps (RoHS)	NTDU90AC70E6
Nortel IP Phone 2001 (Charcoal with Bezel) with English text label keycaps	NTDU90BB70
Nortel IP Phone 2001 (Charcoal with Bezel) with English text label keycaps (RoHS)	NTDU90BC70E6
<b>Replacement parts</b>	
7 ft. Cat5 Ethernet Cable	A0648375
Handset, Ethergray	A0788874

**Table 47**  
**Nortel IP Phone 2001 components list (Part 2 of 2)**

Handset, Charcoal	A0758634
Handset cord, Ethergray; for Nortel IP Phone 2004 and Nortel IP Phone 2001	A088682
Handset cord, Charcoal; for Nortel IP Phone 2004 and Nortel IP Phone 2001	N0000764
<b>Nortel IP Phone 2001/2002/2004 Power Adapters</b>	
Power transformer (117/120 VAC 50/60 Hz) (North America)	A0619627
Power transformer 3 prong AC to AC, direct plug-in, 8W, 240 VAC, 50Hz to 16 VAC at 500 mA (Ireland and UK)	A0656598
Power transformer AC to AC, direct plug-in, 8W, 230 VAC, 50/60 Hz, to 16 VAC at 500 mA (Europe)	A0619635
Power transformer 2 prong wall plug direct plug-in AC to AC, 8W, 240 VAC, 50 Hz, to 16 VAC at 500 mA (Australia and New Zealand)	A0647042
Power transformer AC to AC, direct plug-in, 8W, 100 VAC, 50 Hz, to 16 VAC at 500 mA	A0828858

Table 48 lists the Nortel IP Phone 2002 package components and product codes.

**Table 48**  
**Nortel IP Phone 2002 components list (Part 1 of 2)**

<b>Nortel IP Phone 2002 package contents include:</b>	
<ul style="list-style-type: none"> <li>• Nortel IP Phone 2002</li> <li>• Handset</li> <li>• Handset cord</li> <li>• Footstand</li> <li>• 7ft Cat5 Ethernet cable</li> <li>• Getting Started card</li> </ul>	
Nortel IP Phone 2002 (Ethergray) with Icon keycaps	NTDU91AA16/A0533404
Nortel IP Phone 2002 (Ethergray) with English text label keycaps	NTDU91BA16/A0533405
Nortel IP Phone 2002 (Charcoal) with Icon keycaps	NTDU91AA70/A0533406
Nortel IP Phone 2002 (Charcoal) with English text label keycaps	NTDU91BA70/A0533407
Nortel IP Phone 2002 (Charcoal with Bezel) with Icon keycaps	NTDU91AB70
Nortel IP Phone 2002 (Charcoal with Bezel) with Icon keycaps (RoHS)	NTDU91AC70E6
Nortel IP Phone 2002 (Charcoal with Bezel) with English text label keycaps	NTDU91BB70
Nortel IP Phone 2002 (Charcoal with Bezel) with English text label keycaps (RoHS)	NTDU91BC70E6
<b>Replacement parts</b>	
7 ft. Cat5 Ethernet cable	A0648375
Handset, Ethergray	A0788874
Handset, Charcoal	A0758634

**Table 48**  
**Nortel IP Phone 2002 components list (Part 2 of 2)**

Handset cord, Ethergray	A0897725
Handset cord, Charcoal	N0000763
Footstand, Charcoal (used for Ethergray and Charcoal models)	A0891619
<b>IP Phone 2001/2002/2004 Power Adaptors</b>	
Power transformer (117/120 VAC 50/60 Hz) (North America)	A0619627
Power transformer 3 prong AC to AC, direct plug-in, 8W, 240 VAC, 50Hz to 16 VAC at 500 mA (Ireland and UK)	A0656598
Power transformer AC to AC, direct plug-in, 8W, 230 VAC, 50/60 Hz, to 16 VAC at 500 mA (Europe)	A0619635
Power transformer 2 prong wall plug direct plug-in AC to AC, 8W, 240 VAC, 50 Hz, to 16 VAC at 500 mA (Australia and New Zealand)	A0647042
Power transformer AC to AC, direct plug-in, 8W, 100 VAC, 50 Hz, to 16 VAC at 500 mA	A0828858

Table 49 lists the Nortel IP Phone 2004 package components and product codes.

**Table 49**  
**IP Phone 2004 component list (Part 1 of 2)**

<b>IP Phone 2004 package contents includes</b>	
<ul style="list-style-type: none"> <li>• IP Phone 2004</li> <li>• Handset</li> <li>• Handset cord</li> <li>• Footstand</li> <li>• 7 ft. Ethernet cable</li> <li>• Getting Started card</li> </ul>	
Nortel IP Phone 2004 (Ethergray) with Icon keycaps	NTDU92AA16/ A0533408
Nortel IP Phone 2004 (Ethergray) with English text label keycaps	NTDU92BA16/ A0533409
Nortel IP Phone 2004 (Charcoal) with Icon keycaps	NTDU92AA70/ A0533410
Nortel IP Phone 2004 (Charcoal) with English text label keycaps	NTDU92BA70/ A0533411
Nortel IP Phone 2004 (Charcoal with Bezel) with Icon keycaps	NTDU92AB70
Nortel IP Phone 2004 (Charcoal with Bezel) with Icon keycaps (RoHS)	NTDU92AC70E6
Nortel IP Phone 2004 (Charcoal with Bezel) with English text label keycaps	NTDU92BB70
Nortel IP Phone 2004 (Charcoal with Bezel) with English text label keycaps (RoHS)	NTDU92BC70E6
Nortel IP Phone 2004 wall mount kit (Charcoal), used with Ethergray and Charcoal models	NTMN15BA70/ A0503076

**Table 49**  
**IP Phone 2004 component list (Part 2 of 2)**

<b>Replacement parts</b>	
7 ft. Ethernet Cat5 cable	A0648375
Handset (Ethergray)	A0788874
Handset (Charcoal)	A0758634
Handset cord (Ethergray)	A0788682
Handset cord (Charcoal)	N0000764
Footstand (Charcoal), used for Ethergray and Charcoal models	A0538587
<b>IP Phone 2004 Power Adaptors</b>	
Power transformer (117/120 VAC 50/60 Hz) (North America)	A0619627
Power transformer 3 prong AC to AC, direct plug-in, 8W, 240 VAC, 50Hz to 16 VAC at 500 mA (Ireland and UK)	A0656598
Power transformer AC to AC, direct plug-in, 8W, 230 VAC, 50/60 Hz, to 16 VAC at 500 mA (Europe)	A0619635
Power transformer 2 prong wall plug direct plug-in AC to AC, 8W, 240 VAC, 50 Hz, to 16 VAC at 500 mA (Australia and New Zealand)	A0647042
Power transformer AC to AC, direct plug-in, 8W, 100 VAC, 50 Hz, to 16 VAC at 500 mA	A0828858

Table 50 lists the Nortel IP Phone 2007 package components and product codes.

**Table 50**  
**Nortel IP Phone 2007 component list (Part 1 of 2)**

<b>Nortel IP Phone 2007 package contents includes</b> <ul style="list-style-type: none"> <li>• Nortel IP Phone 2007(charcoal with metallic bezel)</li> <li>• Handset</li> <li>• Handset cord</li> <li>• Footstand</li> <li>• 7 ft. (2.3 m) CAT5 Ethernet cable</li> <li>• Getting Started card</li> </ul>	NTDU96AB70
<b>Replacement parts</b>	
7 ft. CAT5 Ethernet cable	A0648375
Handset (charcoal)	A0758634
Handset cord (charcoal)	N0000764
Footstand (charcoal)	A0538587
<b>Nortel IP Phone 2007 power adapter</b>	
Global power adapter	N0014020
<b>Nortel IP Phone 2007 power cords</b>	
Cord 9.9 ft. NA Power, NEMA, 125Vac 13 <sup>a</sup> NA, M.East, Taiwan, Indonesia, Philippines, Korea, Thailand, Vietnam, Japan	NTTK14AB
Cord 8 ft., ANA Power AS-3, 240Vac 10A Australia, New Zealand, PRC	NTTK15AA
Option 11C Standard European Power Cord 250Vac Other EMEA, Kenya	NTTK16AB
Option 11C Swiss Power Cord, 9.9 ft. 125Vac Switzerland	NTTK17AB

**Table 50**  
**Nortel IP Phone 2007 component list (Part 2 of 2)**

Option 11C UK Power Cord 240Vac Hong Kong, Ireland, UK, Singapore, Malaysia, India, Bangladesh, Pakistan, Brunei, Sri Lanka	NTTK18AB
Option 11C Denmark Power Cord Kit, 9.9 ft. 125Vac Denmark	NTTK22AB

Table 51 lists the Nortel IP Phone ACP 2033 package components and product codes.

**Table 51**  
**Nortel IP Audio Conference Phone 2033 components list**

IP Audio Conference Phone 2033 package contents include: <ul style="list-style-type: none"> <li>• IP Audio Conference Phone 2033 (charcoal)</li> <li>• 7 ft. CAT5 Ethernet cable</li> <li>• Power Interface Module (PIM) with 25 ft. console cable</li> <li>• IP Audio Conference Phone 2033 Quick Reference Card</li> <li>• Universal power supply</li> </ul>	NTEX11AA70
IP Audio Conference Phone 2033 package contents include: <ul style="list-style-type: none"> <li>• IP Audio Conference Phone 2033 (charcoal)</li> <li>• 7 ft. CAT5 Ethernet cable</li> <li>• Power Interface Module (PIM) with 25 ft. console cable</li> <li>• IP Audio Conference Phone 2033 Quick Reference Card</li> <li>• 2 Extension microphones (charcoal)</li> <li>• Universal power supply</li> </ul>	NTEX11BA70
Additional Extension microphones with 7 ft. cable	NTEX11DA70
Power accessory kit (PIM, Universal power supply, cabling)	NTEX11CA
Nortel IP Phone IP Audio Conference Phone 2033 Power cords	

NA NEMA 5-15P, 125V 13A (10ft.)	NTTK14AB
Euro CEE (7) VII, 250V, 10A (2.5m)	NTTK16AB
ANZ AS3112, 250V 10A (2.5m)	NTTK15AA
Swiss SEV 1011, 250V 10A (8ft.)	NTTK17AB
UK/Ireland BS1363, 240V 10A (8ft.)	NTTK18AB
Denmark AFSNIT, 250V 10A (2.5m)	NTTK22AB
Argentina IRAM 2073, 250V 10A (8ft.)	A0814961

Table 52 lists the Package components for the WLAN Handsets.

**Table 52**  
**WLAN Handset component list (Part 1 of 4)**

WLAN Handset 2210 kit North America	NTTQ40AA/A0548444
WLAN Handset 2210 kit Global (power supply not included)	NTTQ40BA/A0548450
North American kit includes:	
WLAN 2210 Handset	NTTQ4010/A0548445
WLAN Handset 2210 Battery Pack	NTTQ4050/A0548446
WLAN Handset 2210 Desktop Charger	NTTQ4060/A0548447
WLAN 2210/2211 Charger & Nortel Application Gateway 2246-64 Power Supply for North America	NTTQ4101/A0548449
Global kit is the same as the North American kit without the power supply	

**Table 52**  
**WLAN Handset component list (Part 2 of 4)**

WLAN Handset 2211 kit North America)	NTTQ50AA/A0548451
WLAN Handset 2211 kit Global (power supply not included)	NTTQ50BA/A0548455
North American kit includes:	
WLAN 2211 Handset	NTTQ5010/A0548452
WLAN Handset 2211 Battery Pack	NTTQ5050/A0548453
WLAN Handset 2211 Desktop Charger	NTTQ5060/A0548454
WLAN 2210/2211 Charger & WLAN Application Gateway 2246-64 Power Supply for North America	NTTQ4101/A0548449
Global kit is the same as the North American kit without the power supply	
WLAN Handset 2211 Gang Charger	NTTQ5070/A0548039
WLAN Handset 2210 Clothing Clip	NTTQ4080/A0548940
WLAN Handset 2211 Clothing Clip	NTTQ5101/A0548941
WLAN Handset Headset with noise cancellation	NTTQ5501/A0548946
WLAN Handset Headset, over ear	A0548947
WLAN Handset Headset quick disconnect cord	NTTQ5521/A0548948
WLAN Handset 2210/2211 User Guide CD ROM	NTLH21AB/A0548993
WLAN Handset 2211 carrying case, black	NTTQ/5111/A0548942
WLAN Handset 2211 carrying case, (key cover) black	NTTQ5131/A0548944
WLAN Handset 2211 carrying case, yellow	NTTQ5121/A0548943
WLAN Handset 2211 carrying case, (key cover) yellow	NTTQ5141/A0548945
Nortel WLAN IP Telephony Manager 2245, a minimum of one Telephony Manager is required per system order	NTTQ60AA/A048950

**Table 52**  
**WLAN Handset component list (Part 3 of 4)**

WLAN Application Gateway 2246	
64 users	NTTQ65AB/N0023211
128 users	NTTQ65BA/A0548971
256 users	NTTQ65CA/A0548972
512 users	NTTQ65DA/A0548973
1,024 users	NTTQ65EA/A0548974
10,000+ users	NTTQ65FA/A0548975
<p>The following items must be ordered with the applicable power supply:</p> <ul style="list-style-type: none"> <li>WLAN Handset 2210 Desktop Charger</li> <li>WLAN Handset 2211 Desktop Charger</li> <li>WLAN Handset 2211 Gang Charger</li> <li>WLAN IP Telephony Manager 2245</li> <li>WLAN Application Gateway 2246 - 64 users</li> <li>WLAN Application Gateway 2246 - 128 users</li> <li>WLAN Application Gateway 2246 - 256 users</li> <li>WLAN Application Gateway 2246 - 512 users</li> <li>WLAN Application Gateway 2246 - 1024 users</li> <li>WLAN Application Gateway 2246 - 10,000 users</li> </ul>	

**Table 52**  
**WLAN Handset component list (Part 4 of 4)**

Power supplies —	
WLAN Handset 2211 Gang Charger:	
• North America	NTTQ4301/A0548951
• Europe	NTTQ4311/A0548952
• UK-HK	NTTQ4321/A0548953
• Switzerland	NTTQ4331/A0548954
• Australia-New Zealand	NTTQ4341/A0548955
• Mexico	NTTQ4351
WLAN Handset 2210/2211 Charger & WLAN Application Gateway 2246-64:	
• North America	NTTQ4101/A0548499
• Europe	NTTQ4111/A0548956
• UK-HK	NTTQ4121/A0548958
• Switzerland	NTTQ4131/A0548959
• Australia-New Zealand	NTTQ4141/A0548960
• Mexico	NTTQ4151
WLAN IP Telephony Manager 2245 & WLAN Application Gateway 2246 (128+ users):	
• North America	NTTQ4201/A0548961
• Europe	NTTQ4211/A0548962
• UK-HK	NTTQ4221/A0548964
• Switzerland	NTTQ4231/A0548966
• Australia-New Zealand	NTTQ4241/A0548967
• Mexico	NTTQ4251

## Connectivity and power requirements

Each Nortel IP Phone requires:

- a dedicated 10BaseT or 100BaseT or 10/100BaseT Ethernet interface
- a small desktop hub or switch if sharing an existing desktop Ethernet connection with a PC.
- a local power supply appropriate for the voltage in the area or a Power over LAN unit. (The Nortel IP Phone 2002 comes with a built-in 3-port switch and is ready for LAN powering.)

## Installation and configuration procedures

This chapter contains the following procedures:

- Procedure 90: "Configuring VoIP bandwidth management zones using the CLI" on [page 408](#)
- Procedure 91: "Configuring virtual superloops" on [page 410](#)
- Procedure 92: "Configuring the IP Phones" on [page 411](#)
- Procedure 93: "Setting passwords for the administrator and temporary IP Telephone Installer" on [page 417](#)
- Procedure 94: "Installing Nortel IP Phone hardware components" on [page 420](#)
- Procedure 95: "Entering IP Telephone boot parameters using manual configuration" on [page 425](#)
- Procedure 96: "Entering Nortel IP Phone boot parameters using full DHCP parameters" on [page 428](#)
- Procedure 97: "Entering boot parameters using partial DHCP parameters" on [page 430](#)
- Procedure 98: "Using Set-Based Installation" on [page 433](#)
- Procedure 99: "Configuring the IP Softphone 2050" on [page 436](#)
- Procedure 100: "Installing the USB Headset Kit" on [page 437](#)
- Procedure 101: "Installing the IP Softphone 2050 on your PC" on [page 437](#)

- Procedure 102: "Displaying registered IP Phones in Element Manager" on [page 439](#)

## Configuring VoIP bandwidth management zones

Follow Procedure 90 to configure the VoIP bandwidth management zones. For more details on bandwidth management zones, see *IP Line: Description, Installation, and Operation* (NN43100-500).

