Nortel Communication Server 1000

Signaling Server Installation and Commissioning

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New in this release

The following sections detail what's new in *Signaling Server Installation and Commissioning* ((NN43001-312)) for CS 1000 Release 5.5.

- "Features" (page 7)
- "Other changes" (page 7)

Features

There are no added or changed features for the Signaling Server in Communication Server 1000 Release 5.5.

Other changes

See the following sections for information about changes that are not feature-related:

Revision History

January 2010	Standard 02.07. This document is up-issued to reflect changes in technical content. Updated the section "Back Panel Components".
December 2009	Standard 02.06. This document is up-issued to reflect changes in technical content.
September 2008	Standard 02.05. This document is up-issued to reflect changes in technical content. Added procedure "Changing the baud rate on a Nortel ISP1100 Signaling Server" to change or verify the baud rate on a Nortel ISP1100 Signaling Server.
May 2008	Standard 02.03. This document is up-issued to support changes in technical content for the CR Q01877613-01.

January 2008	Standard 02.02. Up-issued to reflect changes in technical content. Changes were made to the logic flow of the Software upgrade chapter to promote ease of use. Upgrade procedures section of the Software upgrade chapter reordered to align with logical sequence of use. Added procedures for backing up and restoring the IP Phone Application Server database, to the Upgrade procedures section of the Software upgrade chapter. Added a task list for migrating a legacy Nortel ISP1100 Signaling Server running Communication Server 1000 Release 5.5to one of the three newer Signaling Servers introduced with Communication Server 1000 Release 5.0, to Migration task lists section of Software migration chapter. Added steps for backing up/restoring the IP Phone Application Server database (if present) and backing up/restoring the NRS database (if present), to all Migration task lists in the Software migration chapter. Removed reference to IP Phone 1240.
December 2007	Standard 02.01. Up-issued to support Communication Server 1000 Release 5.5.
June 2007	Standard 01.07. Up-issued to reflect changes in technical content arising from a production Quality Assurance review.
June 2007	Standard 01.06. Up-issued to reflect changes in technical content.
June 2007	Standard 01.05. Up-issued to reflect changes in technical content.
June 2007	Standard 01.04. Up-issued to reflect changes in technical content.
May 2007	Standard 01.03. Up-issued to reflect changes in technical content.
May 2007	Standard 01.02. Up-issued to reflect changes in technical content. "Standalone Signaling Server" term was changed to read "Standalone Signaling Server - NRS only".
May 2007	Standard 01.01. Up-issued to support Communication Server 1000 Release 5.0. This document contains information previously contained in the following legacy document, now retired: *Signaling Server Installation and Configuration (553-3001-212)* ().
March 2007	Standard 10.00. Up-issued to reflect changes in technical content. Content list for the "gkbackup.tar" file updated.
December 2006	Standard 9.00. Up-issued to reflect changes in technical content. Added a new “Verifying the presence of an NRS”. Changed the name of the Gatekeeper database backup file from “nrsback.tar” to “gkbackup.tar” where present.

November 2006	Standard 8.00. Up-issued to reflect changes in technical content. Added information to indicate that 768 MB of RAM are required if the Signaling Server must support more than 382 H.323 virtual trunks.
October 2006	Standard 7.00. Up-issued to reflect changes in technical content. Added appropriate instructions to establish FTP connections to the source and target Signaling Servers in the “Uploading the database” procedure. Added information to indicate that 768 MB of RAM are required if the Signaling Server must support more than 382 H.323 virtual trunks.
July 2006	Standard 6.00. Up-issued to reflect changes in technical content. Added missing system messages and procedure steps in the “Upgrading Signaling Server software” procedure. Repaired all “textual” procedure step references that were adversely affected by the addition of new procedure steps in the “Upgrading Signaling Server software” procedure. Added “rdsconvert” command to the “rdtools commands” table.
April 2006	Standard 5.00. Up-issued to reflect changes in technical content. Default logon credentials for the Signaling Server are corrected.
January 2006	Standard 4.00. Up-issued to reflect changes in technical content. Information was added for backing up the Gatekeeper database and storing it locally during a software upgrade.
August 2005	Standard 3.00. Up-issued to support Communication Server 1000 Release 4.5.
September 2004	Standard 2.00. Up-issued to support Communication Server 1000 Release 4.0.
October 2003	Standard 1.00. This document is a new NTP for Succession 3.0. It was created to support a restructuring of the Documentation Library, resulting in the merging of multiple legacy NTPs. This new document consolidates information previously contained in the following documents: • *Branch Office (553-3001-214)* () • *IP Line: Description, Installation, and Operation (553-3001-365)* () • *Large System: Planning and Engineering (553-3021-120)* () • *Succession 1000 System: Overview (553-3031-010)* () • *Succession 1000 System: Planning and Engineering (553-3031-120)* () • *Succession 1000 System: Installation and Configuration (553-3031-210)* () • *Succession 1000 System: Upgrade Procedures (553-3031-258)* ()

Introduction

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

Subject

This document describes the Signaling Server and provides the information necessary to install and configure it in a Communication Server 1000 system. This document contains information about systems, components, and features that are compatible with Nortel Communication Server 1000 Release 5.5 software. For information on legacy products and releases, click the **Technical Documentation** link under **Support & Training** on the Nortel home page:

www.nortel.com

Applicable systems

This document applies to the following CS 1000 systems:

- Communication Server 1000E (CS 1000E) CP PII, CP PIV and CP PM
- Communication Server 1000M Single Group (CS 1000M SG) CP PII and CP PIV
- Communication Server 1000M Multi Group (CS 1000M MG) CP PII and CP PIV
- Meridian 1 PBX 11C Chassis
- Meridian 1 PBX 11C Cabinet
- Meridian 1 PBX 61C CP PII and CP PIV
- Meridian 1 PBX 81C CP PII and CP PIV

Intended audience

This document is intended for individuals who install, configure and maintain Signaling Servers in a Communication Server 1000 environment.

Only qualified personnel are to install a Signaling Server. To use this document, you must have a working knowledge of CS 1000E, CS 1000M, and Meridian 1 equipment and operation. Contact Nortel Training Centers for information on installation courses.

Complete all system engineering and planning activities before using this guide to install a Signaling Server.

Conventions

Terminology

In this document, the following systems are referred to generically as "system":

- Communication Server 1000E (CS 1000E)
- Communication Server 1000M (CS 1000M)
- Meridian 1

The following systems are referred to generically as "Small System":

- Meridian 1 PBX 11C Chassis
- Meridian 1 PBX 11C Cabinet

The following systems are referred to generically as "Large System":

- Communication Server 1000M Single Group (CS 1000M SG)
- Communication Server 1000M Multi Group (CS 1000M MG)
- Meridian 1 PBX 61C CP PII and CP PIV
- Meridian 1 PBX 81C CP PII and CP PIV

Related information

The following NTPs are referenced in this document:

- *IP Peer Networking Installation and Commissioning (NN43001-313)* ()
- *Branch Office: Installation and Commissioning (NN43001-314)* ()
- *Element Manager: System Administration (NN43001-632)* ()
- *IP Line Fundamentals (NN43001-500)* ()
- *Software Input/Output: Maintenance (NN43001-711)* ()
- *CS 1000 to MCS 5100 Converged Desktop Type 2: Configuration Guide (NN43001-321)* ()

- *Communication Server 1000M and Meridian 1: Large System Planning and Engineering (NN43021-220)* ()
- *Communication Server 1000M and Meridian 1 Large System Installation and Commissioning (NN43021-310)* ()
- *Communication Server 1000M and Meridian 1: Large System Upgrade Procedures (NN43021-458)* ()
- *Communication Server 1000E: Planning and Engineering (NN43041-220)* ()
- *Communication Server 1000E Installation and Commissioning (NN43041-310)* ()
- *Communication Server 1000E: Upgrade Procedures (NN43041-458)* ()
- *Security Management (NN43001-604)* ()
- *Network Routing Service Installation and Commissioning (NN43001-564)* ()

The following third party documents are referenced in this NTP:

- *IBM xSeries 306m Types 8848 and 8491 User Guide* ()
- *HP ProLiant DL320 Generation 4 Server User Guide* ()

Documentation

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

www.nortel.com

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

How to get help

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

How to get 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

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

- 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 do not find the information you require on the Nortel Technical Support web site, and you have a Nortel support contract, you can also get help over the telephone 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 telephone number for your region:

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

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.

Overview

Contents

This section contains information on the following topics:

- “Description” (page 17)
- “Software applications” (page 18)
    - “IP Phone Terminal Proxy Server” (page 18)
    - “SIP and H.323 signaling gateway (Virtual Trunk)” (page 19)
    - “Network Routing Service” (page 20)
    - “CS 1000 Element Manager web server” (page 21)
    - “Application Server for the Personal Directory, Callers List, and Redial List feature” (page 21)
- “Hardware description” (page 22)
    - “Nortel CP PM server” (page 22)
    - “IBM X306m server” (page 26)
    - “HP DL320-G4 server” (page 31)

Description

The Signaling Server provides a central processor to drive Session Initiation Protocol (SIP) and H.323 signaling, IP Phone signaling, and IP Peer Networking in CS 1000E and CS 1000Msystems.

The Signaling Server provides signaling interfaces to the IP network using the following software components that run on the VxWorksTM real-time operating system:

- IP Phone Terminal Proxy Server
- SIP and H.323 signaling gateway (Virtual Trunk)
- Network Routing Service (NRS)

- CS 1000 Element Manager Web server
- Application Server for the Personal Directory, Callers List, and Redial List features

Like Media Cards, the Signaling Server has both an ELAN and a TLAN network interface. The Signaling Server communicates with the Call Server through the ELAN subnet.

You can install Signaling Servers in a load-sharing redundant configuration for higher scalability and reliability.

Software applications

This section briefly describes the software components that run on the Signaling Server.

IP Phone Terminal Proxy Server

The Terminal Proxy Server (TPS) provides the signaling interface for IP Phones. The TPS supports a maximum of 5000 IP Phones on each Signaling Server. In conjunction with the Call Server, the TPS delivers a full suite of telephone features.

The Unified Network IP Stimulus protocol (UNIStim) is the single point of contact between the various server components and the IP Phone. UNIStim is the stimulus-based protocol used for communication between an IP Phone and a TPS on the Voice Gateway Media Card.

IP Peer Networking supports the following IP Phones:

- Nortel IP Phone 2001
- Nortel IP Phone 2002
- Nortel IP Phone 2004
- IP Phone 2007
- IP Audio Conference Phone 2033
- Nortel IP Softphone 2050
- Nortel IP Phone 1110
- Nortel IP Phone 1120E
- Nortel IP Phone 1140E
- Nortel IP Phone 1150E
- Nortel IP Phone 1210
- Nortel IP Phone 1220
- Nortel IP Phone 1230

You can configure each IP Phone through the Dynamic Host Configuration Protocol (DHCP) to register with a Call Server for feature control.

The TPS on the Signaling Server also manages the firmware for all connected IP Phones. For more information on IP Phone firmware management, see *IP Line Fundamentals (NN43001-500)* () and *Branch Office: Installation and Commissioning (NN43001-314)* ().

SIP and H.323 signaling gateway (Virtual Trunk)

Session Initiation Protocol trunking

Session Initiation Protocol (SIP) is a signaling protocol for creating, modifying, and terminating sessions with one or more participants. These sessions can include IP Phone calls, multimedia distribution, and multimedia conferences. Basic SIP connectivity, referred to as SIP trunking, provides a direct media path between users in the CS 1000/Meridian 1 domain and users in the SIP domain.