VoIP bandwidth management zones can be configured with Element Manager or using the CLI. For more information about Element Manager, see *Element Manager: System Administration* (NN43001-632).

### Procedure 90 Configuring VoIP bandwidth management zones using the CLI

- 1 Log in to the Call Server.
  - a. Enter the command:  
**LOGI**  
System response:  
**PASS?**
  - b. Enter the default password:  
**0000**
- 2 Access LD 117. Enter the command:  
**LD 117**
- 3 Create a new zone with default parameters. Enter the command:  
**NEW ZONE 0**  
**Note:** LD 117 also includes DIS and ENL commands to disable or enable a zone. When you create a zone, its default state is enabled. See Table 53 on [page 409](#) for the LD 117 zone commands.
- 4 Print zone and bandwidth information. Enter the command:  
**PRT ZONE.**

5 Exit from LD 117. Enter the command:

\*\*\*\*

**Table 53**  
**Bandwidth management zones configuration commands in LD 117**

Command	Description
NEW ZONE xxx p1 p2 p3 p4 p5	Create a new zone, where: xxx = zone number = (0) - 255. p1 = Intrazone available bandwidth = 0 - (10000) - 100000 (Kbps) p2 = Intrazone preferred strategy = (BQ for Best Quality) or BB for Best Bandwidth p3 = Interzone available bandwidth = 0 - (10000) - 100000 (Kbps) p4 = Interzone preferred strategy = BQ for Best Quality or BB for Best Bandwidth p5 = Zone resource type = (shared) or private
NEW ZONE xxx	Create a new zone with default values for the parameters: p1 = 10000 (Kbps) p2 = BQ p3 = 10000 (Kbps) p4 = BQ p5 = shared
CHG ZONE xxx p1 p2 p3 p4 p5	Change parameters of a zone. All parameters must be re-entered, even those that are unchanged.
OUT ZONE xxx	Remove a zone.
DIS ZONE xxx	Disable a zone. When a zone is disabled, no new calls are established inside, from, or toward this zone.
ENL ZONE xxx	Enable a zone.
PRT ZONE xxx	Print zone and bandwidth information.

————— End of Procedure —————

## Configuring virtual superloops

Follow Procedure 91 to configure the virtual superloops. For more details on virtual superloops, see *IP Line: Description, Installation, and Operation* (NN43100-500).

### Procedure 91 Configuring virtual superloops

- 1 Access LD 97. Enter the command:  
**LD 97**
- 2 Enter responses shown in Table 54.

**Table 54**  
**LD 97 – Configure a Virtual Superloop.**

Prompt	Response	Comment
REQ	CHG	Change existing data
TYPE	SUPL	Superloop
SUPL	Vxxx	V stands for a virtual superloop and xxx is the number of the virtual superloop.  xxx = 0-252 in multiples of four for MG 1000E xxx = 96-112 in multiples of four for MG 1000T (See Table 55)

**Table 55**  
**MG 1000T virtual superloop/virtual card mapping**

<b>SUPL</b>	<b>Card</b>	
96	61-64	81-84
100	65-68	85-88
104	69-72	89-92
108	73-76	93-96
112	77-80	97-99

**3** Exit from LD 97. Enter the command:

**\*\*\*\***

————— **End of Procedure** —————

## **Configuring a Nortel IP Phone using LD 11**

Follow Procedure 92 to configure a Nortel IP Phone. The configuration can be completed using either OTM or CLI.

### **Procedure 92** **Configuring the IP Phones**

**1** Access LD 11. Enter the command:

**LD 11**

2 Enter the appropriate responses shown in Table 56.

**Table 56**  
**LD 11 – Configure a Nortel IP Phone (Part 1 of 4)**

Prompt	Response	Description
REQ:	NEW CHG	Add new or change existing data
TYPE:	1110 1120E 1140E 1150E 2001 2002 2004 2007 2033 i2050	For Nortel IP Phone 1110, Nortel IP Phone 1120E, Nortel IP Phone 1140E, Nortel IP Phone 1150E, Nortel IP Phone 2001, Nortel IP Phone 2002, Nortel IP Phone 2004, Nortel IP Phone 2007, Nortel IP Audio Conference Phone 2033, ,Nortel IP Softphone 2050.
TN	l s c u  c u	Terminal Number  Format for CS 1000E, where: l = 0, 4, 8, - 252: superloop number in multiples of 4 s = 0-1: MG 1000E on superloop c = 1-4, 7-10 u = 0-31, (see Table 67 on <a href="#">page 483</a> )  Format for MG 1000T, where: c = 0-4, 7-10, 11-14, 17-24, 27-34, 37- 44, 47-50 u = 0-31
DES	d...d	Office Data Administration System Station Designator
CUST	xx	Customer number as defined in LD 15
ZONE	0-255	Zone number to which this Nortel IP Phone belongs

**Table 56**  
**LD 11 – Configure a Nortel IP Phone (Part 2 of 4)**

Prompt	Response	Description
CLS	ADD	<p>Class of Service</p> <p>ADD - Automatic Digit Display, (default for Nortel IP Phone)</p> <p>For a complete list of responses, refer to <i>Software Input/Output: Administration</i> (NN43001-611).</p>
KEY	xx aaa yyyy (cccc <b>or</b> D) zz..z	<p>Telephone function key assignments</p> <p>The following key assignments determine calling options and features available to a telephone. Note that KEY is prompted until just a carriage return &lt;CR&gt; is entered.</p> <p>xx = key number  aaa = key name or function  yyyy = additional information required for the key  zz..z = additional information required for the key aaa.</p> <p>The cccc or D entry deals specifically with the Calling Line identification feature. Where:</p> <p>cccc = CLID table entry of (0)-N, where N = the value entered at the SIZE prompt in LD 15 minus 1.</p> <p>D = the character "D". When the character "D" is entered, the system searches the DN keys from key 0 and up, to find a DN key with CLID table entry. The CLID associated with the found DN key will then be used.</p> <p><b>Note:</b> The position of the (cccc or D) field varies depending on the key name or function.</p> <p>You may enter a CLID table entry if aaa = ACD, HOT d, HOT L, MCN, MCR, PVN, PVR, SCN or SCR.</p> <p>Type xx NUL to remove a key function or feature.</p> <p>Some data ports require specific key assignments. Refer to the <i>Meridian Data Services</i> NTPs for information regarding these requirements.</p>

**Table 56**  
**LD 11 – Configure a Nortel IP Phone (Part 3 of 4)**

Prompt	Response	Description
		<p>Key number limits that can be assigned are as follows:</p> <ul style="list-style-type: none"> <li>0-7 for Meridian Communications Adapter (MCA)</li> <li>0-5 for M2006</li> <li>0-7 for M2008</li> <li>0-59 for M2616, varies with number of add-on modules</li> <li>0-79 for I2002, varies with value of KEM</li> <li>0-79 for I2004, varies with value of KEM</li> </ul> <p><b>Note:</b> The first Nortel IP Phone KEM is assigned keys 32-55, and the second Nortel IP Phone KEM is assigned keys 56-79.</p> <p>Type xx = NUL to remove a key function or feature for i2002 and i2004.</p> <p>If either the Meridian Programmable Data Adapter (MPDA) or the Display Module is equipped, then key 7 on sets M2008, M2216, and M2616 sets and key 5 on set M2006 will become Program keys which cannot be used as function keys.</p> <p>Any printout of the TN block will not show key 7 because it is a local function key.</p> <p>On the M2616, if CLS = HFA, key 15 on the voice TN defaults to the Handsfree key. No other feature assignment is accepted.</p> <p>Primary and secondary data DNs must be unique.</p> <p>A station SCR, SCN, MCR, or MCN DN must be removed as a member from all Group Hunt lists before the DN can be modified.</p>

**Table 56**  
**LD 11 – Configure a Nortel IP Phone (Part 4 of 4)**

Prompt	Response	Description
		<p>On the M3903, keys 4-15 are blocked. No feature assignment is accepted for keys 2-15.</p> <p>On the M3903, M3904, and M3905, keys 29-31 are reserved. No feature assignment is accepted for keys 29-31 other than NUL.</p> <p>On M3904, no feature assignment is accepted for keys 12-15.</p> <p>On M3905, the technician can assign NUL or a server application on key 5. On key 6, the craftsperson can assign NUL or a local application.</p> <p>On M3905, the technician can assign NUL or the program key on key 7.</p> <p>On M3905, the technician can assign AAG, AMG, ASP,DWC, EMR, MSB, or NRD on keys 8-11. Other features are blocked.</p> <p>For Nortel IP Phones:  xx = Keys 0-5 (and 6-11 using Shift key). These are self-labeled physical keys that can be programmed with any feature.</p> <p><b>Note 1:</b> The Nortel IP Phone 2002 does not have a Shift key. Only keys 0-3 can be programmed.</p> <p><b>Note 2:</b> Keys 16-26 are reserved for dedicated Nortel IP Phone soft keys.</p> <p>Table 57 on <a href="#">page 416</a> lists the dedicated Nortel IP Phone key name values (aaa). Other key name values can be found in <i>Software Input/Output: Administration</i> (NN43001-611).</p>

3 Configure the dedicated soft keys, as shown in Table 57.

**Table 57**  
**Nortel IP Phone dedicated soft key assignment (Part 1 of 2)**

Nortel IP Phone key number	Response(s) Allowed
Key 16	MWK, NUL MWK – Message Waiting key
Key 17	TRN, NUL TRN – Call Transfer key
Key 18	A03 or A06, NUL A03 – 3-party conference key A06 – 6-party conference key
Key 19	CFW, NUL CFW – Call Forward key
Key 20	RGA, NUL RGA – Ring Again key
Key 21	PRK, NUL PRK – Call Park key
Key 22	RNP, NUL RNP – Ringing Number pickup key
Key 23	SCU – Speed Call User SSU – System Speed Call User SCC – Speed Call Controller SSC – System Speed Call Controller NUL
Key 24	PRS, NUL PRS – Privacy Release key

**Table 57**  
**Nortel IP Phone dedicated soft key assignment (Part 2 of 2)**

Nortel IP Phone key number	Response(s) Allowed
Key 25	CHG, NUL CHG – Charge Account key
Key 26	CPN, NUL CPN – Calling Party Number key

- 4 Repeat Steps 2 and 3 for each Nortel IP Phone.

---

**End of Procedure**

---

## Setting administrator and temporary IP Telephone Installer passwords

Nortel IP Phone Installer Passwords is an optional feature that provides protection against unauthorized modification of the TN on the IP Phones. For detailed information about the Nortel IP Phone Installer Passwords, see *IP Line: Description, Installation, and Operation* (NN43100-500).

The Nortel IP Phone Installer Passwords are configured on either a Signaling Server or a Media Card in a node. The passwords then apply to all components in the node.

### **Procedure 93** **Setting passwords for the administrator and temporary IP Telephone Installer**

**Note:** This procedure can also be performed from the CLI of a Signaling Server or Media Card.

- 1 Log in to Element Manager.
- 2 Select **INetwork > Maintenance and Reports** from the navigator.

The **Node Maintenance and Reports** web page opens, as shown in Figure 149 on [page 338](#).

- 3 Click the desired node to expand it.
- 4 Click **GEN CMD** for the chosen Signaling Server or Media Card.  
The **General Commands** web page opens, as shown in Figure 179.

**Figure 179**  
**General Commands**

Managing: [192.167.102.3](#)  
System » IP Network » [Node Maintenance and Reports](#) » General Commands

### General Commands

Element IP : 192.167.102.18 Element Type : MC32S Card

Group <input type="text"/>	Command <input type="text" value="-- Select A Group --"/>	<input type="button" value="RUN"/>
IP address <input type="text" value="192.167.102.3"/>	Number of Pings <input type="text" value="3"/>	<input type="button" value="PING"/>

Click a button to invoke a command.

- 5 Select **NodePwd** from the **Group** drop-down list.
- 6 Select **nodePwdShow** from the **Command** drop-down list.
- 7 Click **RUN**.  
The current node password information displays in the text area at the bottom of the web page.
- 8 Select **nodePwdSet** from the drop-down list.

- 9 Enter the administrator Nortel IP Phone Installer Password in the **Node Password** box (see Figure 180).

**Figure 180**  
**Node Password**

Group	NodePw	Command	nodeTempPwdSet	Node Password	Uses	1	Timeout	10	RUN
-------	--------	---------	----------------	---------------	------	---	---------	----	-----

**Note:** The entered password appears as asterisks. The valid characters are 0-9 \* #. The password can be null or 6 to 14 digits in length.



#### WARNING

If the administrator password is null (zero length), then the Node ID, TN, and Password screens are not displayed on the IP Phones during their registration process. This provides security as it prevents any entry of passwords or TNs on the IP Phones. However, it is impossible to install new IP Phones (unless a temporary password is set).

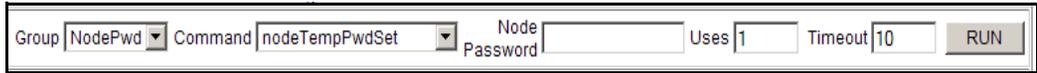
- 10 Select **NodePw** from the **Group** drop-down list.
- 11 Select **nodePwShow** from the **Command** drop-down list.
- 12 Click **RUN**.

The updated administrator Nortel IP Phone Installer Password is displayed in the text area at the bottom of the web page.

- 13 Enter the temporary Nortel IP Phone Installer Password (see Figure 181):
  - a. Enter the password in the **Node Password** text box.
  - b. Select **NodePw** from the **Group** drop-down list.
  - c. Select **nodeTempPwdSet** from the **Command** drop-down list.  
The area then displays the **Uses** and **Timeout** text boxes.
  - d. Enter a value for the number of uses or a value for timeout (in hours) or both.
- 14 Click **SET**.

The temporary password is set.

**Figure 181**  
**Node Temp Password**



Group: NodePwd | Command: nodeTempPwdSet | Node Password: | Uses: 1 | Timeout: 10 | RUN

**Note 1:** The entered password appears as asterisks. The valid characters are 0-9 \* #. The password can be 6 to 14 digits in length.

**Note 2:** The temporary password automatically deletes itself after it has been used the defined number of times or when the duration expires, whichever comes first.

- 15 Select **NodePwd** from the **Group** drop-down list.
- 16 Select the **nodePwdShow** command from the **Command** drop-down list.
- 17 Click **RUN**.

The updated temporary Nortel IP Phone Installer Password is displayed.

---

**End of Procedure**

---

## Installing Nortel IP Phone hardware components

Follow Procedure 94 to install Nortel IP Phone hardware components.