The SIP trunking software functions as:

- SIP User Agent
- signaling gateway for all IP Phones

For more information about SIP trunking, see *IP Peer Networking Installation and Commissioning (NN43001-313)* () and *Network Routing Service Installation and Commissioning (NN43001-564)* ().

H.323 trunking

H.323 is a standard that specifies the components, protocols, and procedures that provide multimedia communication services over packet networks.

The H.323 signaling software (Virtual Trunk) provides the industry-standard H.323 signaling interface to H.323 gateways. It supports both en bloc and overlap signaling. This software uses an H.323 Gatekeeper to resolve addressing for systems at different sites.

> ***Note:*** For overlap signaling to provide the maximum benefit, Nortel highly recommends that all Signaling Servers in the network be overlap-enabled. Failure to do so results in call-completion delays caused by converting between overlap and en bloc.

The H.323 gateway supports direct, end-to-end voice paths using Virtual Trunks with the following benefits:

- elimination of multiple IP Telephony to circuit-switched conversions
- improved voice quality

- simplified troubleshooting
- inter-operability

For more information about H.323 signaling, refer to *IP Peer Networking Installation and Commissioning (NN43001-313)* () and *Network Routing Service Installation and Commissioning (NN43001-564)* ().

Network Routing Service

The IP Peer Networking feature provides a Network Routing Service (NRS) to which all systems in the network are registered. There are two types of NRS:

- an NRS that runs as an application on the Signaling Server
- an NRS that runs as a standalone application on a dedicated server

This document describes the NRS running as an application on the Signaling Server. For more information about the standalone NRS running on a dedicated server, see *Network Routing Service Installation and Commissioning (NN43001-564)* ().

The NRS application on the Signaling Server consists of three components:

- Session Initiation Protocol (SIP) Redirect Server
- H.323 Gatekeeper
- Network Connection Service (NCS)

A network requires only one NRS. NRS redundancy is supported and is highly recommended.

SIP Redirect Server

The IP Peer Networking feature provides a SIP Redirect Server that logically routes (directly or indirectly) SIP requests to the proper destination.

The SIP Redirect Server software provides telephone-number-to-IP address resolution. The software uses a Gateway Location Service to match a fully qualified telephone number with a range of telephone numbers and a SIP gateway that provides access to that range of DNs.

For more information about the SIP Redirect Server, refer to *IP Peer Networking Installation and Commissioning (NN43001-313)* () and *Network Routing Service Installation and Commissioning (NN43001-564)* ().

H.323 Gatekeeper

The IP Peer Networking feature provides an H.323 Gatekeeper on the Signaling Server, where all systems in the network are registered.

The H.323 Gatekeeper software provides telephone-number-to-IP address resolution. Because all systems in the network are registered to the H.323 Gatekeeper, the need for manual configuration of IP addresses and numbering plan information at every site is eliminated. As a result, the H.323 Gatekeeper software also eliminates the duplication of numbering plan information among sites. However, support is still available for static registration and manual configuration.

For more information about the H.323 Gatekeeper, refer to *IP Peer Networking Installation and Commissioning (NN43001-313)* () and *Network Routing Service Installation and Commissioning (NN43001-564)* ().

Network Connection Service

The Network Connection Service (NCS) provides an interface to the TPS that enables the TPS to query the NRS using the UNIStim protocol. The NCS is required to support the Branch Office, Virtual Office, and Geographic Redundancy features.

CS 1000 Element Manager web server

The CS 1000 Element Manager web server resides on the Signaling Server and is directly accessible through a web browser or Telephony Manager (TM). Element Manager is a simple and user-friendly web-based interface that supports a broad range of system management tasks. Element Manager has many features to help administrators manage systems with maximum efficiency.

For more information on Element Manager, refer to “Element Manager configuration” (page 169) and *Element Manager: System Administration (NN43001-632)* ().

Application Server for the Personal Directory, Callers List, and Redial List feature

The Application Server for the Personal Directory, Callers List, and Redial List features (IP Phones Application Server) runs on the Signaling Server. Only one database can exist in the network; redundancy is not supported. The IP Phones Application Server database can coexist with the other software applications on a Signaling Server. However, if you have more than 1000 users, Nortel recommends that you store the database on a dedicated Signaling Server (preferably a Follower). The IP Phones Application Server cannot be run on a Signaling Server at a branch office.

For more information on the IP Phones Application Server (Personal Directory, Callers List, and Redial List), refer to *IP Line Fundamentals (NN43001-500)* ().

Hardware description

Signaling Servers can be hosted on four types of hardware platforms (servers) in a CS 1000 Release 5.5 system.

- Nortel CP PM (Common Processor Pentium Mobile)
- IBM X306m
- HP DL320-G4
- legacy Nortel ISP1100

New Nortel ISP1100 servers are not shipped in Communication Server 1000 Release 5.5. Therefore, they are not described in this section.

The following sections describe the physical components of each server.

Nortel CP PM server

The Nortel CP PM server is a high performance server that can be used as both a Call server or Signaling Server in a CS 1000Esystem. Configured as a Signaling Server, it delivers capacity improvement by providing flexible scaling from 0 to 22,500 IP Phones and represents a 70% increase in power over the legacy Nortel ISP1100 Signaling Server. This increased capacity and power, coupled with the reduction in foot print and power consumption, means a lower cost of ownership.

There are two models of Nortel CP PM server:

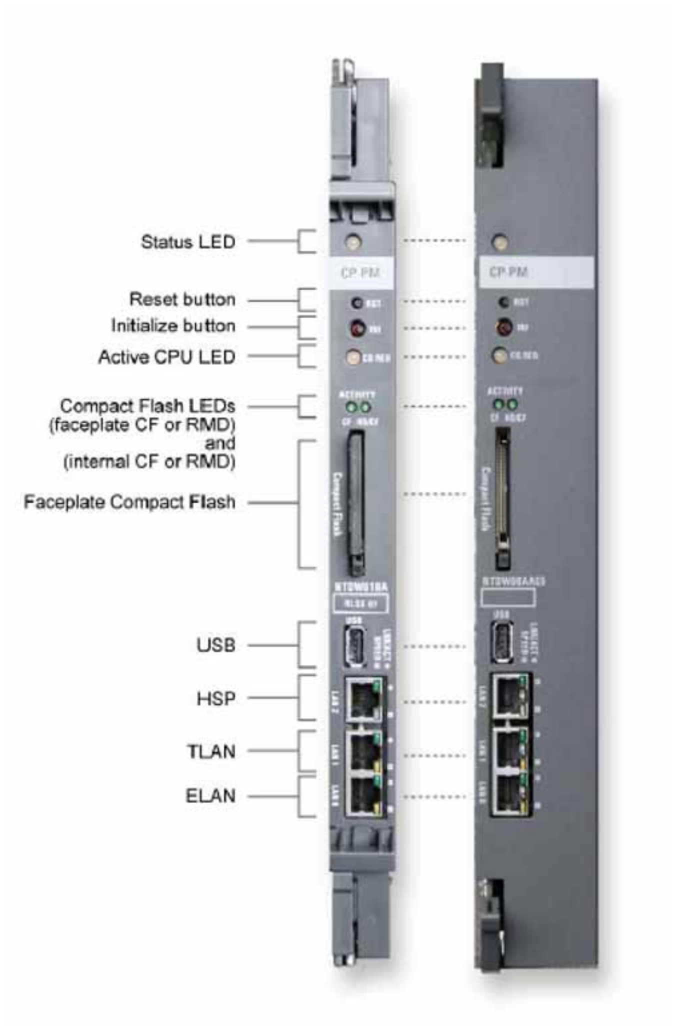
- NTDW61BAE5

  Can be configured as either a Call Server or a Signaling Server in CS 1000Esystems.
- NTDW66AAE5

  Can only be configured as a Signaling Server in CS 1000Msystems.

The following figure shows the faceplates of the NTDW61BAE5 (left) and the NTDW66AAE5 (right) models of the server.

Figure 1
Faceplates of the Nortel CP PM server


Status LED
CP PM
Reset button
Initialize button
Active CPU LED
Compact Flash LEDs (faceplate CF or RMD) and (internal CF or RMD)
Faceplate Compact Flash
Compact Flash
USB
HSP
TLAN
ELAN

Product Code

The Nortel CP PM server comes in two models and thus has two product codes:

- NTDW61BAE5 (CS 1000E system)
- NTDW66AAE5 (CS 1000M system)

Features

The Nortel CP PM server provides the following features:

- Intel Pentium M processor (1.4 Ghz)
- Fixed Media Device (FMD)
    - an internal hard drive (NTDW6102E5)
    - hosts all Signaling Server software and applications
- Removable Media Device (RMD)
    - hot-pluggable Compact Flash (CF) card slot in the faceplate.
    - used to back up and restore Signaling Server IP configuration data
- 2 Gb of SDRAM
    - 1 Gb of SDRAM is configured when delivered
- One 1 Gb/s Ethernet port (HSP)
    - not used when configured as a Signaling Server
- Two 100BaseT Ethernet ports
    - TLAN port is to connect the server to a TLAN Layer 2 Ethernet switch port
    - ELAN port is to connect the server to an ELAN Layer 2 Ethernet switch port
- Nortel NTDU0606E6 cabling kit
    - ships only with the CS 1000E model (NTDW61BAE5)
    - short length CAT5 cables used to connect the Signaling Server to the TLAN/ELAN ports on a Media Gateway Card (MGC)
    - if the TLAN and ELAN Ethernet ports on the MGC are occupied, longer CAT5 cables are required (not supplied) to connect the Signaling Server directly to the TLAN and ELAN Ethernet switches
- Two serial ports
    - used to connect a maintenance terminal to the server
- Nortel NTAK19EC cabling kit
    - used to adapt the 50-pin MDF connector at the back of the CS 1000E Media Gateway or the CS 1000M Universal Equipment Module (UEM) to a 25-pin DB connector
    - a 25-pin to 9-pin straight-through serial cable (not supplied) is needed to connect the 25-pin DB connector to a 9-pin serial port on the maintenance terminal
- One USB port

  - reserved for future use
- A **RST** (Reset) button
  - used to cold-reboot the server
- An **INI** (Initialize) button
  - to warm-reboot the server

LEDs

Refer to Figure 1 "Faceplates of the Nortel CP PM server" (page 23) when reviewing the following LED descriptions:

- The Status LED is the top-most LED, is unlabeled, and indicates the following:
  - steady RED indicates that the BIOS self-test is running
  - flashing RED indicates that bootrom and Operating System are being loaded
  - steady YELLOW indicates that applications are being loaded
  - flashing YELLOW indicates that applications loaded successfully
  - steady GREEN indicates that the PBX link is up
  - flashing GREEN indicates that the PBX link is down
  - OFF indicates no power to the server
- The Active CPU LED is below the **INI** button, is labeled as CS Red, and is not used on the CP PM server when configured as a Signaling Server.
- Compact Flash LEDs
  - The Compact Flash LED for the faceplate CF drive is labeled as CF and flashing green indicates read/write activities.
  - The Compact Flash LED for the internal CF drive is labeled as HD/CF and flashing green indicates read/write activities.
- The LEDs above the HSP Ethernet port relate to HSP port activity. The HSP port is not used on the Nortel CP PM server when configured as a Signaling Server.
- The LEDs above the TLAN Ethernet port relate to TLAN port activity.
  - The GREEN LED above and to the left of the port has the following indications:

    - steady GREEN indicates that the port is operational
    - flashing GREEN indicates that the port is active
  - The YELLOW LED above and to the right of the port has the following indications:
    - steady YELLOW indicates that the port is operating at 100 Mb/s
    - OFF indicates that the port is operating at 10 Mb/s
- The LEDs above the ELAN Ethernet port relate to ELAN port activity.
  - The GREEN LED above and to the left of the port has the following indications:
    - steady GREEN indicates that the port is operational
    - flashing GREEN indicates that the port is active
  - The YELLOW LED above and to the right of the port has the following indications:
    - steady YELLOW indicates that the port is operating at 100 Mb/s
    - OFF indicates that the port is operating at 10 Mb/s

Power

Power is supplied to the CP PM server through the backplane of the Media Gateway (CS 1000E) or Universal Equipment Model (CS 1000M SG and CS 1000M MG).

IBM X306m server

The IBM X306m server is a rack-mountable, Pentium 4, PC-based, commercial off-the-shelf (COTS) 1U server. Please refer to the *IBM xSeries 306m Types 8848 and 8491 User Guide* () shipped with the server for a more detailed description.

The following figures show photos of the front and back of an IBM X306m server.

Figure 2
Front of the IBM X306m server - photo

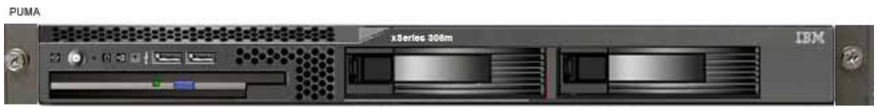
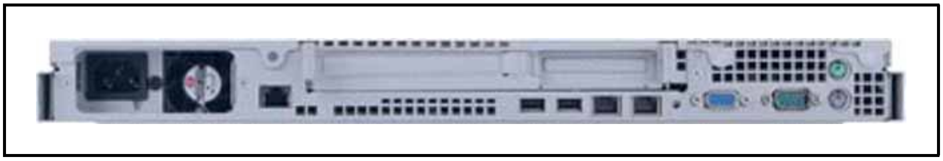


Figure 3
Back of the IBM X306m server - photo



Product Code

The product code for the IBM X306m Signaling Server is NTDU99AAE5.

Feature summary

The IBM X306m server provides the following features:

- an Intel Pentium 4 processor (3.6 GHz)
- 2 simple swap Serial ATA, 80 GB (1 drive configured)
- 8 GB of RAM PC4200 DDR II by means of 4 DIMM slots (2 GB configured)
- Two Gigabit Ethernet ports
- Four USB ports (two front, two back)
- One DVD-COMBO (DVD/CD-RW) drive
  - used to load the Signaling Server software files for the Signaling Server, Voice Gateway Media Cards, and IP Phones
- One serial port (back of Signaling Server)
- A Reset (Reset) button

Power

The power cord connector is on the left-rear corner of the IBM X306m server. The Power On/Off switch is on the left side of the front faceplate. When the GREEN power LED on the left side of the front faceplate is illuminated, the power is on. The power supply is factory installed and is not customer replaceable.

Cooling

The IBM X306m server has forced-air cooling. The fan runs whenever the unit is operating. The air flow is front-to-back.

Card slots

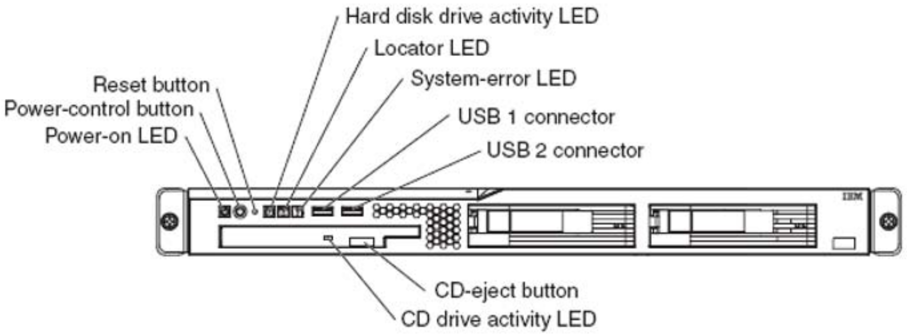
The IBM X306m server has a PCI card slot, but it is not used.

Front panel buttons, connectors and LEDs

This section describes the buttons, connectors and LEDs found on the front panel of the IBM X306m server.

The following figure shows the front panel of an IBM X306m server with labeling for all buttons, connectors and LEDs.

Figure 4
Front panel of the IBM X306m server - buttons, connectors and LEDs


Hard disk drive activity LED
Locator LED
System-error LED
USB 1 connector
USB 2 connector
Reset button
Power-control button
Power-on LED
IBM
CD-eject button
CD drive activity LED

The following list describes each of the front panel buttons, connectors and LEDs for the IBM X306m server:

- Power-on LED
  - When this LED is lit, it indicates that the server is turned on. When this LED is off, it indicates that ac power is not present, or the power supply or the LED itself has failed.

    Note: If this LED is off, it does not mean that there is no electrical power in the server. The LED might be burned out. To remove all electrical power from the server, you must disconnect the power cord from the electrical outlet.
- Power-control button
  - Press this button to turn the server on and off manually. A power-control-button shield comes installed around the button to prevent the server from being turned off accidentally. You can remove this disk-shaped shield if you prefer.
- Reset button
  - Press this button to reset the server and run the power-on self-test (POST). You might have to use a pen or the end of a straightened paper clip to press the button.
  - cold-reboots the Signaling Server

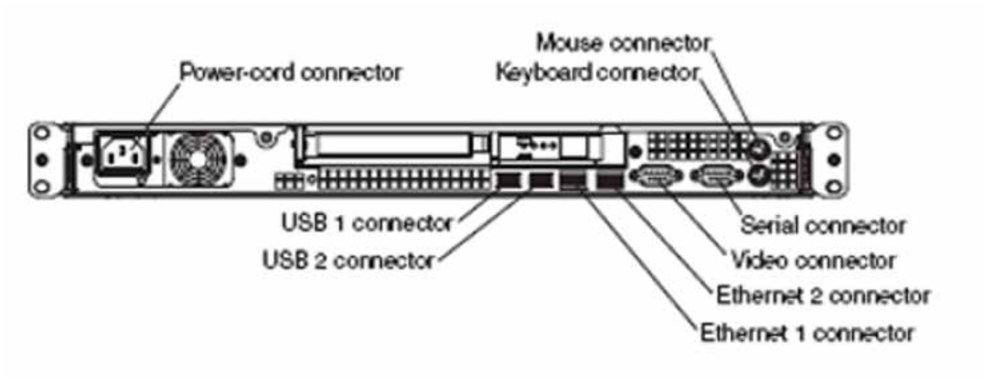
- Hard disk drive activity LED
  - — When this LED is flashing, it indicates that a hard disk drive is in use.
- Locator LED
  - — When this LED is lit, it has been lit remotely by the system administrator to aid in visually locating the server.
- System-error LED
  - — When this LED is lit, it indicates that a system error has occurred.
- USB connectors
  - — Connect a USB device to either of these connectors.
- CD-eject button
  - — Press this button to release a CD from the CD drive.
- CD drive activity LED
  - — When this LED is lit, it indicates that the CD drive is in use.

Back panel connectors and LEDs

This section describes the connectors and LEDs found on the back panel of the IBM X306m server.

The following figure shows the back panel of an IBM X306m server with labeling for all connectors.

Figure 5
Back panel of the IBM X306m server - connectors

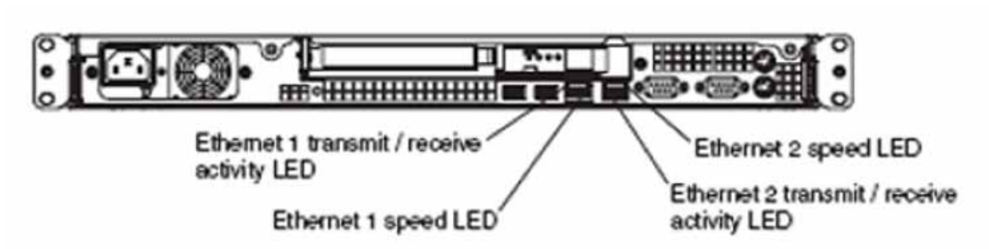

Mouse connector
Power-cord connector
Keyboard connector
USB 1 connector
USB 2 connector
Serial connector
Video connector
Ethernet 2 connector
Ethernet 1 connector

The following list describes the back panel connectors of the IBM X306m server:

- Power-cord connector
  - — Connect the power cord to this connector.
- Keyboard connector
  - — Connect a PS/2 keyboard to this connector.
- Mouse connector
  - — Connect a mouse or other PS/2 device to this connector.
- Serial connector
  - — Connect a 9-pin serial device to this connector.
  - — used to connect a maintenance terminal to the server
- Video connector
  - — Connect a monitor to this connector.
- Ethernet1 connector
  - — used to connect the server to a TLAN Layer 2 Ethernet switch port
- Ethernet2 connector
  - — used to connect the server to an ELAN Layer 2 Ethernet switch port
- USB connectors
  - — used to connect a USB device to the server
  - — either of these connectors can be used as the Removable Media Device (RMD)
    - – the RMD is used to back up IP configuration data from the Signaling Server using the Software Installation Tool

The following figure shows the back panel of an IBM X306m server with labeling for all LEDs.

Figure 6
Back panel of the IBM X306m server - LEDs


Ethernet 1 transmit / receive activity LED
Ethernet 1 speed LED
Ethernet 2 speed LED
Ethernet 2 transmit / receive activity LED

The following list describes the back panel LEDs on the IBM X306m server:

- Ethernet transmit/receive activity LED
    - — This LED is on each Ethernet connector. When this LED is lit, it indicates that there is activity between the server and the network.
- Ethernet speed LED
    - — This LED is on each Ethernet connector. When this LED is lit, it indicates that the Ethernet network speed is 1 Gb/s. When this LED is off, it indicates that the Ethernet network speed is 10 Mb/s or 100 Mb/s.

HP DL320-G4 server

The HP DL320-G4 server is a rack-mountable, Pentium 4, PC-based, commercial off-the-shelf (COTS) 1U server. Please refer to the *HP ProLiant DL320 Generation 4 Server User Guide* () shipped with the server for a more detailed description.

The following figures show photos of the front and back of an HP DL320-G4 server.

Figure 7
Front of the HP DL320-G4 server - photo

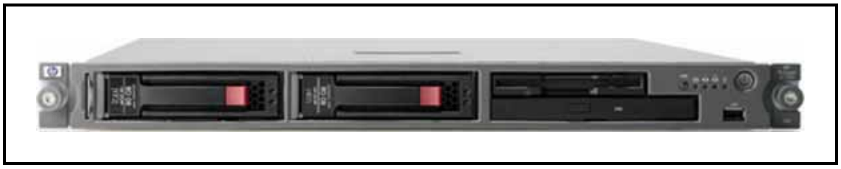
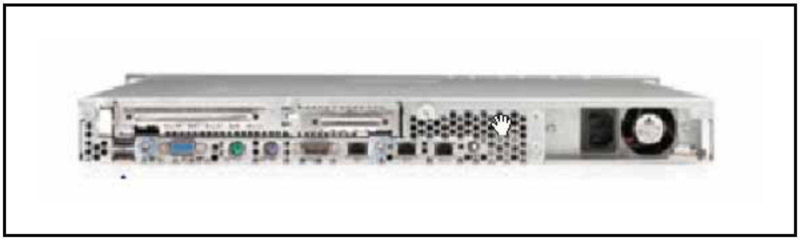


Figure 8
Back of the HP DL320-G4 server - photo



Product Code

The product code for the HP DL320-G4 Signaling Server is NTDU97AA.