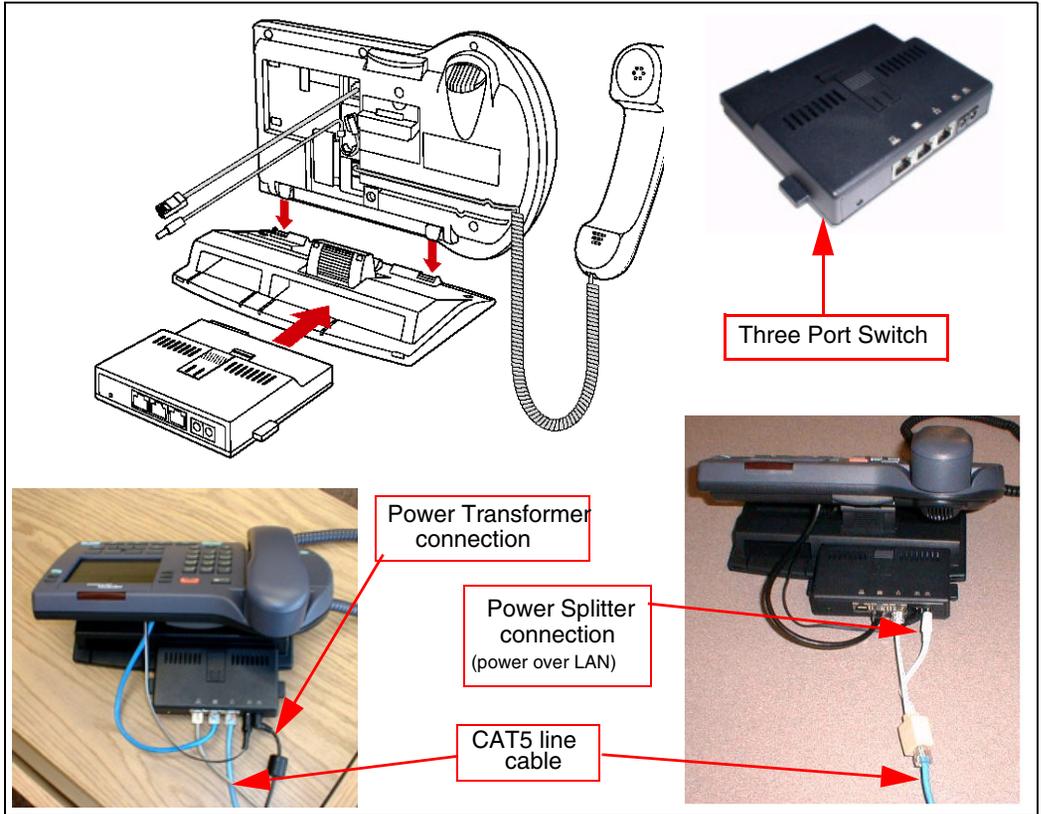
### **Procedure 94** **Installing Nortel IP Phone hardware components**

For details on installing hardware components, see *IP Phones: Description, Installation, and Operation* (NN43001-368).

- 1 Refer to Figure 182 on [page 421](#), when installing the following:
  - a. Footstand
  - b. 3-Port Switch only on the Nortel IP Phone 2004, required if a single Ethernet connection is shared with a PC
  - c. Ethernet cable from the set to the 3-Port Switch
  - d. Power Transformer or Power Splitter for Power over LAN unit
  - e. Handset

f. Handset cord

Figure 182  
Nortel IP Phone 2004 components



- 2 Connect one end of the CAT5 line cable to the Ethernet jack at the back of the telephone. See Figure 182 on [page 421](#).
- 3 Connect the other end into the IP voice network (Ethernet), using an RJ-45 connector. See Figure 183 on [page 423](#).

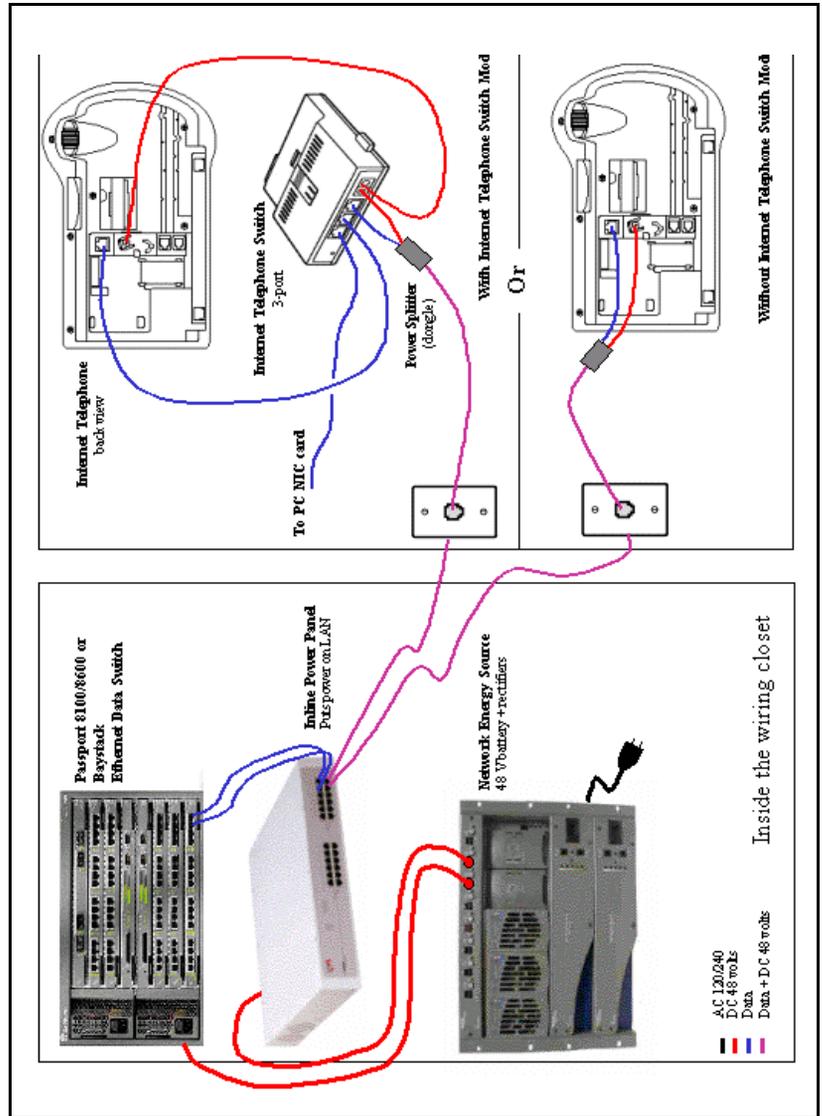


**WARNING**

Do not plug the Nortel IP Phone into an ISDN connection. Severe damage can result. Consult the system administrator to ensure that the telephone is being plugged in to a 10/100BaseT Ethernet jack.

- 4 Power the Nortel IP Phone with one of the following methods:
  - a. Using a 16V AC power adaptor, plug the AC power transformer into the nearest power outlet. Check the Nortel IP Phone User Guide for country-specific parameters.
  - b. Using a Power over LAN unit, connect the Power over LAN unit as shown in Figure 183 on [page 423](#).
- 5 Secure the telephone footstand to the base of the telephone. Use the angle adjustment grip on the top rear of the telephone to adjust the position.

**Figure 183**  
**Nortel IP Phone connections**



End of Procedure

## Configuring the Nortel IP Phone boot parameters

The Nortel IP Phone boot parameters are configured during telephone installation. The following configuration modes are available:

- Manual configuration
  - All of the Nortel IP Phone's boot parameters are statically configured at the Nortel IP Phone.
  - See Procedure 95: "Entering IP Telephone boot parameters using manual configuration" on [page 425](#).
- Partial Dynamic Host Configuration Protocol (DHCP) mode
  - Works with standard DHCP server. The DHCP server automatically provides the Nortel IP Phone with an IP address; the remainder of the Nortel IP Phone's boot parameters are statically configured at the Nortel IP Phone.
  - See Procedure 96: "Entering Nortel IP Phone boot parameters using full DHCP parameters" on [page 428](#).
- Full DHCP mode
  - Requires special configuration of the DHCP server to recognize the Nortel IP Phone. The DHCP server provides all boot parameters to the Nortel IP Phone, including IP address and server address.
  - See Procedure 97: "Entering boot parameters using partial DHCP parameters" on [page 430](#).

For configuration of the DHCP server, see *Converging the Data Network with VoIP* (NN43001-260).

---

## Entering Nortel IP Phone boot parameters using manual configuration

Follow Procedure 95 to enter IP Telephone boot parameters using manual configuration.

### **Procedure 95**

#### **Entering IP Telephone boot parameters using manual configuration**

- 1 Power the Nortel IP Phone.

Within four seconds, the Nortel logo appears.

- 2 When the Nortel logo appears on the display, you have one second to press the four feature keys at the bottom of the display in sequence, from left to right.

**Note:** If the Nortel logo times out, repeat step 1 and step 2.

- 3 For the following prompts:

- a. Press the **BKSpace** (backspace) or **Clear** keys to change an entry.
- b. Enter new values using the telephone's keypad.
- c. Press the **OK** key to accept your selection.

The Nortel IP Phone prompts:

```
DHCP? (0-No, 1-Yes): 0
```

- 4 Enter **0** for manual boot parameter configuration.

The Nortel IP Phone prompts:

```
SET IP: x.x.x.x
```

- 5 Enter the Nortel IP Phone IP address.

The Nortel IP Phone prompts:

```
NETMSK: x.x.x.x
```

- 6 Enter the subnet mask.

The Nortel IP Phone prompts:

```
DEF GW: x.x.x.x
```

- 7** Enter the default gateway.

The Nortel IP Phone prompts:

S1 IP: x.x.x.x

- 8** Enter the Server 1 IP (node IP).

The Nortel IP Phone prompts:

S1 PORT: 4100

- 9** Enter the Server 1 port.

The Nortel IP Phone prompts:

S1 ACTION: 1

- 10** Enter the Server 1 action.

The Nortel IP Phone prompts:

S1 RETRY COUNT: 10

- 11** Enter the Server 1 retry count.

The Nortel IP Phone prompts:

S2 . . .

- 12** Enter same information as for Server 1.

The Nortel IP Phone prompts:

VLAN? (0-No, 1-Ma, 2-Au) 0

- 13** Choose one of the following:

- a.** Enter 0 to configure no VLAN.

The Nortel IP Phone displays:

Locating server...

After several seconds, the Nortel IP Phone prompts:

Connect Svc

Node: x

TN: x.x

Go to step 14 on [page 427](#).

- b.** Enter **1** to configure manual VLAN.

The Nortel IP Phone prompts:

```
VLAN: x
```

Go to step 14 on [page 427](#).

- c.** Press the **OK** key.

The Nortel IP Phone prompts:

```
Invalid TN: x.x
```

```
Reason: Unequipped.
```

```
Go offhook to do SBI
```

- 14** Enter the VLAN ID.

The Nortel IP Phone displays:

```
Locating server...
```

If you did not configure an Nortel IP Phone Installer Password, after several seconds, the Nortel IP Phone prompts:

```
Node: x
```

```
TN: x.x
```

- 15** Enter the node number and the Nortel IP Phone's (virtual) TN, then go to Step 18.

If you configured an Nortel IP Phone Installer Password, the Nortel IP Phone prompts:

```
Node: x
```

```
PassWord: x
```

- 16** Enter the node number and the temporary or administrator Nortel IP Phone Installer Password.

**Note 1:** An asterisk is displayed for each password digit entered; the actual password is not displayed.

**Note 2:** If this screen times out, or if you do not successfully enter the password in three attempts, the Nortel IP Phone continues its registration process as if no entry had been made to this prompt. You can reboot the telephone and try again if more tries are needed.

The Nortel IP Phone prompts:

```
TN: x.x
```

- 17 Enter the Nortel IP Phone's (virtual) TN.  
The Nortel IP Phone displays the logo, the date and time, and the DN keys.
- 18 Check for dial tone and the correct DN above the display.

---

**End of Procedure**

---

## Entering Nortel IP Phone boot parameters using full DHCP parameters

Follow Procedure 96 to enter IP Phone boot parameters using full DHCP parameters.

### **Procedure 96**

#### **Entering Nortel IP Phone boot parameters using full DHCP parameters**

- 1 Power the Nortel IP Phone.  
Within four seconds, the Nortel logo appears.
- 2 When the Nortel logo appears on the display, you have one second to press the four feature keys at the bottom of the display in sequence, from left to right.  
**Note:** If the Nortel logo times out, repeat step 1 and step 2.
- 3 For the following prompts:
  - a. Press the **BKSpace** (backspace) or **Clear** keys to change an entry.
  - b. Enter new values using the telephone's keypad.
  - c. Press the **OK** key to accept your selection.

The Nortel IP Phone prompts:

```
DHCP? (0-No, 1-Yes): 0
```

- 4 Enter **1** to use DHCP.

The Nortel IP Phone prompts:

```
DHCP:0-Full, 1-Partial:0
```

- 5 Enter the **0** to use Full DHCP.

The Nortel IP Phone prompts:

VLAN? (0-No, 1-Ma, 2-Au) 0

**6** Choose one of the following:

- a.** Enter **0** to configure no VLAN.

The Nortel IP Phone displays:

Locating server...

After several seconds, the Nortel IP Phone prompts:

Connect Svc

Node: x

TN: x.x

Go to step 7 on [page 429](#).

- b.** Enter **1** to configure manual VLAN.

The Nortel IP Phone prompts:

VLAN: x

Go to step 7.

- c.** Enter **2** to configure automatic VLAN.

The Nortel IP Phone prompts:

VLAN: x

Go to step 7

**7** Enter the VLAN ID.

The Nortel IP Phone displays:

Locating server...

If you did not configure an Nortel IP Phone Installer Password, after several seconds, the Nortel IP Phone prompts:

Node: x

TN: x.x

- 8** Enter the node number and the Nortel IP Phone's (virtual) TN, and then go to step 11 on [page 430](#).

If you configured an Nortel IP Phone Installer Password, the Nortel IP Phone prompts:

Node: x

PassWord: 0

- 9 Enter the node number and the temporary or administrator Nortel IP Phone Installer Password.

**Note 1:** An asterisk is displayed for each password digit entered; the actual password is not displayed.

**Note 2:** If this screen times out, or if you do not successfully enter the password in three attempts, the Nortel IP Phone continues its registration process as if no entry had been made to this prompt. You can reboot the telephone and try again if more tries are needed.

The Nortel IP Phone prompts:

TN: x . x

- 10 Enter the Nortel IP Phone's (virtual) TN.

The Nortel IP Phone displays the logo, the date and time, and the DN keys.

- 11 Check for dial tone and the correct DN above the display.

---

**End of Procedure**

---

## Entering boot parameters using partial DHCP parameters

Follow Procedure 97 to enter IP Telephone boot parameters using partial DHCP parameters.

### **Procedure 97**

#### **Entering boot parameters using partial DHCP parameters**

- 1 Power up the Nortel IP Phone.

Within four seconds, the Nortel logo appears.

- 2 When the Nortel logo appears on the display, you have one second to press the four feature keys at the bottom of the display in sequence, from left to right.

**Note:** If the Nortel logo times out, repeat step 1 and step 2.

- 3 For the following prompts:
  - a. Press the **BKSpace** (backspace) or **Clear** keys to change an entry.
  - b. Enter new values using the telephone's keypad.

**c.** Press the **OK** key to accept your selection.

The Nortel IP Phone prompts:

DHCP? (0-No, 1-Yes): 0

**4** Enter **1** to use DHCP.

The Nortel IP Phone prompts:

DHCP:0-Full, 1-Partial:0

**5** Enter the **1** to use Partial DHCP.

The Nortel IP Phone prompts:

S1 IP: x.x.x.x

**6** Enter the Server 1 IP (node IP).

The Nortel IP Phone prompts:

S1 PORT: 4100

**7** Enter the Server 1 port.

The Nortel IP Phone prompts:

S1 ACTION: 1

**8** Enter the Server 1 action.

The Nortel IP Phone prompts:

S1 RETRY COUNT: 10

**9** Enter the Server 1 retry count.

The Nortel IP Phone prompts:

S2 . . .

**10** Enter same information as for Server 1.

The Nortel IP Phone prompts:

VLAN? (0-No, 1-Ma, 2-Au) 0

**11** Choose one of the following:

- a.** Enter **0** to configure no VLAN.

The Nortel IP Phone displays:

```
Locating server...
```

After several seconds, the Nortel IP Phone prompts:

```
Connect Svc  
Node: x  
TN: x.x
```

Go to step 12.

- b.** Enter **1** to configure manual VLAN.

The Nortel IP Phone prompts:

```
VLAN: x
```

Go to step 12 on [page 432](#).

- c.** Enter **2** to configure automatic VLAN.

The Nortel IP Phone prompts:

```
VLAN: x
```

Go to step 12.