Feature summary

The HP DL320-G4 server provides the following features:

- Intel Pentium 4 processor (3.6 GHz)
- Two 80 GB SATA Hard drives (1 configured)
- 4 GB PC2-4200 ECC DDR2 SDRAM (2 GB configured)
- Two 10/100/1000BaseT Ethernet ports
- Three USB ports
- One CD-R/DVD ROM drive
- One serial port
- A Reset button.
  - — cold-reboots the Signaling Server

Power

The power cord connector is on the right rear corner of the HP DL320-G4 server. The Power On/Off switch is on the right side of the front faceplate. When the GREEN power LED on the right side of the front faceplate is illuminated, the power is on. The power supplies are factory installed and are not customer replaceable.

Cooling

The HP-DL30-G4 server has forced-air cooling. The fan runs whenever the unit is operating. The air flow is front-to-back.

Card slots

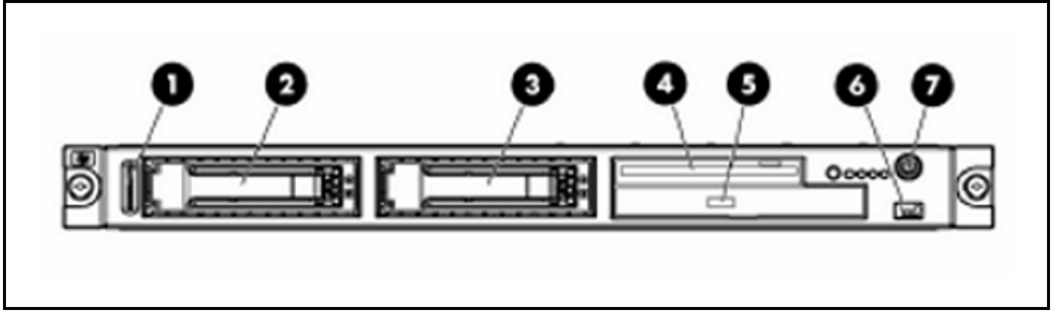
The HP DL320-G4 server has a PCI card slot, but it is not used.

Front components

This section describes the components found on the front panel of the HP DL320-G4 Signaling Server.

The following figure shows the front panel of an HP DL320-G4 server with labeling for all components.

Figure 9
Front panel of the HP DL320-G4 server - components

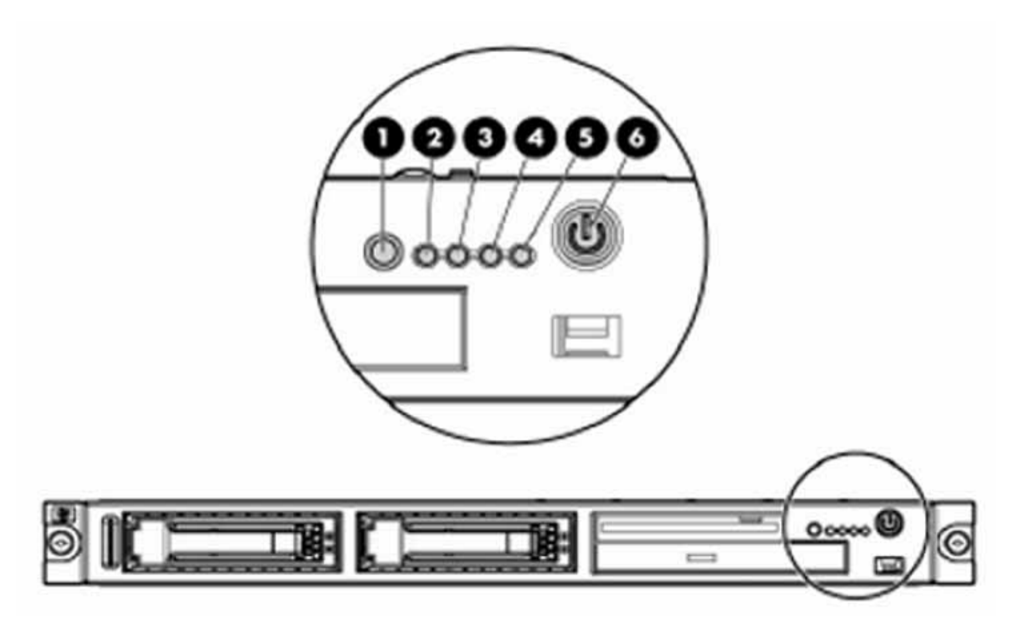


The following list describes the front panel components of the HP DL320-G4 server:

1. Serial label pull tab
2. Hard drive bay 1
3. Hard drive bay 2
4. Diskette drive bay
5. Optical drive bay
   - used to load the Signaling Server software files for the Signaling Server, Voice Gateway Media Cards, and IP Phones
6. Front USB port
   - serves as the Removable Media Device (RMD)
   - the RMD is used to back up IP configuration data from the Signaling Server using the Software Installation Tool
7. Power On/Standby button and system power LED

The following figure shows the front panel of the HP DL320-G4 server with labeling for all buttons and LEDs.

Figure 10
Front panel of the HP DL320-G4 server - buttons and LEDs



The following list describes the front panel buttons and LEDs on the HP DL320-G4 server:

1. UID button/LED
   - Blue: Identification is activated.
   - Flashing blue: System is being remotely managed.
   - Off: Identification is deactivated.
2. Internal health LED
   - Green: System health is normal.
   - Amber: System is degraded.
     - To identify the component in a degraded state, refer to system board LEDs in the *HP ProLiant DL320 Generation 4 Server User Guide* () shipped with the server.
   - Red: System critical.
     - To identify the component in a critical state, refer to system board LEDs in the *HP ProLiant DL320 Generation 4 Server User Guide* () shipped with the server.
   - Off: System health is normal (when in standby mode).
3. NIC 1 link/activity LED

- Green: Network link exists.
- Flashing green: Network link and activity exist.
- Off: No link to network exists.

> ***Note:*** If power is off, view the LEDs on the RJ-45 connector for status by referring to the rear panel LEDs.

4. NIC 2 link/activity LED
   - Green: Network link exists.
   - Flashing green: Network link and activity exist.
   - Off: No link to network exists.

   > ***Note:*** If power is off, the front panel LED is not active. View the LEDs on the RJ-45 connector for status by referring to the rear panel LEDs.

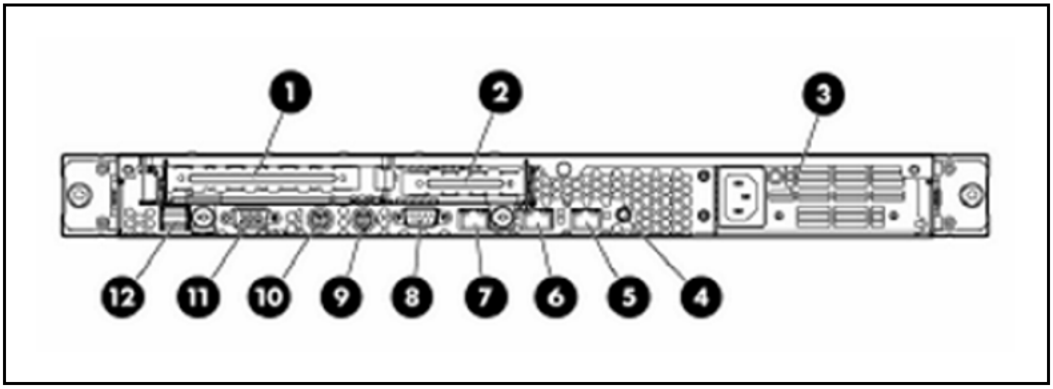
5. Drive activity LED
   - Green: Drive activity is normal.
   - Amber: Drive failure occurred.
   - Off: No drive activity.
6. Power On/Standby button and system power LED
   - Green: System is on.
   - Amber: System is shut down, but power is still applied.
   - Off: Power cord is not attached, power supply failure has occurred, no power supplies are installed, facility power is not available, or the DC-to-DC converter is not installed.

Back panel components

This section describes the components found on the back panel of the HP DL320-G4 Signaling Server.

The following figure shows the back panel of the HP DL320-G4 server with labeling for all components.

Figure 11
Back panel of the HP DL320-G4 server - components

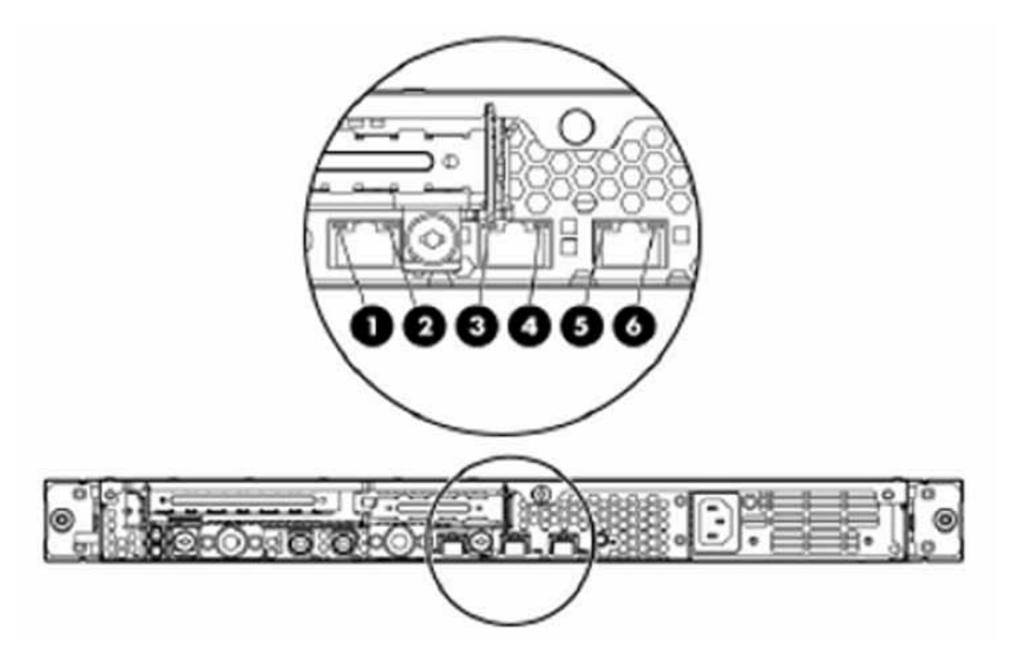


The following list describes the back panel components of the HP DL320-G4 server:

1. PCI-X expansion slot 2, full-length (optional PCI Express slot 1)
2. PCI Express expansion slot 1, low-profile, half-length
3. Power supply
4. UID button/LED
5. 10/100/1000 NIC 2
    - — used to connect the server to a TLAN Layer 2 Ethernet switch port
6. 10/100/1000 NIC 1
    - — used to connect the server to an ELAN Layer 2 Ethernet switch port
7. iLO 2 management port
8. Serial connector
    - — used to connect the server to a maintenance and administration terminal (PC)
9. Keyboard connector
10. Mouse connector
11. Video connector
12. USB connectors (2)
    - — either of these connectors can be used as the Removable Media Device (RMS)
        - – the RMD is used to back up IP configuration data from the Signaling Server

The following figure shows the back panel of the HP DL320-G4 server with labeling for all LEDs.

Figure 12
Back panel of the HP DL320-G4 server - LEDS



The following list describes the back panel LEDs on the HP DL320-G4 server:

1. iLO 2 activity
   - Green: Activity exists.
   - Flashing green: Activity exists.
   - Off: No activity exists.
2. iLO 2 link
   - Green: Link exists.
   - Off: No link exists.
3. 10/100/1000 NIC 1 activity
   - Green: Link exists.
   - Flashing green: Activity exists.
   - Off: No link exists.
4. 10/100/1000 NIC 1 link

   - Green: Link exists.
   - Off: No link exists.

5. 10/100/1000 NIC 2 activity
   - Green: Activity exists.
   - Flashing green: Activity exists.
   - Off: No activity exists.
6. 10/100/1000 NIC 2 link
   - Green: Link exists.
   - Off: No link exists.

Planning and engineering

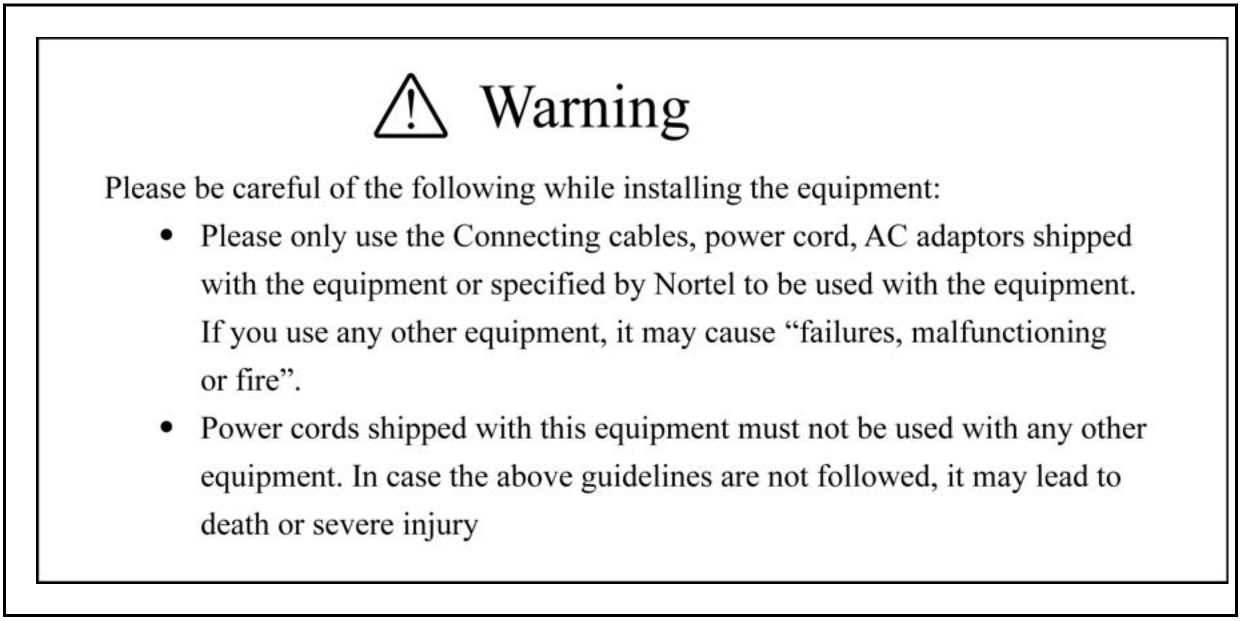
Contents

This section contains the following information:

- “Regulatory information - Japanese DenAn warning” (page 39)
- “Environmental conditions” (page 49)
- “Grounding requirements” (page 50)
- “Current, power and cooling requirements” (page 50)
- “Redundancy” (page 51)
- “Scalability” (page 52)
- “Branch offices” (page 53)

Regulatory information - Japanese DenAn warning

Figure 13
Japanese DenAn warning - English

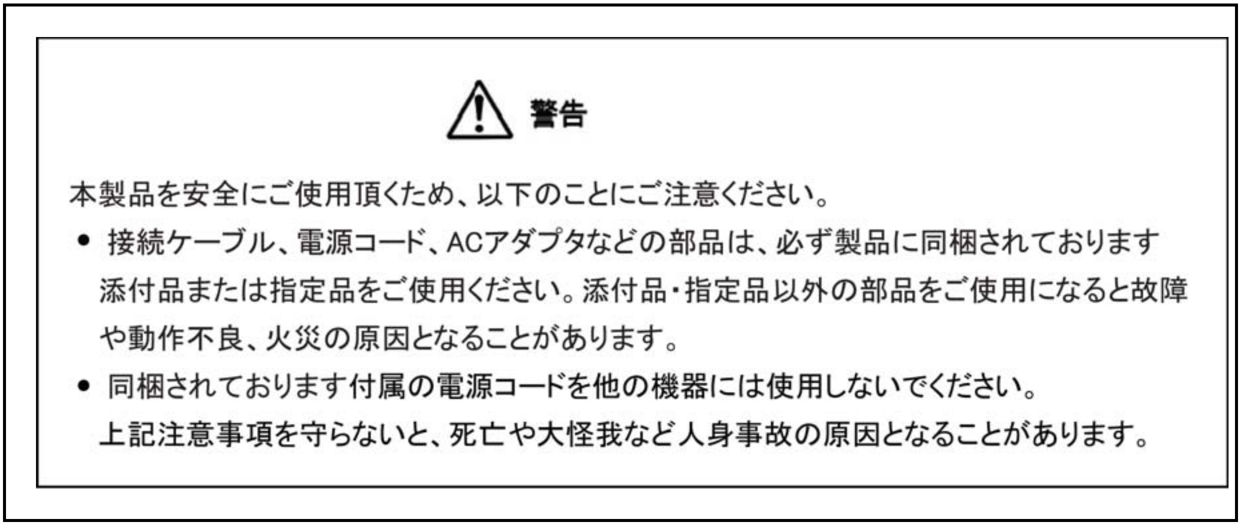


⚠ Warning

Please be careful of the following while installing the equipment:

- Please only use the Connecting cables, power cord, AC adaptors shipped with the equipment or specified by Nortel to be used with the equipment. If you use any other equipment, it may cause “failures, malfunctioning or fire”.
- Power cords shipped with this equipment must not be used with any other equipment. In case the above guidelines are not followed, it may lead to death or severe injury

Figure 14
Japanese DenAn warning - Japanese



警告

本製品を安全にご使用頂くため、以下のことにご注意ください。

- 接続ケーブル、電源コード、ACアダプタなどの部品は、必ず製品に同梱されております添付品または指定品をご使用ください。添付品・指定品以外の部品をご使用になると故障や動作不良、火災の原因となることがあります。
- 同梱されております付属の電源コードを他の機器には使用しないでください。

上記注意事項を守らないと、死亡や大怪我など人身事故の原因となることがあります。

Regulatory compliance notices for the IBM X306m server

Federal Communications Commission (FCC) statement

> ***Note:*** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user’s authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d’Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

ATTENTION
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

United Kingdom telecommunications safety requirement

Notice to Customers

This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

European Union EMC Directive conformance statement

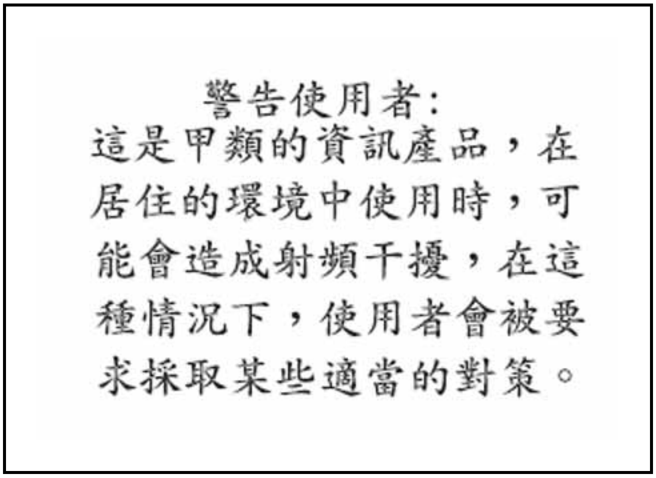
This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

ATTENTION
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Taiwanese Class A warning statement

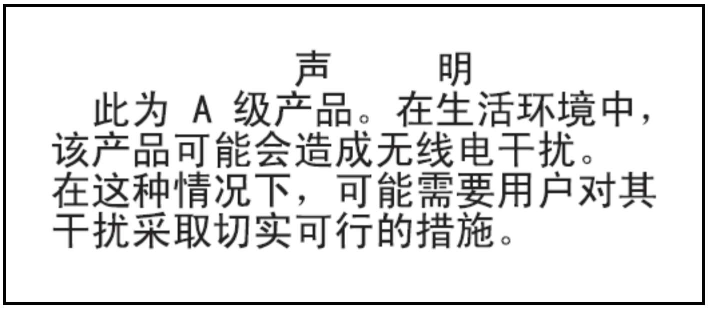
Figure 15
Taiwanese Class A warning statement



警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Chinese Class A warning statement

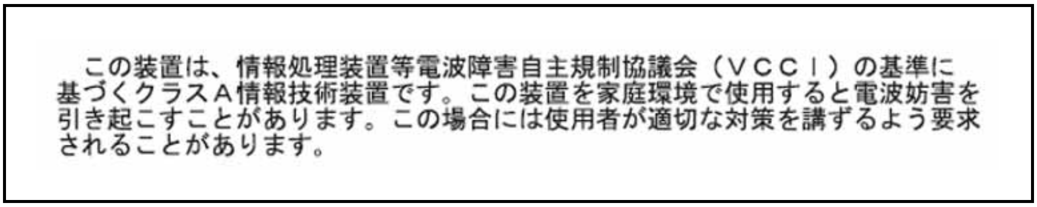
Figure 16
Chinese Class A warning statement



声　明
此为 A 级产品。在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Japanese Voluntary Control Council for Interference statement

Figure 17
Japanese Voluntary Control Council for Interference statement



この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Regulatory compliance notices for the HP DL320-G4 server

Regulatory compliance identification numbers

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

Federal Communications Commission notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (for example, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

FCC rating label The FCC rating label on the device shows the classification (A or B) of the equipment. Class B devices have an FCC logo or ID on the label. Class A devices do not have an FCC logo or ID on the label. After you determine the class of the device, refer to the corresponding statement.

Class A equipment This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Class B equipment This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit that is different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Declaration of conformity for products marked with the FCC logo, United States only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding this product, contact us by mail or telephone:

- Hewlett-Packard Company
  P. O. Box 692000, Mail Stop 530113
  Houston, Texas 77269-2000
- 1-800-HP-INVENT (1-800-474-6836).
  - For continuous quality improvement, calls may be recorded or monitored.

For questions regarding this FCC declaration, contact us by mail or telephone:

- Hewlett-Packard Company
  P. O. Box 692000, Mail Stop 510101
  Houston, Texas 77269-2000
- 1-281-514-3333

To identify this product, refer to the part, series, or model number found on the product.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett-Packard Company may void the user’s authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian notice (Avis Canadien)

Class A equipment This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B equipment This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union regulatory notice

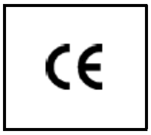
This product complies with the following EU Directives:

- Low Voltage Directive 73/23/EEC
- EMC Directive 89/336/EEC

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms) which are listed on the EU Declaration of Conformity issued by Hewlett-Packard for this product or product family.

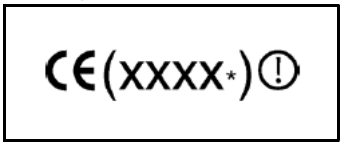
This compliance is indicated by the following conformity marking placed on the product:

Figure 18
EU regulatory mark - harmonized Telecom products



This marking is valid for non-Telecom products and EU harmonized Telecom products (e.g. Bluetooth).