**12** Enter the VLAN ID.

The Nortel IP Phone displays:

```
Locating server...
```

If you did not configure an Nortel IP Phone Installer Password, after several seconds, the Nortel IP Phone prompts:

```
Node: x  
TN: x.x
```

**13** Enter the node number and the Nortel IP Phone's (virtual) TN then go to step 16.

If you configured a Nortel IP Phone Installer Password, the Nortel IP Phone prompts:

```
Node: x  
PassWord: 0
```

- 14** Enter the node number and the temporary or administrator Nortel IP Phone Installer Password.

**Note 1:** An asterisk is displayed for each password digit entered; the actual password is not displayed.

**Note 2:** If this screen times out, or if you do not successfully enter the password in three attempts, the Nortel IP Phone continues its registration process as if no entry had been made to this prompt. You can reboot the telephone and try again if more tries are needed.

The Nortel IP Phone prompts:

TN: x . x

- 15** Enter the Nortel IP Phone's (virtual) TN.

The Nortel IP Phone displays the logo, the date and time, and the DN keys.

- 16** Check for dial tone and the correct DN above the display.

---

**End of Procedure**

---

## Using Set-Based Installation

Set-Based Installation enables the delegation of telephone installation to trusted users. To have a trusted user perform this function, configure a temporary Nortel IP Phone Installer Password for the system. See “Setting administrator and temporary IP Telephone Installer passwords” on [page 417](#).

**Note:** This feature can be an alternative to LD 11 or TM to configure IP Phones on the Call Server.

Follow Procedure 98 to use Set-Based Installation.

### **Procedure 98 Using Set-Based Installation**

This procedure is the same as Procedure 95 on [page 425](#), Procedure 96 on [page 428](#), and Procedure 97 on [page 430](#), except when the system response, displayed on the Nortel IP Phone, is as follows:

If you did not configure an Nortel IP Phone Installer Password, the Nortel IP Phone prompts:

Node: x  
TN: x.x

- 1 Enter the node number and the Nortel IP Phone's (virtual) TN, then go to Step 4.

If you configured a Nortel IP Phone Installer Password, the Nortel IP Phone prompts:

Node: x  
PassWord: 0

- 2 Enter the node number and the temporary or administrator Nortel IP Phone Installer Password.

**Note 1:** An asterisk is displayed for each password digit entered; the actual password is not displayed.

**Note 2:** If this screen times-out, or if you do not successfully enter the password in 3 attempts, the Nortel IP Phone continues its registration process as if no entry had been made to this prompt. You can reboot the telephone and try again if more tries are needed.

The Nortel IP Phone prompts:

TN: x.x

- 3 Enter the Nortel IP Phone's (virtual) TN.
- 4 Press the **OK** key.

The Nortel IP Phone responds Unequipped...

- 5 Lift the handset. The system accepts the TN.
- 6 Listen for the continuous dial tone.

The system response, displayed on the Nortel IP Phone, is as follows:

Model ? (20)

- 7 Press the # key to select the default model, or enter the model number and press #.
- 8 Listen for a special tone.

The system response, displayed on the Nortel IP Phone, is as follows:

OK, ZONE? (0)

- 9 Press the # key to select the default zone, or enter the zone number and press #.

The system response, displayed on the Nortel IP Phone, is as follows:

OK, EXTENSION? 2244

**10** Press the # key to select the default DN, or enter a DN and press #.

**11** Listen for a relocation tone.

The system response, displayed on the Nortel IP Phone, is as follows:

OK

**12** Replace the handset.

The set displays the logo, the date and time, and the DN keys. The set based installation is complete.

---

**End of Procedure**

---

## Installing the IP Softphone 2050

This chapter contains the following procedures:

- Procedure 99: "Configuring the IP Softphone 2050" on [page 436](#)
- Procedure 100: "Installing the USB Headset Kit" on [page 437](#)
- Procedure 101: "Installing the IP Softphone 2050 on your PC" on [page 437](#)
- "Running the IP Softphone 2050 for the first time" on [page 438](#)

**Procedure 99**  
**Configuring the IP Softphone 2050**

- 1 Access LD 11. Enter the command:  
     **LD 11**
- 2 Enter appropriate responses shown in Table 58.

**Table 58**  
**LD 11 – Configure the IP Softphone 2050**

Prompt	Response	Description
REQ:	NEW CHG	Add new data Change existing data
TYPE:	I2050pc	Type of data block
TN	l s c u	Terminal number
DES	x...x	ODAS telephone designator
CUST	xx	Customer number, as defined in LD 15
...		
ZONE	0-255	Zone number
FDN	x...x	Flexible CFNA DN
...		
CLS	aaa	Class of service
		HFA - Digital Telephone Handsfree Allowed is default for IP Softphone 2050 to enable the USB interface

————— End of Procedure —————

## Installing and configuring on the PC

### Installing the USB Headset Kit

Installing the USB Headset Kit application after the IP Softphone 2050 software application enables the IP Softphone 2050 application to show it as an audio device option during the installation. If the USB Headset Kit is

installed, you can still choose it as the audio device from the Configuration Utility.

**Procedure 100**  
**Installing the USB Headset Kit**

- 1 Connect the coiled lower cord to the headset cord with the Quick Disconnect connector. Ensure the Quick Disconnect is securely fastened.
- 2 Connect the headset cord to the RJ9 jack on the adaptor.
- 3 Connect the USB cable to the headset adaptor and to one of the USB jacks at the back of your PC or USB hub.

---

**End of Procedure**

---

The first time the headset adapter is plugged in, there is a delay while Windows ® configures the device and locates appropriate driver software. During the installation you can be prompted to supply the original Windows CD-ROM so that Windows can locate the required drivers.

## Installing the IP Softphone 2050 application

**Procedure 101**  
**Installing the IP Softphone 2050 on your PC**

- 1 Insert the CD-ROM disk into the CD-ROM drive of your PC.  
**Note:** Installation should proceed automatically. If it does not, then continue with step 1. Otherwise go directly to step 5.
- 2 On the PC desktop, double-click the **My Computer** icon.
- 3 Double-click the **CD** icon.
- 4 Double-click the **Setup** icon.
- 5 Follow the prompts that appear on the screen.
- 6 Run the IP Softphone 2050 Configuration Utility to assign a server address, select sound devices, and select a server type.

---

**End of Procedure**

---

## Running the IP Softphone 2050 for the first time

Installation places the IP Softphone 2050 in the Windows Start menu at **Start > Programs > Nortel > IP Softphone 2050**. The Configuration Utility is placed in the Windows Control Panel.

The IP Softphone 2050 application is started by one of the following:

- Select **Start > Programs > Nortel > IP Softphone 2050**.
- Click the desktop shortcut (if one was created during the installation).
- Automatic start-up sequence.

*Note:* If you want the IP Softphone 2050 to start automatically when the PC boots, place a shortcut to the application in the Start-up folder.

When an IP Softphone 2050 starts for the first time and connects to the network, it executes a start-up sequence. The elements of the start-up sequence are as follows:

- Get the IP parameters.
- Find a gateway server, and authenticate the user.

As the IP Softphone 2050 registers with the system, the following occurs:

- If a non-null node password is enabled, it prompts for a node number and password. Enter the node number and password using the keyboard or numeric keypad. After the password is verified, enter the TN of the IP Softphone 2050. See *IP Line: Description, Installation, and Operation* (NN43100-500) for more on the password feature.
- If the null node password is configured and enabled, these screens are skipped and no option is provided to change the password.
- If the node password is disabled or not configured, it prompts for a node number and TN. Enter the node number and TN using the keyboard or numeric keypad.

The IP Softphone 2050 configuration is complete.

## Verifying Nortel IP Phone functionality

You can now use the IP Phones. To test the telephones, make Nortel IP Phone-to-Nortel IP Phone calls.

## Displaying registered IP Phones

Follow Procedure 102 to display the IP Phones registered on a Signaling Server or Voice Gateway Media Card.

### **Procedure 102**

#### **Displaying registered IP Phones in Element Manager**

- 1 Log in to Element Manager.
- 2 Select **System > IP Network > Maintenance and Reports** from the navigator.
- 3 Click the desired node to expand it.
- 4 Click **GEN CMD** for the desired Signaling Server or Media Card.
  - a. Select **Iset** from the Group Drop Down List box.
  - b. If prompted, select the range of sets to display.
  - c. Click **RUN**.

The status of all IP Phones registered on this Signaling Server or Media Card is displayed.

---

**End of Procedure**

---

## Upgrading firmware

Refer to the *IP Line: Description, Installation, and Operation* (NN43100-500), to check for the latest Nortel IP Phone firmware version and how to upgrade to the latest Nortel IP Phone firmware.



---

# Installing and cross-connecting a Power Fail Transfer Unit

---

## Contents

This section contains information on the following topics:

Introduction . . . . .	441
Installing and connecting a QUA6 PFTU . . . . .	442
Installing and connecting a third-party PFTU . . . . .	447
Connecting an analog (500/2500-type) telephone to a PFTU . . . . .	448
Connecting a trunk to a PFTU . . . . .	452

## Introduction

Power fail transfer occurs when the main power to the CS 1000E system is cut off. When a power interruption occurs, the Power Fail Transfer Unit (PFTU) connects predetermined analog (500/2500-type) telephones directly to the Central Office trunks. A PFTU is capable of supporting a maximum of five or eight telephones (depending on the PFTU type).

A PFTU can be connected to the AUX connector on a Media Gateway.

### **IMPORTANT!**

A PFTU does not support Digital trunks. Use Analog trunks if power failure backup is required.

The following procedures are provided in this chapter:

- 1 Procedure 103: "Installing and connecting a QUA6 PFTU" on [page 442](#)
- 2 Procedure 104: "Connecting an analog (500/2500-type) telephone to a PFTU" on [page 450](#)
- 3 Procedure 105: "Connecting a Trunk to a PFTU" on [page 452](#)

## Installing and connecting a QUA6 PFTU

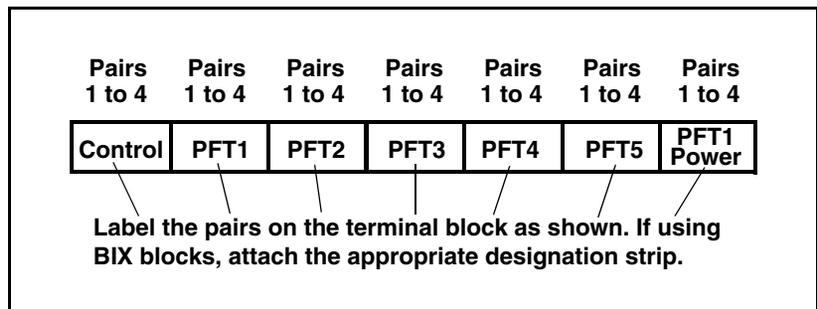
Follow Procedure 103 to install and connect a QUA6 PFTU. Refer to the equipment layout plan for the location of the PFTU.

*Note:* The QUA6 PFTU operates with loop-start and ground-start Central Office trunks. With ground start trunks, the associated telephone set must have a ground start button.

### Procedure 103 Installing and connecting a QUA6 PFTU

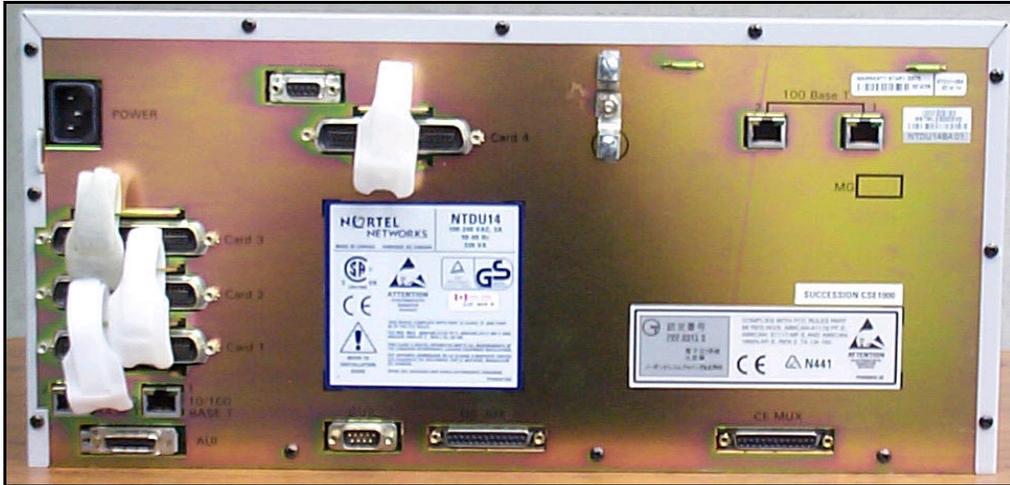
- 1 Install the PFTU on the wall near the system cross-connect terminal.  
Fasten the PFTU in position with four screws.
- 2 Install an NE-A25B-type 25-pair cable from connector J1 on the faceplate of the PFTU to its assigned location at the cross-connect terminal.
- 3 Label the pairs of the J1 cable on the cross-connect terminal block as shown in Figure 184 on [page 442](#).

**Figure 184**  
**J1 cable labels**





**Figure 186**  
**AUX cable connector on Media Gateway**



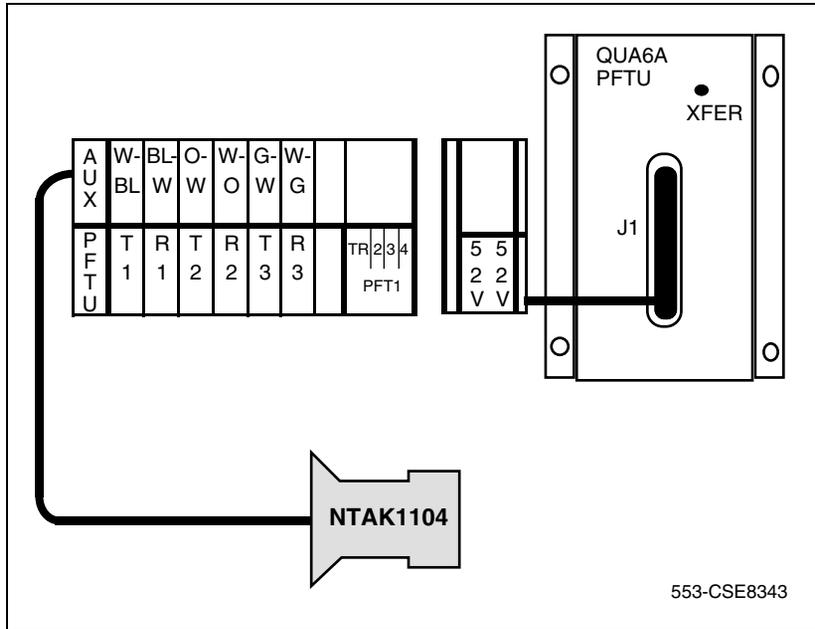
**Table 59**  
**Control and power connections on cable J1 (Part 1 of 2)**

J1 Cable from QUA6				
Function	Pair Number	Pair Color	Connects to	Cross-connects to
Control	1T	W-BL	(ALM)	Not used
	1R	BL-W	BRTN	W-BL 1-dot connection on AUX cable
	2T	W-O	PFTS	W-O 1-dot connection on AUX cable. Transfer begins by applying ground to this lead.
	2R	O-W	BRTN	BL-W 1-dot connection on AUX cable.

**Table 59**  
**Control and power connections on cable J1 (Part 2 of 2)**

<b>J1 Cable from QUA6</b>				
<b>Function</b>	<b>Pair Number</b>	<b>Pair Color</b>	<b>Connects to</b>	<b>Cross-connects to</b>
	3T	W-G	(TC)	Console transfer switch. See console connections. Transfer begins by applying ground to this lead.
	3R	G-W		Not used
	4T	W-BR		Not used
	4R	BR-W		Not used
PFTU power	25T 25R	S-V V-S	-48 V -48 V	O-W 1-dot connection on AUX cable. Maximum 250 mA draw on O-W lead.

**Figure 187**  
**Power fail transfer**



End of Procedure

## Installing and connecting a third-party PFTU

Follow the equipment manufacturer's instructions for installing the PFTU. Use the information in Table 60 to connect a third-party PFTU.