Figure 19
EU regulatory mark - non-harmonized Telecom products

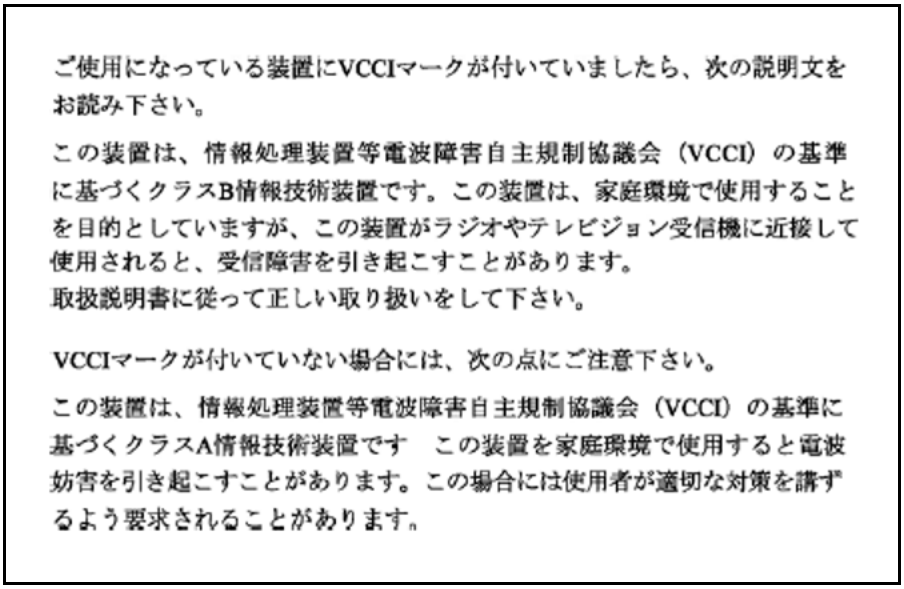


This marking is valid for EU non-harmonized Telecom products.

*Notified body number (used only if applicable—refer to the product label)

Japanese notice

Figure 20
Japanese notice



ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

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取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

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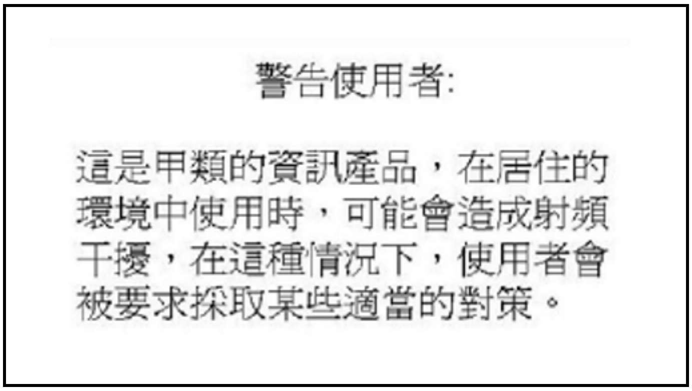
BSMI notice

Figure 21
BSMI notice

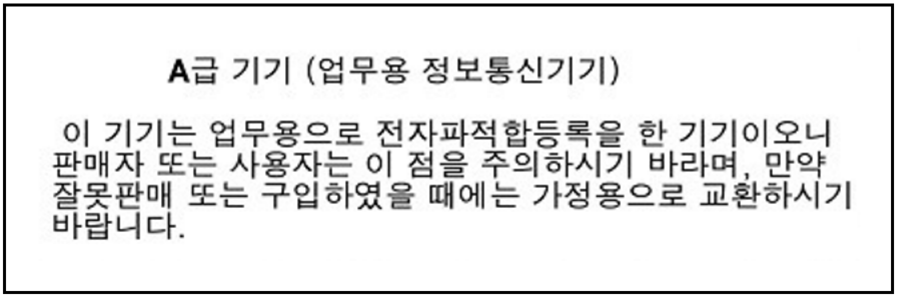


警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Korean notice A and B

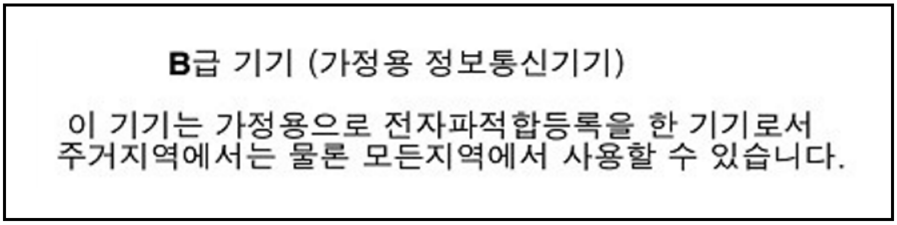
Figure 22
Korean Class A equipment notice



A급 기기 (업무용 정보통신기기)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Figure 23
Korean Class B equipment notice



B급 기기 (가정용 정보통신기기)

이 기기는 가정용으로 전자파적합등록을 한 기기로서 주거지역에서는 물론 모든지역에서 사용할 수 있습니다.

Laser compliance

This product may be provided with an optical storage device (that is, CD or DVD drive) and/or fiber optic transceiver. Each of these devices contains a laser that is classified as a Class 1 Laser Product in accordance with US FDA regulations and the IEC 60825-1. The product does not emit hazardous laser radiation.

WARNING

Use of controls or adjustments or performance of procedures other than those specified herein or in the laser product's installation guide may result in hazardous radiation exposure. To reduce the risk of exposure to hazardous radiation:

- Do not try to open the module enclosure. There are no user-serviceable components inside.
- Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified herein.
- Allow only HP Authorized Service technicians to repair the unit.

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

Battery replacement notice

WARNING

The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.

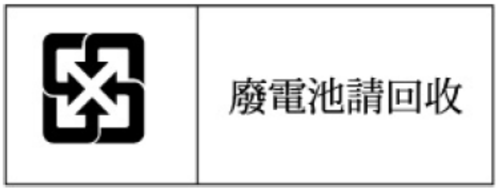
Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. To forward them to recycling or proper disposal, please use the public collection system or return them to HP, an authorized HP Partner, or their agents.

For more information about battery replacement or proper disposal, contact an authorized reseller or an authorized service provider.

Taiwan battery recycling notice

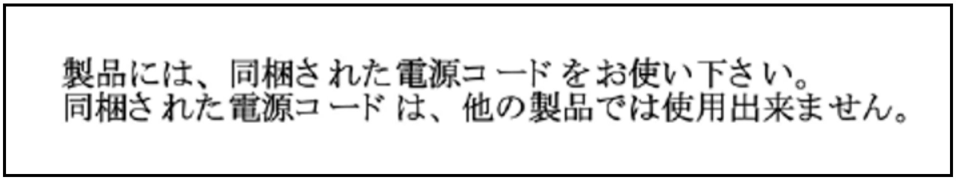
The Taiwan EPA requires dry battery manufacturing or importing firms in accordance with Article 15 of the Waste Disposal Act to indicate the recovery marks on the batteries used in sales, giveaway or promotion. Contact a qualified Taiwanese recycler for proper battery disposal.

Figure 24
Taiwan battery recycling notice



Power cord statement for Japan

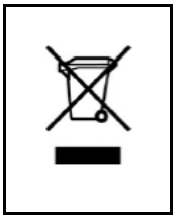
Figure 25
Power cord statement for Japan



製品には、同梱された電源コードをお使い下さい。
同梱された電源コードは、他の製品では使用出来ません。

Disposal of waste equipment by users in private households in the European Union

Figure 26
European Union waste equipment symbol



This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Environmental conditions

The operational environment for a Signaling Server must meet the following general conditions:

- Ventilation openings on a rack-mounted Signaling Server must be free of obstructions.
- Temperature must be from 0° to 35°/C (32° and 98° F).
- Humidity must be from 5 to 95 percent at 30°/C, non-condensing.
- The Signaling Server must not be subject to constant vibration.
- The Signaling Server and other system equipment must be at least 12 ft. (3.66 m) from sources of electrostatic, electromagnetic, or radio frequency interference. These sources can include:

- power tools
- appliances (such as vacuum cleaners)
- office business machines (such as copying machines)
- elevators
- air conditioners and large fans
- radio and TV transmitters
- high-frequency security devices
- all electric motors
- electrical transformers

Grounding requirements

Like all system equipment, the Signaling Server must be thoroughly grounded. Refer to *Communication Server 1000E: Planning and Engineering (NN43041-220)* () or *Communication Server 1000M and Meridian 1: Large System Planning and Engineering (NN43021-220)* () as appropriate for the CS 1000 system you are installing.

IBM X306m and HP DL320-G4 Signaling Servers are rack-mounted and not connected to a grounding block. The following conditions indicate that the Signaling Sever is properly grounded:

- The 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 (preferred method).
- The Signaling Server power cord is plugged into a wall AC outlet. The Signaling Server is grounded outside of the rack by the safety grounding conductor in the power cord. This method ensures proper grounding only of the Signaling Server itself and 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 requirements for the Nortel CP PM server are provided by properly grounding the Media Gateway (MG) or Universal Equipment Module (UEM) into which it is inserted.

Current, power and cooling requirements

Current, power and cooling requirements for the various server platforms are summarized in the following table.

Table 1
Server current, power and cooling requirements

Server	Current @ 120/240 V AC (A)		Required UPS power (W)		Thermal dissipation (Btu)	
	Maximum	**Typical**	**Maximum**	**Typical**	**Maximum**	**Typical**
NTDU97 (HP DL320 G4)	6.00/3.0	4.0/2.0	580.00	400.00	1990.00	1370.00
NTDU99 (IBM x306m)	5.50/2.8	3.00/1.5	550.00	350.00	1024.00	682.00
NTDW61/ 66 CP PM				30		102

Maximum voltage limits: North America – 90 and 132 V, single phase. Europe and UK – 180 and 250 V, single phase. Frequency: North America – 60 Hz. Europe and UK – 50 Hz. Fuse: Germany – 16 A.

The Nortel CP PM server is a circuit card, and is therefore not supplied with power from an AC power outlet directly.

Redundancy

Signaling Server redundancy ensures that telephony services can withstand single hardware and network failures. It also provides a load-sharing basis for the Terminal Proxy Server (TPS) and an alternative route for the SIP and H.323 Gateway software.

When you plan survivability strategies for the Signaling Server, include a second Signaling Server in the plan. One Signaling Server is a Leader Signaling Server that is the primary (or master) TPS. The other Signaling Server is a Follower Signaling Server that is a secondary, redundant TPS.

If the Leader Signaling Server fails, an election process takes place and the Follower Signaling Server becomes the master TPS. The IP Phones reregister to the Follower Signaling Server, and system operation resumes. If the Follower fails, the IP Phones registered to the Follower reregister to the Leader Signaling Server.

This process is explained in the following steps:

1. The IP Phones are distributed between the two Signaling Servers (load-sharing). The SIP and H.323 Gateways run on the Leader Signaling Server.
2. The Leader Signaling Server fails.

3. The Follower Signaling Server takes on the role of the Leader Signaling Server and acquires the IP address of the Leader Signaling Server if necessary.
4. The Time-to-Live (TTL) of IP Phones registered with the failed Signaling Server expires, which causes those IP Phones to reset and register with the new Leader Signaling Server.

   Note: Only IP Phones registered with the failed Signaling Server are reset.

5. The new Leader Signaling Server assumes responsibility for the SIP and H.323 Gateways.
6. Normal operation resumes.

Scalability

Table 2 "Signaling Server limits" (page 52) summarizes the limits for each Signaling Server. Use the values in the table as a quick overview for planning. For detailed calculations, refer to *Communication Server 1000E: Planning and Engineering (NN43041-220)* () or *Communication Server 1000M and Meridian 1: Large System Planning and Engineering (NN43021-220)* () as appropriate for your CS 1000 system.