**Table 60**  
**PFTU control lead signals**

NTAK1104 AUX cable lead	Lead State	
	When PFTU is in non-transferred state	When PFTU is in transferred state
BRTN	GROUND	GROUND
BRTN	GROUND	GROUND
-48V AUX	-48V DC (250 mA max.)	-48V DC (250 mA max.)
PFTS	OPEN	GROUND

**Note 1:** Refer to Figure 186 on [page 444](#) to see where the Auxiliary cable connects to the CS 1000E system.

**Note 2:** If power is removed from the QUA6, a transfer of the PFTU can occur.

## Connecting an analog (500/2500-type) telephone to a PFTU

Ensure that the cable from the appropriate Line card slot has been connected to the telephone. Refer to “Installing the Main Distribution Frame” on [page 351](#).

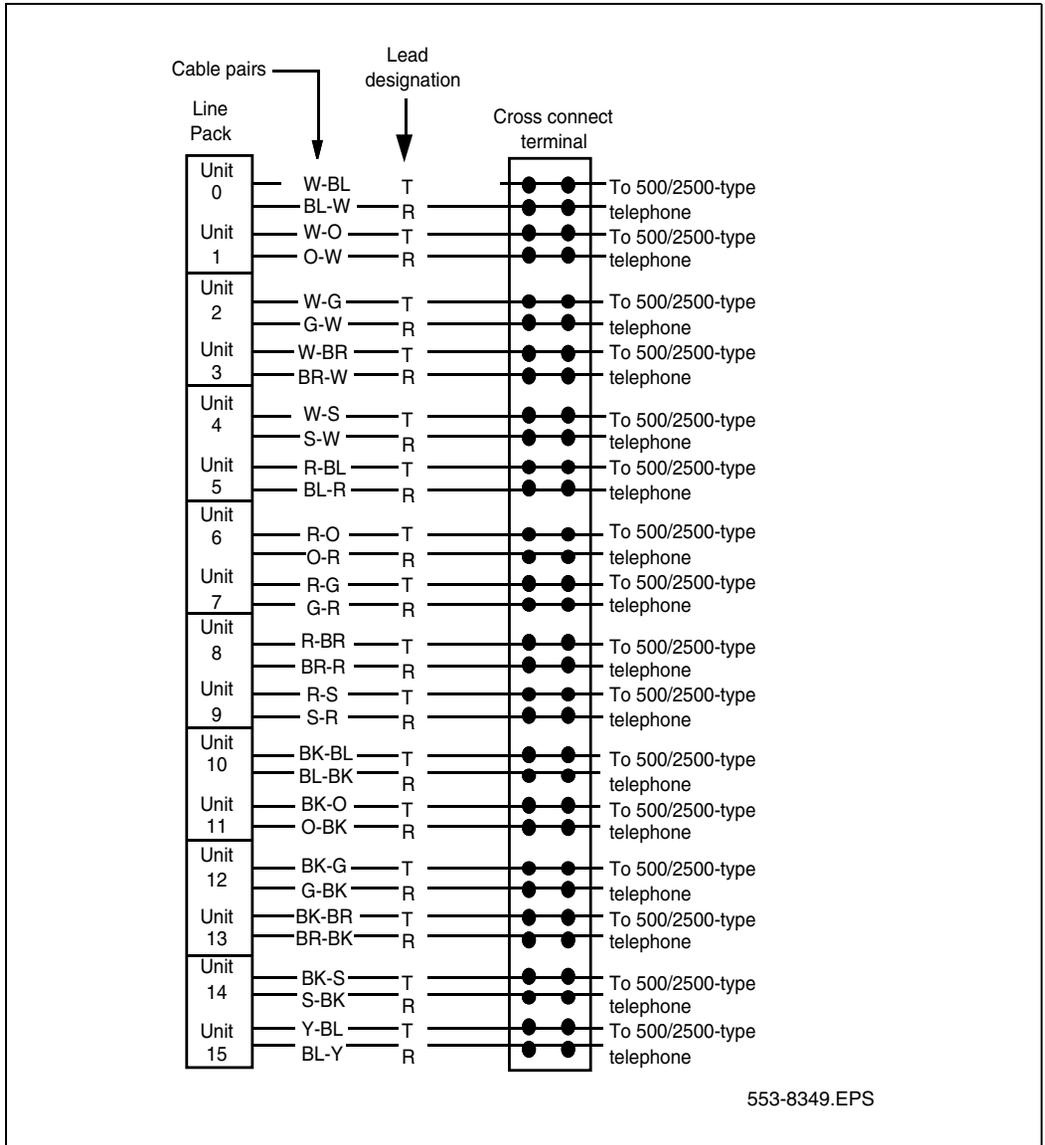
Follow Procedure 104 to connect an analog telephone to a PFTU. Refer to the equipment layout plan to determine where to locate the PFTU.



### **DANGER**

Always use caution when installing or modifying telephone lines. Do not install telephone wiring during a lightning storm. Do not install telephone jacks in wet locations unless the jacks are designed for wet locations. Never touch un-insulated telephone wiring unless the line is disconnected at the network interface.

**Figure 188**  
**Analog Line card cable distribution**



**Procedure 104****Connecting an analog (500/2500-type) telephone to a PFTU**

- 1 Locate the telephone terminations on the cross-connect terminal.
- 2 Connect one end of the cross-connect wire to the leads of the telephone.
- 3 Locate the PFTU connections (unit PFTU 1 through PFTU 5) assigned to this telephone at the cross-connect terminal. See Table 61 on [page 450](#).
- 4 Connect the other end of the cross-connect wire to the pair assigned to the telephone on the PFTU.
- 5 Connect a second cross-connect wire to the pair assigned to the Line card on the PFTU.
- 6 Locate the Line card terminations on the cross-connect terminal.
- 7 Connect the other end of the cross-connect wire to the assigned TN terminal block.

**Table 61****Power Fail Transfer Unit connections (Part 1 of 3)**

<b>QUA6 J1 Cable</b>			
<b>Function</b>	<b>Pair</b>	<b>Color</b>	<b>Connects to:</b>
PFT 1	5T 5R	W-S S-W	Telephone
	6T 6R	R-BL BL-R	Telephone Line card
	7T 7R	R-O O-R	Central Office Trunk
	8T 8R	R-G G-R	Trunk Line card

**Table 61**  
**Power Fail Transfer Unit connections (Part 2 of 3)**

<b>QUA6 J1 Cable</b>			
<b>Function</b>	<b>Pair</b>	<b>Color</b>	<b>Connects to:</b>
PFT 2	9T 9R	R-BR BR-R	Telephone
	10T 10R	R-S S-R	Telephone Line card
	11T 11R	BK-BL BL-BK	Central Office Trunk
	12T 12R	BK-O O-BK	Trunk Line card
PFT 3	13T 13R	BK-G G-BK	Telephone
	14T 14R	BK-BR BR-BK	Telephone Line card
	15T 15R	BK-S S-BK	Central Office Trunk
	16T 16R	Y-BL BL-Y	Trunk Line card
PFT 4	17T 17R	Y-O O-Y	Telephone
	18T 18R	Y-G G-Y	Telephone Line card
	19T 19R	Y-BR BR-Y	Central Office Trunk
	20T 20R	Y-S S-Y	Trunk Line card

**Table 61**  
**Power Fail Transfer Unit connections (Part 3 of 3)**

QUA6 J1 Cable			
Function	Pair	Color	Connects to:
PFT 5	21T 21R	V-BL BL-V	Telephone
	22T 22R	V-O O-V	Telephone Line card
	23T 23R	V-G G-V	Central Office Trunk
	24T 24R	V-BR BR-V	Trunk Line card

————— End of Procedure —————

## Connecting a trunk to a PFTU

Follow Procedure 105 to connect a Trunk to a PFTU.

### Procedure 105 Connecting a Trunk to a PFTU

- 1 Locate the PFTU terminal blocks at the cross-connect terminal.
- 2 Cross-connect the first pair of the assigned PFTU to the telephone.  
 See Table 62 on [page 453](#) for PFTU connections.
- 3 Cross-connect the second pair of the PFTU to the TN assigned to the telephone.
- 4 Cross-connect the third pair of the PFTU to the Central Office trunk.
- 5 Cross-connect the third pair of the PFTU to the TN assigned to the trunk.

6 Repeat for each trunk assigned to the PFTU.

**Table 62**  
**Power Fail Transfer Unit connections (Part 1 of 2)**

<b>QUA6 J1 cable</b>				
<b>Function</b>	<b>Pair</b>	<b>Color</b>	<b>Connects to:</b>	<b>Connects to:</b>
P F T  1	5T 5R	W-S S-W	Telephone	—
	6T 6R	R-BL BL-R	Telephone Line card	TN assigned to the telephone
	7T 7R	R-O O-R	Central office trunk	—
	8T 8R	R-G G-R	Trunk Line card	TN assigned to the Trunk
P F T  2	9T 9R	R-BR BR-R	Telephone	—
	10T 10R	R-S S-R	Telephone Line card	TN assigned to the telephone
	11T 11R	BK-BL BL-BK	Central office trunk	—
	12T 12R	BK-O O-BK	Trunk Line card	TN assigned to the Trunk
P F T  3	13T 13R	BK-G G-BK	Telephone	—
	14T 14R	BK-BR BR-BK	Telephone Line card	TN assigned to the telephone
	15T 15R	BK-S S-BK	Central office trunk	—
	16T 16R	Y-BL BL-Y	Trunk Line card	TN assigned to the Trunk

**Table 62**  
**Power Fail Transfer Unit connections (Part 2 of 2)**

QUA6 J1 cable				
Function	Pair	Color	Connects to:	Connects to:
P F T  4	17T 17R	Y-O O-Y	Telephone	—
	18T 18R	Y-G G-Y	Telephone Line card	TN assigned to the telephone
	19T 19R	Y-BR BR-Y	Central office trunk	—
	20T 20R	Y-S S-Y	Trunk Line card	TN assigned to the Trunk
P F T  5	21T 21R	V-BL BL-V	Telephone	—
	22T 22R	V-O O-V	Telephone Line card	TN assigned to the telephone
	23T 23R	V-G G-V	Central office trunk	—
	24T 24R	V-BR BR-V	Trunk Line card	TN assigned to the Trunk

————— **End of Procedure** —————

---

# Installing and cross-connecting an external alarm from a PFTU

---

## Contents

This section contains information on the following topics:

<a href="#">Introduction</a> . . . . .	455
<a href="#">Installing an alarm using an alarm port assigned in LD 15</a> . . . . .	456
<a href="#">Installing an alarm through QUA6 PFTU connections</a> . . . . .	457

## Introduction

This chapter describes the procedures for connecting an external alarm to the CS 1000E system.

This chapter contains the following procedure: Procedure 106: "Installing an alarm using an alarm port assigned in LD 15" on [page 456](#)

The following are the two methods of connecting an external alarm to the CS 1000E system:

- through an alarm port assigned in software
- through contacts in a QUA6 Power Failure Transfer Unit (PFTU)

## Installing an alarm using an alarm port assigned in LD 15

The system can be equipped with an alarm port that is assigned in software. Connect an analog line to an analog (500/250-type) telephone or another similar type of ringing or alerting device.

Follow Procedure 106 to install an alarm using an alarm port assigned in LD 15.

### Procedure 106

#### Installing an alarm using an alarm port assigned in LD 15

- 1    Install an analog (500/2500-type) line as described in “Installing and configuring Nortel IP Phones” on [page 393](#).
- 2    Connect an analog (500/2500-type) telephone, or another similar alerting device used as an alarm, to the line.
- 3    Use LD 15 to assign an alarm port, (see Table 63).

**Note:** If the DN assigned to the alarm is accidentally called, the alarm activates. To avoid false alarms, make sure the DN is not already assigned.

**Table 63**  
**LD 15 – Assign an alarm port.**

Prompt	Response	Comment
REQ	CHG	Change existing data
TYPE	CDB	Customer Data Block
CUST	xx	Customer Number as defined in LD 15
...		
ALDN	x...x	Alarm Directory Number

---

**End of Procedure**

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## Installing an alarm through QUA6 PFTU connections

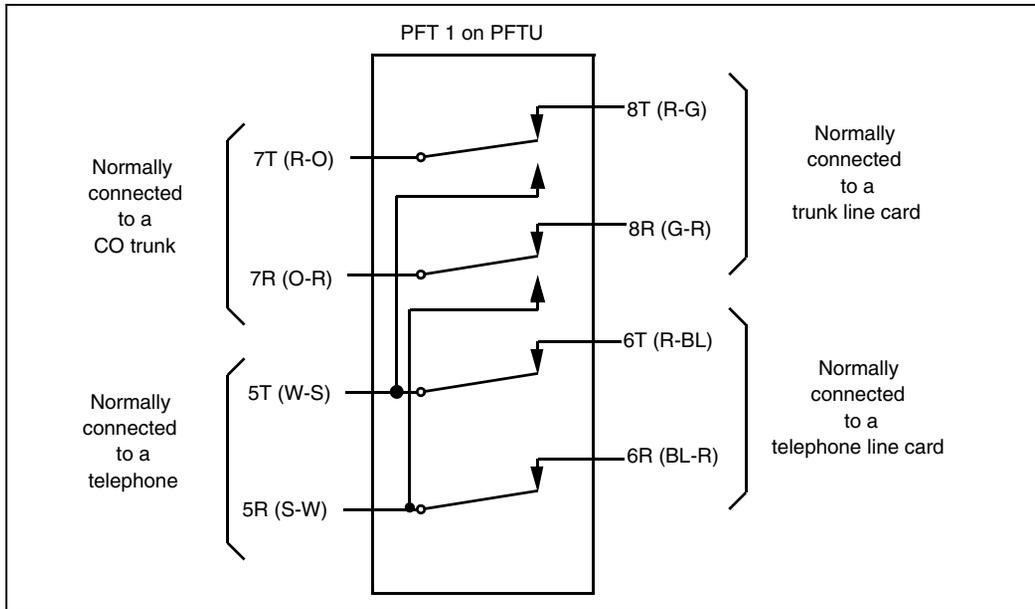
A QUA6 PFTU can be used to connect an external alarm through normally open or normally closed contacts of one of its units. The contacts operate under the same conditions as the PFTU and can support the capacities listed in Table 64.

**Table 64**  
**The AC capacities**

<b>Maximum</b>	<b>AC capacities</b>
Switching power	50.0 V A
Switching voltage	125.0 V rms
Switching current	0.5 A

Figure 189 on [page 458](#) is an example of the contacts on one unit (PFT1) of the PFTU. The figure also shows the contacts in normal operating mode, not in failure mode. Table 65 on [page 458](#) provides the connections for all units on the PFTU.

**Figure 189**  
**Contacts in PFTU**



**Table 65**  
**PFTU connections (Part 1 of 3)**

Unit	Pair	Color	Normal mode	Failure mode
P F T  1	5T 5R	W-S S-W	Makes with 6T and 6R	Opens 6T and 6R Makes with 7T and 7R
	6T 6R	R-BL BL-R	Makes with 5T and 5R	Open
	7T 7R	R-O O-R	Makes with 8T and 8R	Opens 8T and 8R Makes with 5T and 5R
	8T 8R	R-G G-R	Makes with 7T and 7R	Open

**Table 65**  
**PFTU connections (Part 2 of 3)**

Unit	Pair	Color	Normal mode	Failure mode
P F T  2	9T 9R	R-BR BR-R	Makes with 10T and 10R	Opens 10T and 10R Makes with 11T and 11R
	10T 10R	R-S S-R	Makes with 9T and 9R	Open
	11T 11R	BK-BL BL-BK	Makes with 12T and 12R	Opens 12T and 12R Makes with 9T and 9R
	12T 12R	BK-O O-BK	Makes with 11T and 11R	Open
P F T  3	13T 13R	BK-G G-BK	Makes with 14T and 14R	Opens 14T and 14R Makes with 15T and 15R
	14T 14R	BK-BR BR-BK	Makes with 13T and 13R	Open
	15T 15R	BK-S S-BK	Makes with 16T and 16R	Opens 16T and 16R Makes with 13T and 13R
	16T 16R	Y-BL BL-Y	Makes with 15T and 15R	Open
P F T  4	17T 17R	Y-O O-Y	Makes with 18T and 18R	Opens 18T and 18R Makes with 19T and 19R
	18T 18R	Y-G G-Y	Makes with 17T and 17R	Open
	19T 19R	Y-BR BR-Y	Makes with 20T and 20R	Opens 20T and 20R Makes with 17T and 17R
	20T 20R	Y-S S-Y	Makes with 19T and 19R	Open

**Table 65**  
**PFTU connections (Part 3 of 3)**

Unit	Pair	Color	Normal mode	Failure mode
P F T  5	21T 21R	V-BL BL-V	Makes with 22T and 22R	Opens 22T and 22R Makes with 23T and 23R
	22T 22R	V-O O-V	Makes with 21T and 21R	Open
	23T 23R	V-G G-V	Makes with 24T and 24R	Opens 24T and 24R Makes with 21T and 21R
	24T 24R	V-BR BR-V	Makes with 23T and 23R	Open

---

# Configuring MG 1000T survivability and alternate primary controller

---

## Contents

This section contains information on the following topics:

Introduction . . . . .	461
MG 1000T switch over to Survival Mode . . . . .	462
Switchback from Survival Mode . . . . .	464
LOCK and UNLOCK commands . . . . .	465
Database synchronization . . . . .	466
Configuring a survivable MG 1000T Expansion . . . . .	472
Printing Survivable MG 1000T Expansion parameters . . . . .	473
Configuring Alternate primary controller . . . . .	473
Verifying IP telephony node operation in Survival Mode . . . . .	475
Retrieving CDR records from a survivable MG 1000T Expansion . . . . .	476

## Introduction

This chapter provides procedures for configuring an alternate primary controller and survivability on an MG 1000T.