> ***Note:*** You must consider real-time capacity for a specific application, which can constrain an application in reaching resource limits.

Table 2
Signaling Server limits

Signaling Server component	Limit
NRS	• 5000 total endpoints (up to 5000 SIP endpoints and up to 2000 H.323 endpoints) • 20 000 numbering plan entries (total number of endpoints and routing entries) • 100 000 calls per hour
Terminal Proxy Server (TPS)	• 5000 IP Phones
Virtual Trunks	• Up to 1800 trunks. ***Note:*** This limit depends on the split between SIP and incoming and outgoing H.323 calls. Refer to the Planning and Engineering NTP appropriate for your system for details.

Branch offices

There must be at least one Signaling Server at the main office and each branch office. Each main office can support up to 255 branch offices, and each branch office can support up to 400 IP Phones.

ATTENTION
To provide NRS redundancy in a network with branch offices, Nortel recommends that you configure a Failsafe NRS at each branch office that is not otherwise configured with a Primary or Alternate NRS.

A branch office has 30 default Virtual Trunks. The Media Gateway 1000B (MG 1000B) platform can support up to 92 T1 trunks or 120 E1 trunks, and up to 256 trunks in total.

The total number of IP Phones in all offices can be no greater than the capacity of the main office, as determined using *Communication Server 1000E: Planning and Engineering (NN43041-220)* () or *Communication Server 1000M and Meridian 1: Large System Planning and Engineering (NN43021-220)* () as appropriate for your system.

Hardware installation and connection

Contents

This section contains the following information:

- “Introduction” (page 55)
- “Hardware installation” (page 56)
  - “Installation checklist” (page 56)
  - “Install a Nortel CP PM server” (page 57)
- “Hardware connection” (page 67)
  - “Connection checklist” (page 67)
  - “Connect a Nortel CP PM server” (page 67)
  - “Connect an IBM X306m server” (page 74)
  - “Connect an HP DL320-G4 Signaling Server” (page 78)

Introduction

This chapter contains general instructions for installing a Nortel CP PM server. It contains no instructions for installing 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 COTS 1U server require four-post rack mounting, as opposed to two-post rack mounting for the legacy Nortel ISP1100 servers.

ATTENTION
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.

The chapter also contains detailed instructions to connect all three types of server to the ELAN and TLAN subnets of a CS 1000 system, and to connect a maintenance terminal to each type of Signaling Server.

Hardware installation

Installation checklist

Before you start to install a Signaling Server in a CS 1000 system, complete the following checklist.

Table 3
Installation checklist

Have you:
Received all server equipment and peripherals? • For an IBM X306m (NTDU99AAE5) or HP DL320-G4 (NTDU97AA) Signaling Server: — installation accessories for rack-mounting the server — AC-power cord **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. — a DTE-DTE null modem serial cable (supplied) • for a CS 1000E Nortel CP PM Signaling Server (NTDW61BAE5): — NTDW6102E5 - CP PM Signaling Server Hard Drive kit — N0118766 - CP PM Signaling Server Hard Drive Installation instructions — NTAK19ECE6 - CP PM Signaling Server 2 port SDI Cable assembly kit — NTDU0606E6 - CP PM Signaling Server 25cm RJ45 Ethernet Cable kit — a 25-pin to 9-pin straight-through serial cable (not supplied) • for a CS 1000M Nortel CP PM Signaling Server (NTDW66AAE5 model) — NTDW6102E5 - CP PM Signaling Server Hard Drive kit — N0118766 - CP PM Signaling Server Hard Drive Installation instructions — NTAK19ECE6 - CP PM Signaling Server 2 port SDI Cable assembly kit — NTDW69AAE5 - CP PM Signaling Server Large System Cabling kit — N0106745 - CP PM Signaling Large System Cabling kit installation instructions — a 25-pin to 9-pin straight-through serial cable (not supplied) ***Note:*** Save the packaging and packing materials in case you must reship the equipment or peripherals.
Made sure the area meets all environmental requirements?
Checked for all power requirements?
Checked for correct grounding facilities?

Have you:
Obtained the following? • screwdrivers • an ECOS 1023 POW-R-MATE or similar type of multimeter • appropriate cable terminating tools • a computer (maintenance terminal) to connect directly to the Signaling Server, with: — teletype terminal (ANSI-W emulation, serial port, 9600 bps) — a web browser for Element Manager (configure cache settings to check for new web pages every time the browser is invoked, and to empty the cache when the browser is closed)
Prepared the network data as suggested in *Converging the Data Network with VoIP (NN43001-260)* () and *Communication Server 1000E: Planning and Engineering (NN43041-220)* () or *Communication Server 1000M and Meridian 1: Large System Planning and Engineering (NN43021-220)* (), as appropriate for your CS 1000 system?
Read all safety instructions in *Communication Server 1000E Installation and Commissioning (NN43041-310)* () or *Communication Server 1000M and Meridian 1 Large System Installation and Commissioning (NN43021-310)* (), as appropriate for your CS 1000 system?

Install a Nortel CP PM server

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 1000Eand a CS 1000Msystem.

Installation in a Nortel CS 1000E system

The NTDW61BAE5 model of the Nortel CP PM server is designed for use in a CS 1000Esystem. The first task that must be performed is to install the hard drive shipped with the server. For instructions, see "Install a hard drive on a Nortel CP PM Signaling Server" (page 240).

You can insert the NTDW61BAE5 model of the Nortel CP PM server into any slot of a CS 1000EMedia 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.

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

Installation in a Nortel CS 1000M system

The NTDW66AAE5 model of the Nortel CP PM server is designed for use in a CS 1000Msystem. The first task that must be performed is to install the hard drive shipped with the server. For instructions, see "Install a hard drive on a Nortel CP PM Signaling Server" (page 240).

You can insert the NTDW66AAE5 model into any slot of a CS 1000MUniversal 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 1000MUEM. These ports are used to connect your Nortel CP PM Signaling Server to the ELAN and TLAN Ethernet subnets of your CS 1000Msystem.

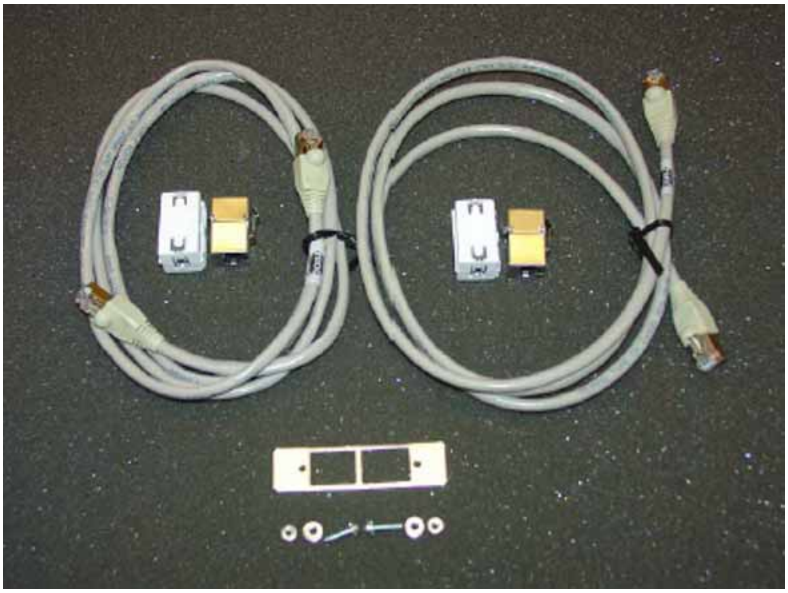
Use the following procedure to install ELAN and TLAN Ethernet ports on the back of a CS 1000MUEM.

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

Procedure 1
Installing ELAN and TLAN Ethernet ports on the back of a CS 1000MUEM

Step	Action
1	Obtain the special cabling kit (NTDW69AAE5) shipped with the CS 1000Mmodel of the Nortel CP PM Signaling Server (NTDW66AAE5). The NTDW69AAE5 cabling kit should include the items shown in the following figure.

Figure 27
NTDW69AAE5 Cabling Kit contents



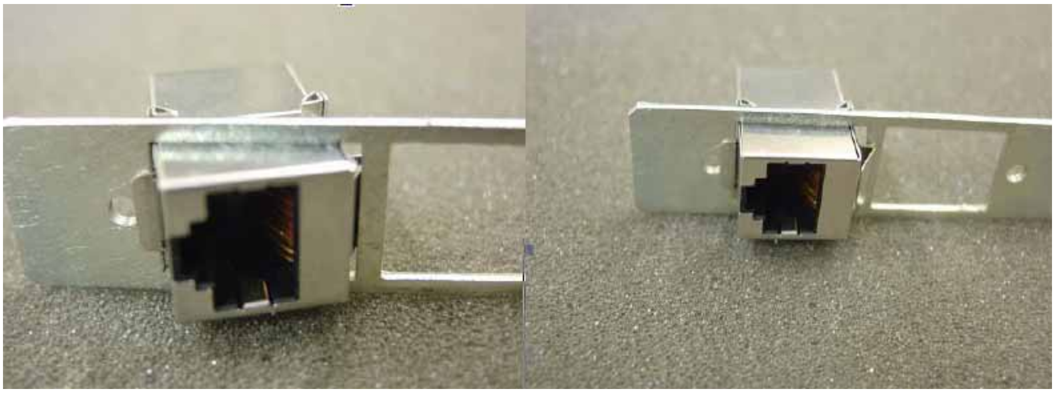
The following is a list of items in the NTDW69AAE5 cabling kit:

- 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 the following figure.

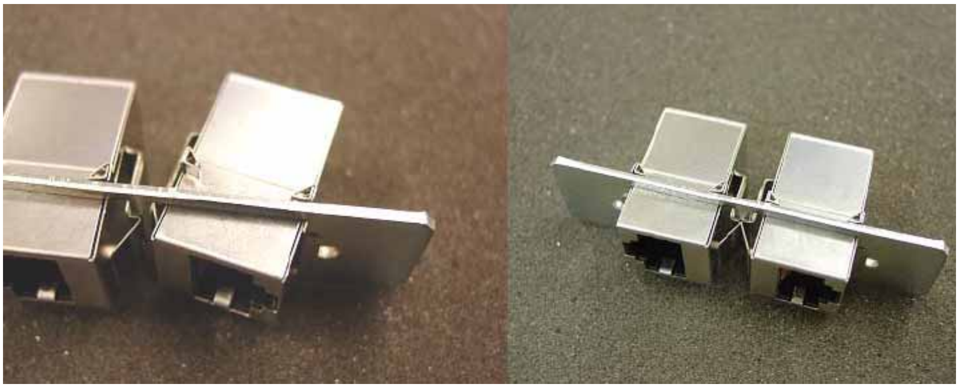
Figure 28
One Ethernet port coupler in adapter plate



3 Insert the other Ethernet port coupler into the adapter plate.

See the following figure.