This chapter contains the following procedures:

- Procedure 107: "Configuring a survivable MG 1000T Expansion" on [page 472](#)

- Procedure 108: "Configuring the IP telephony node for Alternate primary controller" on [page 473](#)
- Procedure 109: "Verifying the operation in an MG 1000T expansion in Survivable Mode" on [page 475](#)
- Procedure 110: "Retrieving CDR files using XModem" on [page 476](#)

## MG 1000T switch over to Survival Mode

If survivability is configured on an MG 1000T, the following scenarios can trigger a switchover to Survival Mode:

- Automatic Switchover — triggered when the MG 1000T Expansion loses communication with the primary controller and the Switchover Time Out (SWOTO) timer expires. This can occur if there is a catastrophic failure of the primary controller, or the IP link is lost between the MG 1000T Core and the MG 1000T Expansion.
- Manual Switchover — triggered with the Switchover to Survival (SOTS) command in LD 135.

### Automatic Switchover to Survival Mode

When an MG 1000T, with survivability configured, loses communication with the primary controller, the MG 1000T automatically switches over to Survival Mode when the SWOTO timer expires.

If the IP link is detected as down again before the expiration of the SWOTO timer, the timer stops, and the MG 1000T remains in Survival operating mode.

The state of communication between the primary controller and the MG 1000T Expansion is monitored by a simple polling mechanism called a Heartbeat.

This example illustrates the tasks performed by an MG 1000T Expansion when communication with the MG 1000T Core is lost.

- 1 The MG 1000T Expansion attempts to re-establish the connection to the MG 1000T Core. After four re-connection attempts with a pre-defined delay between each attempt, the SWOTO starts.

- 2 The SWOTO expires after the time defined in LD 117.
- 3 The MG 1000T Expansion re-starts. As the MG 1000T is going through the re-start procedure, it attempts to register with the MG 1000T Core.
- 4 If a connection cannot be made to the core processor, the MG 1000T Expansion comes up in Survival Mode.

## Manual Switchover to Survival Mode

Manual commands are provided to enable a technician to force a switch over to Survival Mode. These commands are available only on the MG 1000T Core. They can be used only if an IP link is established between the MG 1000T Core and an MG 1000T Expansion. To manually switch over to Survival Mode, use the SOTS command in LD 135.



### **CAUTION — Service Interruption**

A manually invoked switch-over causes a restart of the MG 1000T.

After the SOTS command has been successfully executed, the MG 1000T Expansion remains in Survival Mode until the Switchback From Survival (SBFS) command is issued. The SBFS command is issued in LD 135.



### **CAUTION — System Failure**

If the software is upgraded on the MG 1000T Core, it must also be upgraded on the MG 1000T Expansion for Survivability to function.

In Survival Mode, a valid database must be downloaded to the MG 1000T Expansion in order to function. The database is downloaded or “synchronized” each time a datadump is performed. An exact copy of the database on the MG 1000T Core is downloaded to the MG 1000T with every datadump.

## Switchback from Survival Mode

A MG 1000T Expansion can switchback to Normal Mode after communication with the MG 1000T Core is restored. The following scenarios can trigger an MG 1000T in Survival Mode to return to Normal Mode:

- Automatic Switchback (AUTOSB) — enables an MG 1000T to automatically switchback from Survival Mode to Normal Mode as soon as the IP link with the primary controller is restored and the SWOTO timer has expired. A restart is initiated on the MG 1000T Expansion. At the end of the system start, the MG 1000T Expansion is ready to operate in Normal Mode.
- Manual Switchback — enables a technician to force the system into Normal Mode by issuing the SBFS command. This command returns the system to Normal Mode after the SOTS command has been used.

### Automatic Switchback from Survival Mode

When the Automatic Switchback option is configured, a Survivable MG 1000T Expansion automatically switches from Survival Mode to Normal Mode. It returns to Normal Mode as soon as the IP link with the primary controller is restored and the SWOTO timer expires.

A MG 1000T Expansion requires a valid database to be survivable.

The AUTOSB command is available in LD 117:

```
CHG AUTOSB <cab#> <Switchback setting>
```

Where:

cab# = **1-4**, Media Gateway

Switchback setting = **(YES) NO**

When the switchback parameter is set to YES, the MG 1000T Expansion automatically switches from Survival Mode when the SWOTO timer expires. If switchback is set to NO, the MG 1000T remains in Survival Mode until a technician enters the SBFS command.

### **Switchover Timer**

The timer is started on a Survivable MG 1000T as soon as the IP link with the primary controller goes up or down. When the timer expires, the switchover (or switchback) is triggered. The timer is used to avoid instability in the Operating Mode of the MG 1000T Expansion if the IP link with the primary controller is unstable.

The Switchover Timer is also used during the start-up of a Survivable MG 1000T Expansion. The timer enables the MG 1000T Expansion to go into Survival Mode when it cannot connect to the primary controller on system start-up.

When the IP link is restored for an MG 1000T Expansion in Survival Mode with AUTOSB configured, the SWOTO timer is started. If the timer expires, a switchback is initiated to change from Survival Mode to Normal Mode. If the IP link is detected as down again before the expiration of the SWOTO timer, the timer stops, and the MG 1000T remains in Survival operating mode.

### **Manual Switchback from Survival Mode**

After the SOTS command has been successfully executed, the MG 1000T Expansion remains in Survival Mode until the Switchback From Survival (SBFS) command in LD 135 is issued.

## **LOCK and UNLOCK commands**

The LOCK and UNLOCK commands are available from the MG 1000T Core. The LOCK/UNLOCK command can be used in any mode to keep an MG 1000T Expansion in the current mode, regardless of the state of the IP link to the primary controller.

For example, a SOTS command forces the selected MG 1000T Expansion into Survival Mode prior to restarting the MG 1000T Core. A LOCK command can be issued from the MG 1000T Core prior to a restart. This keeps the selected MG 1000T Expansion in Survival Mode until manually returned to Normal Mode. Manually returning to Normal Mode reboots the MG 1000T Expansion.

These commands are applicable to both modes and can be used to keep an MG 1000T in Survival Mode after the Automatic Switchback occurs.

The LOCK/UNLOCK command is issued in LD 135.

**LOCK <cab #>**

Where:

cab# = specified Survivable Media Gateway

**UNLOCK <cab #>**

Where:

cab# = specified Survivable Media Gateway

## Database synchronization

The DWL (Download) command is available in LD 43:

**DWL [<cab#>]**

Where:

<cab#> = a specified Survivable Media Gateway

Programming the <cab#> parameter is optional. If omitted, the database is downloaded to all connected Survivable Media Gateways.

### EDD LCL command (local EDD)

The Invoke Datadump Program (EDD) command introduces the Invoke Datadump Program Local (EDD LCL) command. It performs a local datadump where data is dumped only on the MG 1000T Core. The databases on the Survivable Media Gateways are not updated. This operation is used when the database changes are tested by the technician prior to downloading them to the Survivable Media Gateways.

The sequence of operations for the EDD LCL command is as follows. Prior to an actual dump, the MG 1000T Core performs a security check. If the security check fails, the datadump operation is aborted. If the security check passes, the existing database files on the primary flash drive are renamed with the extension “.bak”. The data is then written to the primary flash drive. When the database files in the primary flash drive are updated, data and patches are written to the internal backup flash drive (z:).

**Note:** LD 43 and LD 143 are not available on an MG 1000T Expansion in Survival Mode.

### **SWP, RES, RIB, and DAT commands for survivability**

To ensure the database synchronization on the MG 1000T Core and the Survivable MG 1000T Expansion(s), the Swap (SWP), Restore (RES) and Restore Backup (RIB) commands are modified to produce the same results on the Survivable MG 1000T Expansion(s), as on the MG 1000T Core.

The optional parameter, [**<cab#>**], enables the technician to select a specific MG 1000T Expansion. If no parameter is provided, the command is first performed on the primary controller. The technician is then prompted with a confirmation request. If <YES>, the command is performed on all Survivable MG 1000T Expansions.

As with the database download operation, preliminary security checks are performed by the primary controller against the Survivable MG 1000T Expansions' security ID and software release. If these security checks fail for any MG 1000T Expansion, synchronization is aborted for that MG 1000T Expansion.

#### ***SWP command***

The SWP command is used to swap the regular and “\*.bak” copies of the database on the primary flash drive. It restores the database to the state prior to the most recent datadump.

Figure 190 on [page 469](#) illustrates the operation of the SWP command. Only one MG 1000T Expansion is shown for illustration purposes.

#### ***RES and RIB commands***

The RES command restores data from the MG 1000T Core's external PC Card drive to its (c:) drive and all Survivable MG 1000T Expansions' (c:) drives.

The RES command is illustrated in Figure 191 on [page 470](#).

The RIB command restores data from the MG 1000T Core's internal backup flash drive to its (c:) drive and from the Survivable MG 1000T Expansions' internal backup flash drive to the (c:) drive.

The RIB command is illustrated in Figure 192 on [page 471](#).

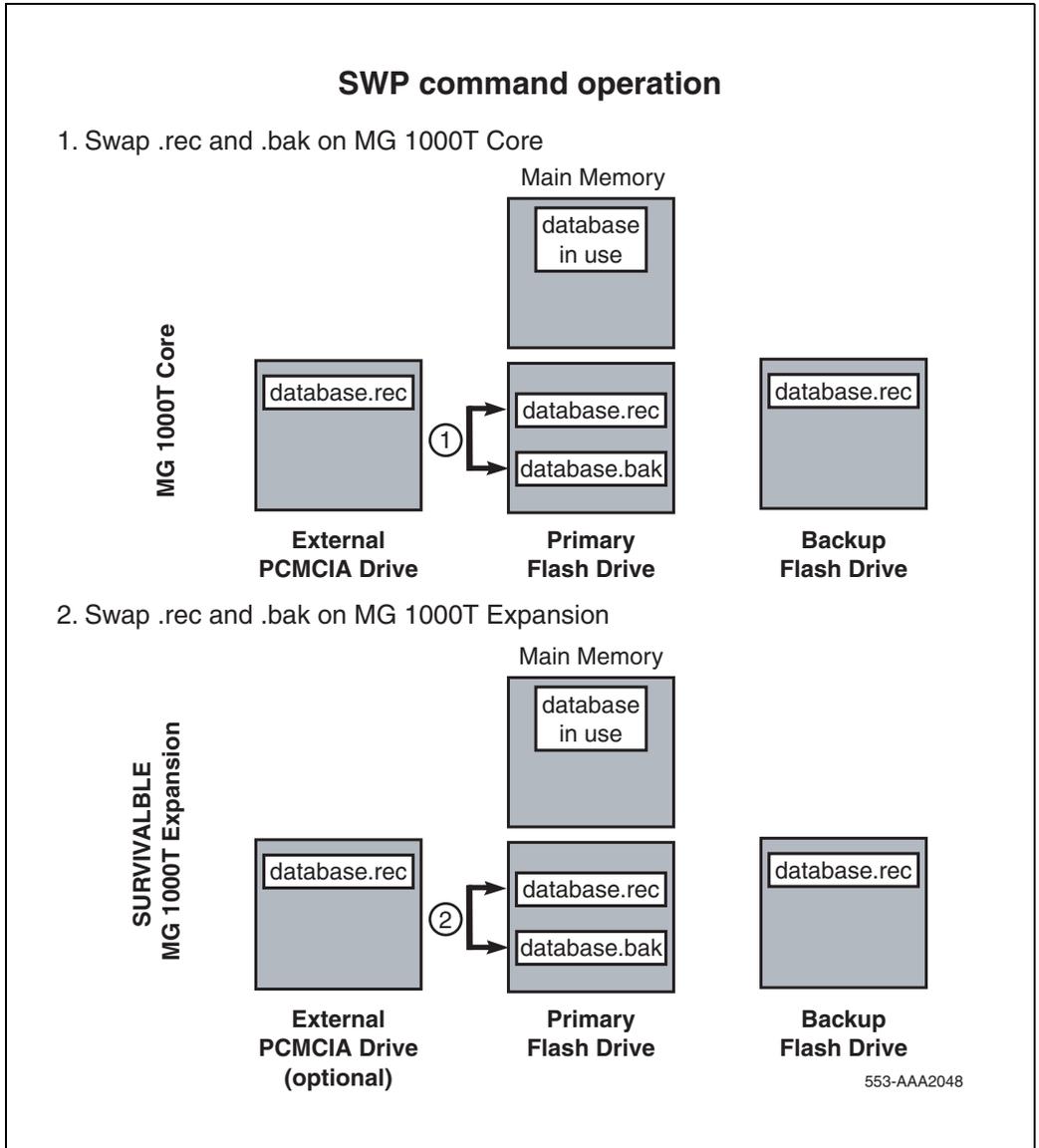
Only one MG 1000T Expansion is shown for illustration purpose; however, the synchronization is performed sequentially on all Survivable MG 1000T Expansions.

### ***DAT command***

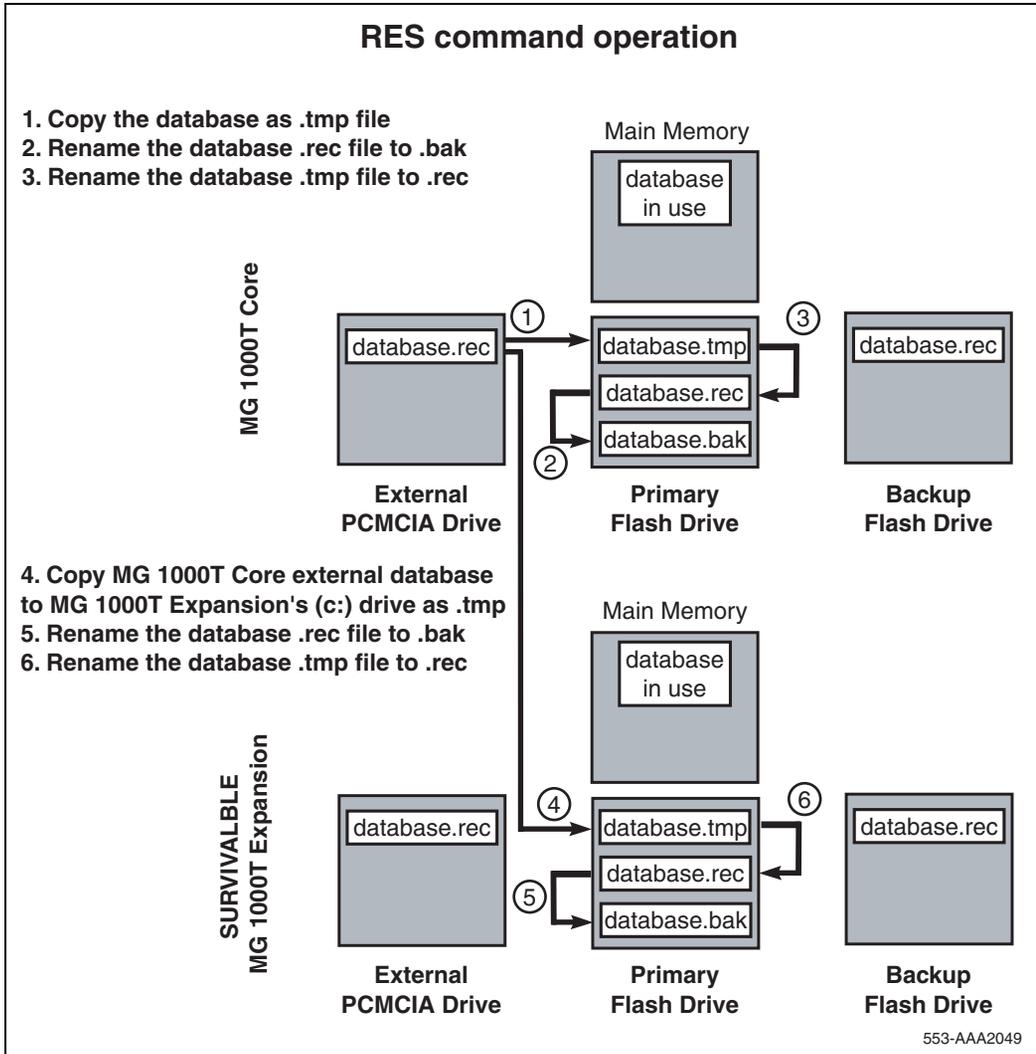
Use the DAT command to print the data issue and creation date of the CS 1000E's primary and backup databases, as well as those of the Survivable Media Gateways. The software release of the Survivable Media Gateways must match that of the CS 1000E.

The DAT command is available in LD 43.

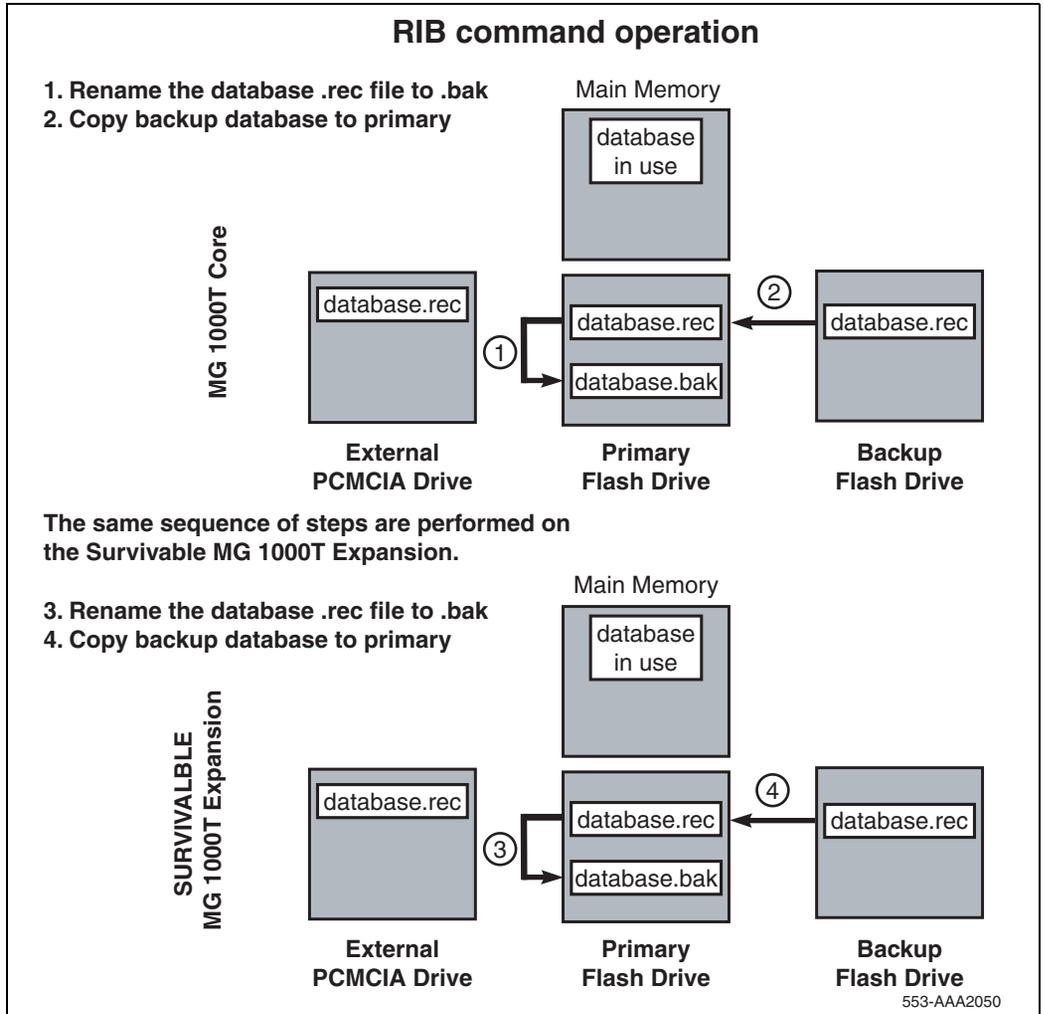
**Figure 190**  
**SWP command operation**



**Figure 191**  
**RES command**



**Figure 192**  
**RIB command**



## Configuring a survivable MG 1000T Expansion

Follow Procedure 107 to configure a survivable MG 1000T Expansion.

### Procedure 107

#### Configuring a survivable MG 1000T Expansion

The default licence parameter for survivability enables one MG 1000T Expansion to be configured as survivable.

- 1 Ensure the link is up between the MG 1000T Core and the MG 1000T Expansion.
- 2 Ensure that the Survivability ISM is set on the system for each MG 1000T Expansion that is to be configured as survivable.
- 3 Configure the Survivability (SURV) capability.

Each MG 1000T Expansion must be separately configured to be survivable.

The **SURV** command is configured in LD 117:

```
CHG SURV <cab#> <Survival setting>
```

- cab# = 1-4, MG 1000T Expansion
- Survival setting = (NO) YES

- 4 Configure the Automatic Switchback parameter.

The Automatic Switchback (AUTOSB) option enables a Survivable MG 1000T Expansion to switchback from Survival Mode to Normal Mode automatically as soon as the IP link with the MG 1000T Core is restored and the SWOTO expires.

The **AUTOSB** command is configured in LD 117:

```
CHG AUTOSB <cab#> <Switchback setting>
```

- cab# = 1-4, MG 1000T Expansion
- Switchback setting = (YES) NO

**5** Configure the SWOTO.

Configure the SWOTO separately for each MG 1000T Expansion.

The **SWOTO** command is configured in LD 117:

```
CHG SWOTO <cab#> <value>
```

- cab# = **1-4**, MG 1000T Expansion
- value = **2 - (120) - 600** seconds

For point-to-point connection (MG 1000T Expansions that are not connected over a LAN), Nortel recommends that you set the timer to a low value to minimize service interruption.

---

**End of Procedure**

---

## Printing Survivable MG 1000T Expansion parameters

The following Print commands, available in LD 117, print the MG 1000T Expansion parameters and Survivability for all, or specified, Survivable MG 1000T Expansion.

```
PRT SURV cab
```

Where:

cab = **1** to **4**, MG 1000T Expansion

```
PRT CAB cab
```

Where:

cab = **1** to **4**, MG 1000T Expansion

## Configuring Alternate primary controller

### Procedure 108

#### Configuring the IP telephony node for Alternate primary controller

- 1 Log in to Element Manager, if you are not already logged in.
- 2 Select **IP Telephony > Nodes: Servers, Media Cards > Configuration** from the navigator.

The **Node Configuration** web page opens, as shown in Figure 133 on [page 320](#).

- 3 Click **Edit** next to the desired node.

The **Edit** web page opens, as shown in Figure 134 on [page 321](#).

- 4 Click **LAN configuration**.

The **LAN** configuration menu expands (see Figure 193 on [page 474](#)).

**Figure 193**  
**LAN configuration**

The screenshot shows the 'Edit' configuration page for a node. At the top, there are 'Save and Transfer' and 'Cancel' buttons. Below these are several expandable sections: '+ Node', '+ SNMP' (with an 'Add' button), '+ VGW and IP phone codec profile', '+ QoS', and '- LAN configuration' (which is expanded). Under the expanded 'LAN configuration' section, there are two sub-sections: 'Management LAN (ELAN) configuration' and 'Voice LAN (TLAN) configuration'. The 'Management LAN (ELAN) configuration' section includes fields for 'Call server IP address' (207.179.153.99), 'Survivable Succession Media Gateway IP address' (207.179.153.102), 'Signaling port' (15000), and 'Broadcast port' (15001). The 'Voice LAN (TLAN) configuration' section includes fields for 'Signaling port' (5000) and 'Voice port' (5200). At the bottom, there is a 'Routes' section with an 'Add' button, and a table with columns for 'IP address' and 'Subnet mask'. The table contains one entry: IP address 207.179.154.0 and Subnet mask 255.255.255.224, with a 'Remove' button next to it. The 'Range: 1024 to 65535' is shown in green text next to the signaling and broadcast port fields.

- 5 Enter the **Survivable Media Gateway IP address**.

The IP address is the ELAN IP address of the survivable MG 1000T SSC that this IP telephony node registers to if it loses the connection to the MG 1000T Core.

- 6 Click **Save and Transfer** at the bottom of the **Edit** web page, then click **OK** to save and transfer the changes.

————— **End of Procedure** —————

## Verifying IP telephony node operation in Survival Mode

Follow Procedure 109 to verify the operation of a Voice Gateway Media Card in an MG 1000T Expansion in Survival Mode.

### Procedure 109

#### Verifying the operation in an MG 1000T expansion in Survivable Mode

- 1 LD 135 and use the **SOTS** command to force the MG 1000T Expansion into Survival Mode.
- 2 Check the IP Phones and TTY:
  - Local Mode is visible on the telephone display.
  - If configured, check to see if the dial tone is apparent.
  - Special text is also displayed on the TTY connected to the MG 1000T Expansion as shown below.

```
TTY 00 SCH MTC BUG CTY      14:10
SURVIVAL MODE
OVL111 IDLE
```

- 3 Return to Normal Mode using the **SBFS** command in LD 135.

The MG 1000T Expansion and Voice Gateway Media Card reboots again.

**Note:** Due to the reboot of the Voice Gateway Media Card after the MG 1000T Expansion has gone into Survival Mode, there is a slight incremental delay before the IP Phones become operational.

---

**End of Procedure**

---

## Retrieving CDR records from a survivable MG 1000T Expansion

The **XCDR** command, file retrieval in LD 143, transfers the CDR file from the survivable MG 1000T Expansion directly to the PC connected to the MG 1000T Core.

Use the following procedure to retrieve the CDR files stored on the survivable MG 1000T Expansion (one file in each MG 1000T Expansion).

### Procedure 110 Retrieving CDR files using XModem

- 1 Connect a PC to the MG 1000T Core either remotely using a modem or directly using an SDI cable and a modem eliminator. Using a terminal-emulation program such as Hyperterminal, establish a TTY session with the MG 1000T through the modem or SDI cable.

- 2 Log in and access LD 143 on the MG 1000T Core.

- 3 Enter the following command: **XCDR**

The system prompts for the MG 1000T Expansion number.

- 4 Enter the MG 1000T Expansion number on which the <dba.cdr> file is stored.

The system prints the following.

```
Getting CDR file for EXP_CAB <num>
Ready to transmit
```

- 5 Select the XModem protocol on the PC to receive the CDR file.

Use the Hyperterminal transfer function to receive the file using XModem protocol. Rename the file to indicate which MG 1000T Expansion the CDR data is from.

**Note:** Use a filename that does not overwrite any DBA-specific files if DBA is used to retrieve CDR/Traffic files from the MG 1000T.

- 6 Parse the CDR file into the MG 1000T's database on the PC. Refer to the OTM NTPs for how to process CDR records for billing applications.

---

**End of Procedure**

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# Basic system telephony configuration

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## Contents

This section contains information on the following topics:

<a href="#">Introduction</a> . . . . .	477
<a href="#">Basic system configuration</a> . . . . .	477
<a href="#">MG 1000T card slot assignment</a> . . . . .	482
<a href="#">TN assignment</a> . . . . .	483

## Introduction

This chapter shows overlay (LD) sequences required to configure the system with basic telephony features. Your Planning and Engineering group provides the details needed to configure basic telephony.

**Note:** The Command Line Interface (CLI) must be used for some configuration (for example, LD 10 and LD 11) before Element Manager can be used to further configure basic telephony.

This chapter contains Procedure 111: "Configuring the basic system" on [page 478](#).

## Basic system configuration

Programming the CS 1000E and MG 1000T systems requires loading different overlay programs and using each one to enter a specific type of information.

See *Software Input/Output: Administration* (NN43001-611) for information about overlays.

## Flow charts

Figure 194 on [page 479](#) shows the programming overlay (LD) sequence for a new system. The Data-entry-sequence flowchart does not show all possible administration overlays.

In some cases, you must move back and forth between overlays to complete the programming. For example, you must program the Customer Data Block (CDB) before you program the attendant console. However, there are console-related prompts in the CDB that cannot be programmed until you have programmed an attendant console. Skip the console-related prompts, complete the CDB programming, then return to the CDB after the console is programmed. Finish the CDB console-related prompts. A similar situation exists with the Speed Call lists and the Telephones. You must activate the Speed Call list(s) before you can assign the list(s) to a telephone.

Figure 195 on [page 480](#), and Figure 196 on [page 481](#) show overlay titles and gate openers for each feature group. A gate opener enables users to program a related group of features without stepping through all prompts of an overlay. NTP references are shown in the flowchart shaded boxes for those features and options beyond the scope of this guide.

### **Procedure 111** **Configuring the basic system**

Use the overlays to configure basic system features offered by the CS 1000E.

- 1 Complete the configuration using the overlays in the order shown in Figure 194 on [page 479](#), Figure 195 on [page 480](#), and Figure 196 on [page 481](#).

**Figure 194**  
**Data-entry-sequence for new systems**

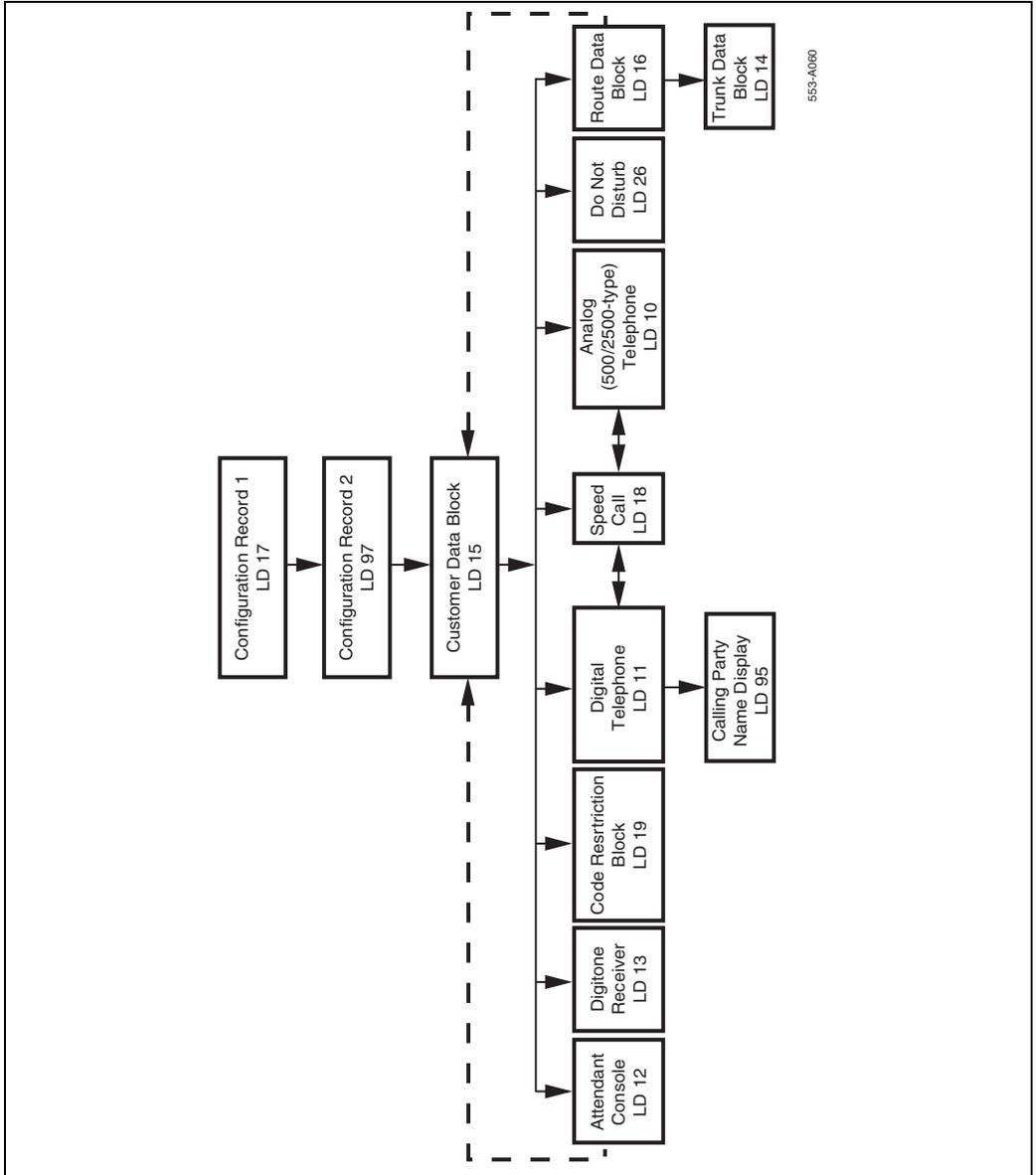
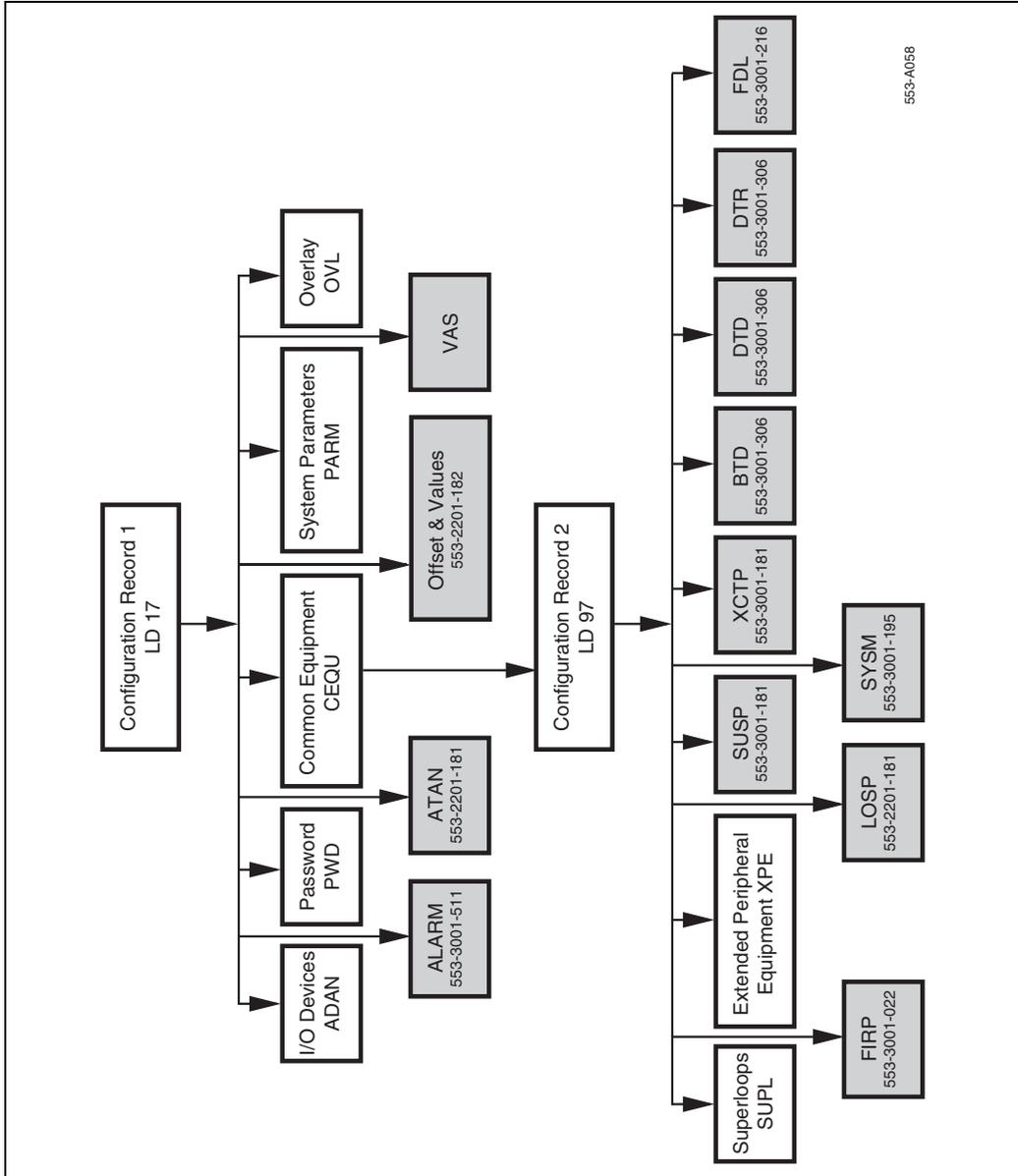
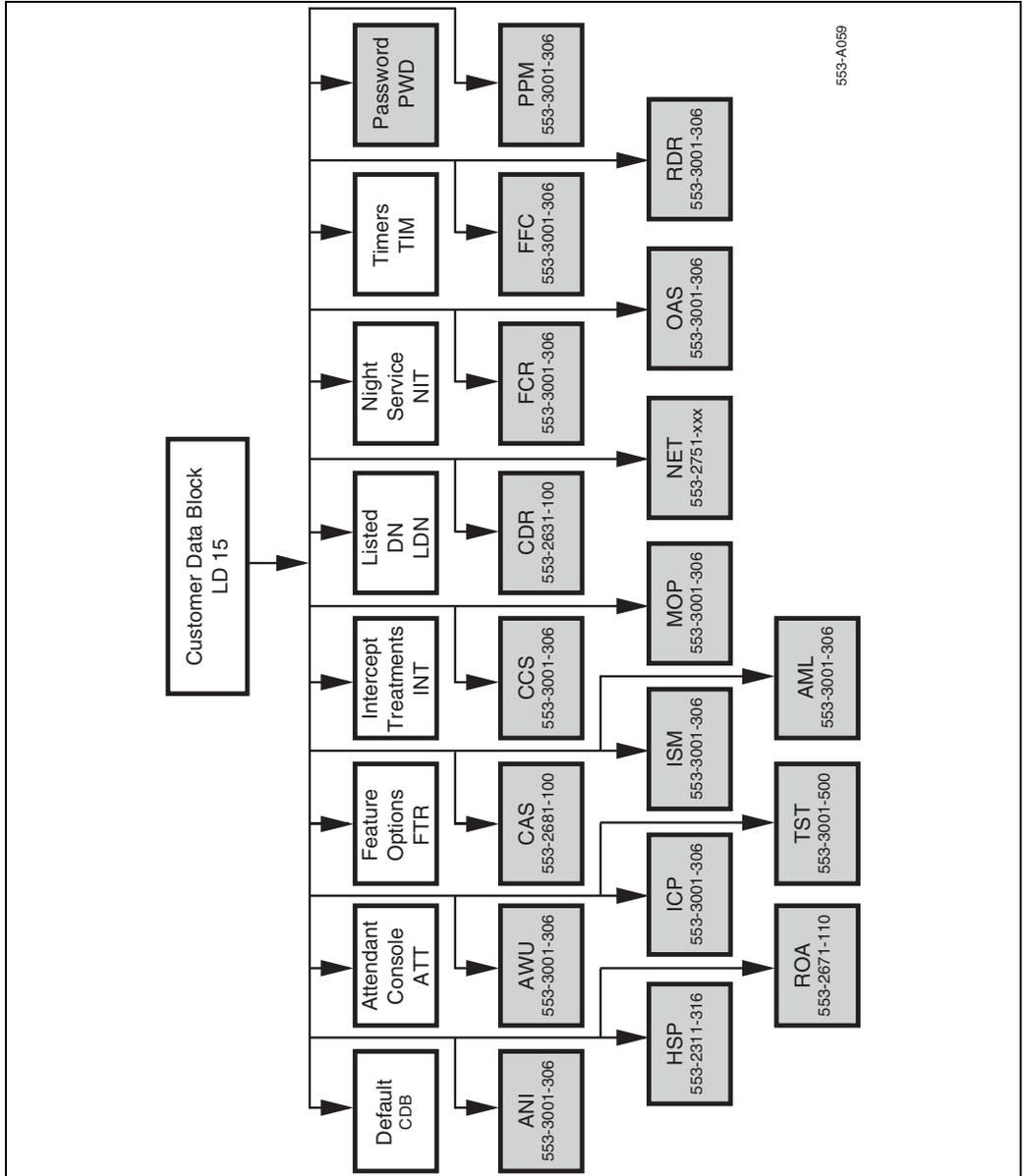


Figure 195  
Configuration Record



553-A058

Figure 196  
Customer Data Block



553-A059

## MG 1000T card slot assignment

The MG 1000T Core and MG 1000T Expansion contain physical card slots numbered 1 to 10. When configuring the system, the physical card slot numbers must be transposed to “logical” card slot numbers. For example, to configure a card physically located in slot 2 of the first MG 1000T Expansion, use logical slot 12. To configure a card physically located in slot 2 of the second MG 1000T Expansion, use logical slot 22. See Table 66.

**Table 66**  
**MG 1000T card slot assignments**

	Core		Media Gateway Expansion							
			First		Second		Third		Fourth	
	Physical card slot	Logical card slot	Physical card slot	Logical card slot	Physical card slot	Logical card slot	Physical card slot	Logical card slot	Physical card slot	Logical card slot
Media Gateway	1	1	1	11	1	21	1	31	1	41
	2	2	2	12	2	22	2	32	2	42
	3	3	3	13	3	23	3	33	3	43
	4	4	4	14	4	24	4	34	4	44
	5	*	5	*	5	*	5	*	5	*
	6	*	6	*	6	*	6	*	6	*
Media Gateway Expansion	7	7	7	17	7	27	7	37	7	47
	8	8	8	18	8	28	8	38	8	48
	9	9	9	19	9	29	9	39	9	49
	10	10	10	20	10	30	10	40	10	50
<b>Note:</b> The bottom-most card slot in the Media Gateway is reserved for the SSC card.										

## TN assignment

Table 67 shows the TN assignments for the MG 1000E.

**Table 67**  
**TN assignments for MG 1000E**

Slots TN	MG 1000E				MG 1000E Expander			
	1 l s c	2 l s c	3 l s c	4 l s c	7 l s c	8 l s c	9 l s c	10 l s c
MG 1000E								
1	000 0 01	000 0 02	000 0 03	000 0 04	000 0 07	000 0 08	000 0 09	000 0 10
2	000 1 01	000 1 02	000 1 03	000 1 04	000 1 07	000 1 08	000 1 09	000 1 10
3	004 0 01	004 0 02	004 0 03	004 0 04	004 0 07	004 0 08	004 0 09	004 0 10
4	004 1 01	004 1 02	004 1 03	004 1 04	004 1 07	004 1 08	004 1 09	004 1 10
5	008 0 01	008 0 02	008 0 03	008 0 04	008 0 07	008 0 08	008 0 09	008 0 10
6	008 1 01	008 1 02	008 1 03	008 1 04	008 1 07	008 1 08	008 1 09	008 1 10
7	012 0 01	012 0 02	012 0 03	012 0 04	012 0 07	012 0 08	012 0 09	012 0 10
8	012 1 01	012 1 02	012 1 03	012 1 04	012 1 07	012 1 08	012 1 09	012 1 10
9	016 0 01	016 0 02	016 0 03	016 0 04	016 0 07	016 0 08	016 0 09	016 0 10
10	016 1 01	016 1 02	016 1 03	016 1 04	016 1 07	016 1 08	016 1 09	016 1 10
11	020 0 01	020 0 02	020 0 03	020 0 04	020 0 07	020 0 08	020 0 09	020 0 10
12	020 1 01	020 1 02	020 1 03	020 1 04	020 1 07	020 1 08	020 1 09	020 1 10
13	024 0 01	024 0 02	024 0 03	024 0 04	024 0 07	024 0 08	024 0 09	024 0 10
14	024 1 01	024 1 02	024 1 03	024 1 04	024 1 07	024 1 08	024 1 09	024 1 10
...								
...								
127	252 0 01	252 0 02	252 0 03	252 0 04	252 0 07	252 0 08	252 0 09	252 0 10
128	252 1 01	252 1 02	252 1 03	252 1 04	252 1 07	252 1 08	252 1 09	252 1 10

**Note:** The bottom most card slot in the Media Gateway is reserved for the SSC card.



---

# Configuring IP Peer Networking and managing the Gatekeeper database

---

## Contents

This section contains information on the following topics:

<a href="#">Introduction</a> . . . . .	485
<a href="#">Implementation summary</a> . . . . .	485

## Introduction

This chapter provides an outline for configuring IP Peer Networking and managing the Gatekeeper database.

Use the *IP Peer Networking: Installation and Commissioning* (NN43001-313) NTP to configure IP Peer Networking and for instructions about managing the Gatekeeper database.

## Implementation summary

**Note:** This section is intended as a summary of how to implement IP Peer Networking and how to manage the Gatekeeper database. Many of these steps can be performed out of sequence.

You must configure the following data when setting up a CS 1000E IP network:

- 1**    Configure the Virtual Trunk routes using Element Manager or the Command Line Interface (LD 16). Configure the Route Data Blocks and associate the Virtual Trunk routes with the IP network by configuring the following parameters:
  - a**    route information
  - b**    network management information  
      (for example, Access Restrictions)
  - c**    bandwidth zone
  - d**    Signaling Server host name for the route
  - e**    protocol identifier
  - f**    associated Node ID
- 2**    Configure the Virtual Trunks using Element Manager or the Command Line Interface (LD 14).
- 3**    Configure the network routing within the CS 1000E.
  - a**    Use existing tools to configure networking features, such as routing calls based on digits dialed.
  - b**    Configure dialing plan information for calls that must be routed to circuit-switched trunks (for example, PSTN interfaces). You can route these calls using a feature such as Network Alternate Route Selection (NARS). Configure Virtual Trunk routes in NARS the same way as traditional trunks.
- 4**    Configure the Primary, Alternate, and Failsafe Gatekeepers at installation and initial setup.

- 5** Configure the Gatekeeper database to provide a central database of addresses that are required to route calls across the network, using the Gatekeeper web pages in Element Manager.
  - a** Log in to the Gatekeeper web pages in Element Manager.
  - b** Verify that the Gatekeeper is the Primary Gatekeeper and is active.
  - c** Configure the System Wide Settings.
  - d** Create the CDP domains.
  - e** Add the RAS and non-RAS endpoints.
  - f** Add the endpoint prefixes.
  - g** Add the Numbering Plan entries for each endpoint, including the Cost Factor for each entry.
  - h** Add the default routes.
  - i** Add the Gatekeeper zones (if required).
  - j** Test the Numbering Plans.
  - k** Perform database cutover.
  - l** Perform the following operations, as necessary:
    - i.** Take the Gatekeeper out-of-service.
    - ii.** Perform database cutover.
    - iii.** Perform database rollback.
    - iv.** View traffic reports.
  - m** Log out of the Gatekeeper web pages in Element Manager.





Nortel Communication Server 1000

## **Communication Server 1000E**

### Installation and Commissioning

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