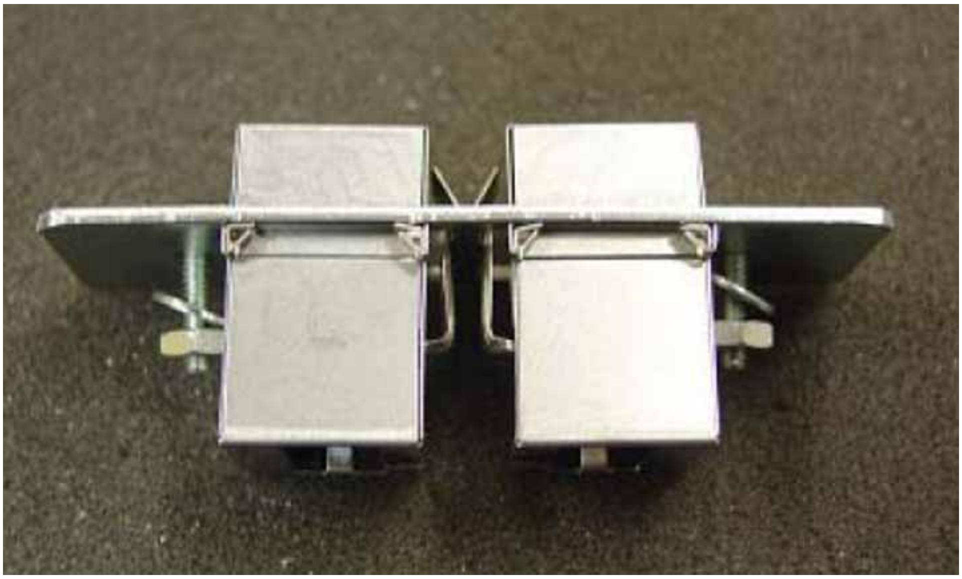
Figure 29
Two Ethernet port couplers in adapter plate



4 Loosely attach screws, washers, and nuts to the Ethernet port adapter plate.

See the following figure.

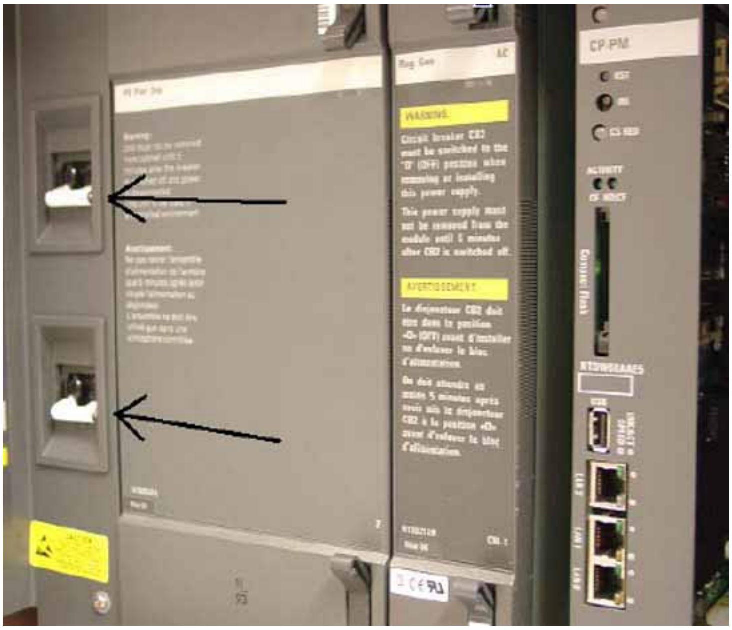
Figure 30
Ethernet port adapter plate with screws



5 Switch off the UEM power supplies.

See the following figure.

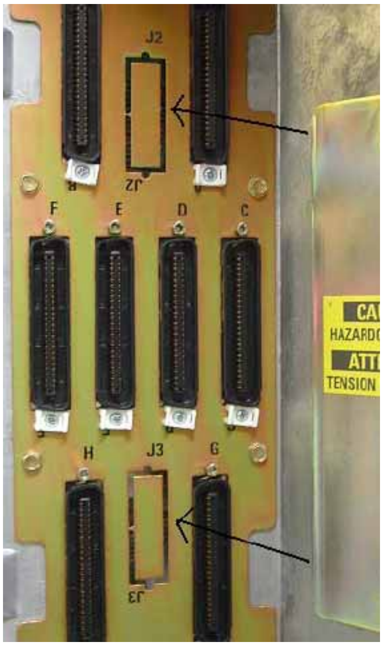
Figure 31
Shut down UEM power supplies



6 Select one of the J2-J5 knock-out plates on the back of the UEM.

See the following figure.

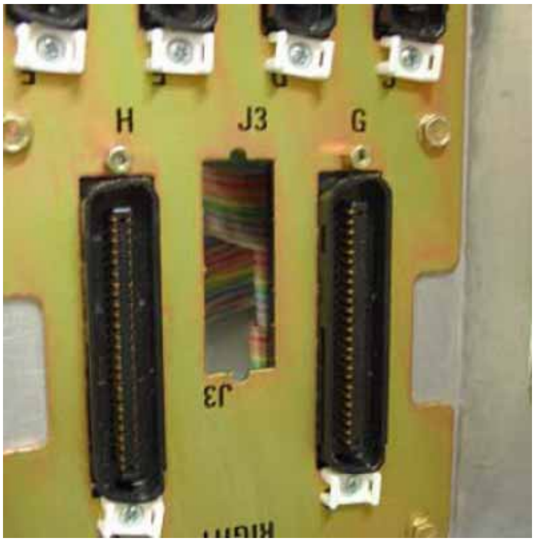
Figure 32
J2-J5 plates on back panel of UEM



7 Knock out the metal plate from selected J2-J5 location.

See the following figure.

Figure 33
Selected J2-J5 plate on back panel of UEM



This provides a hole through which the Ethernet patch cables are routed, and to which the Ethernet port adapter plate is attached.

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 the following figures.

Figure 34
ELAN connection on faceplate

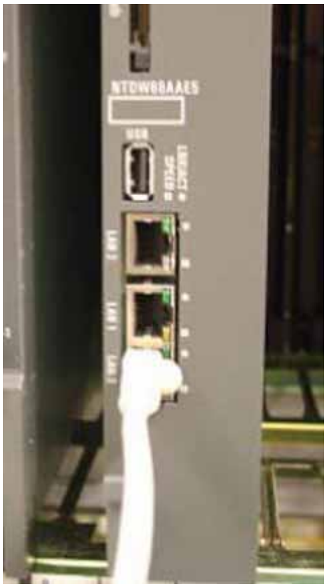
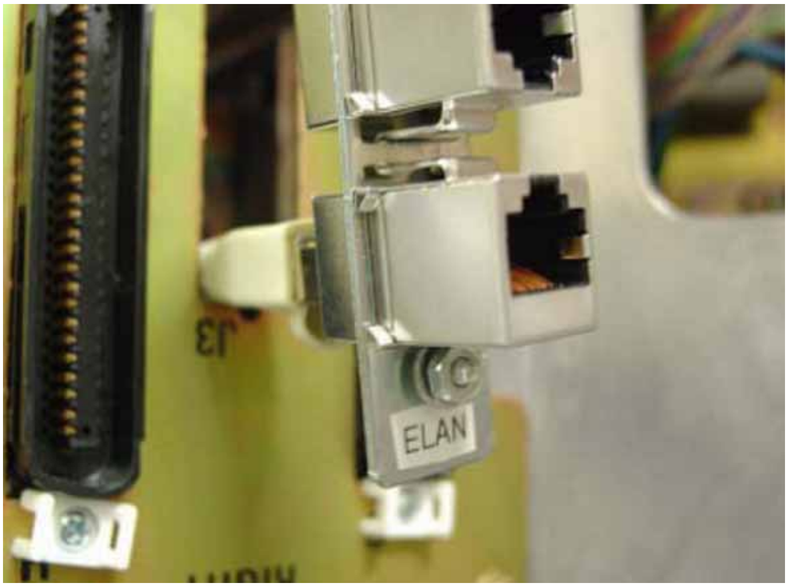


Figure 35
ELAN connection on Ethernet port coupler



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 the following figures.

Figure 36
TLAN connection on faceplate

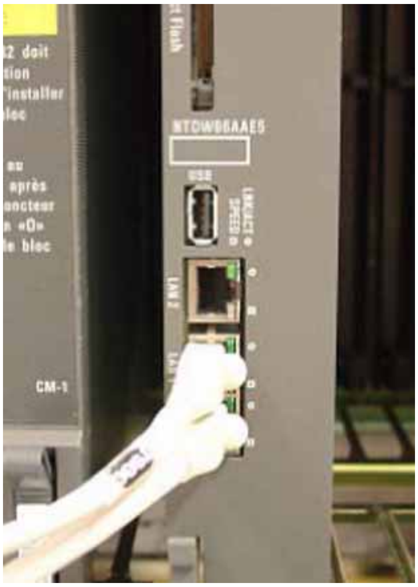
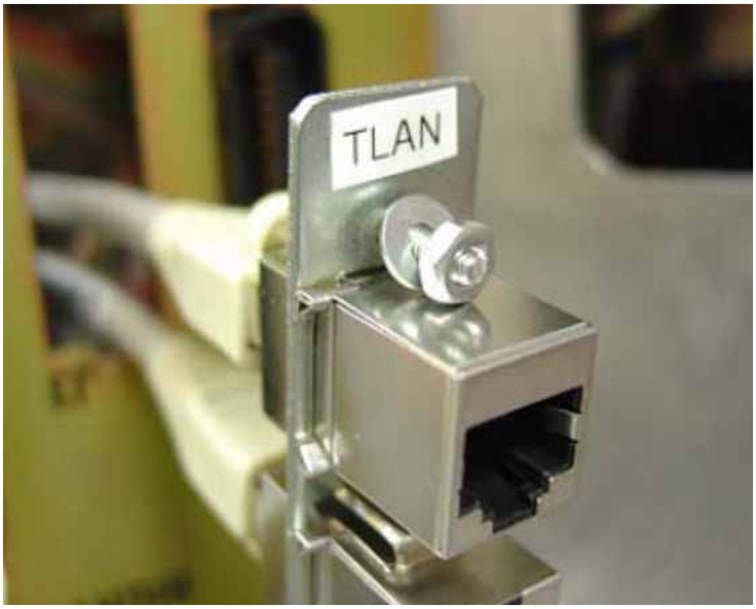


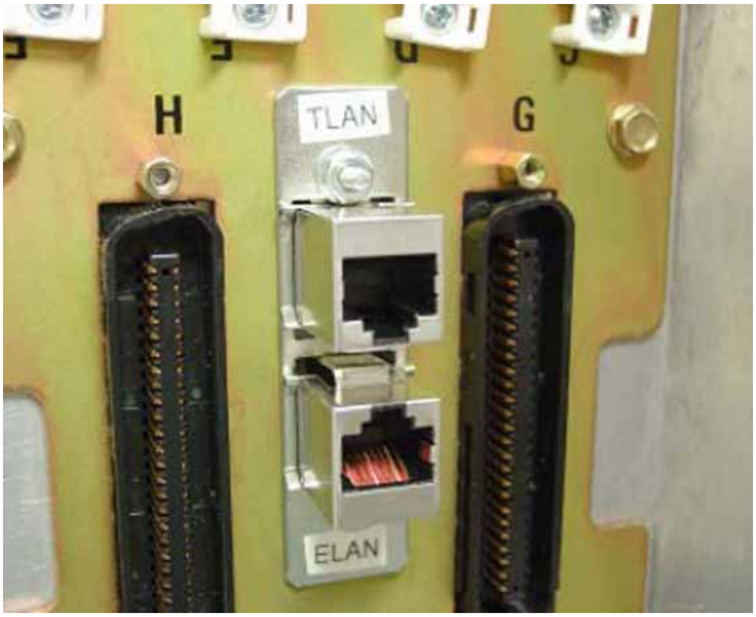
Figure 37
TLAN connection on Ethernet port coupler



10. Fit the Ethernet port adapter plate into the hole on the back of the UEM and tighten the screws.

    See the following figure.

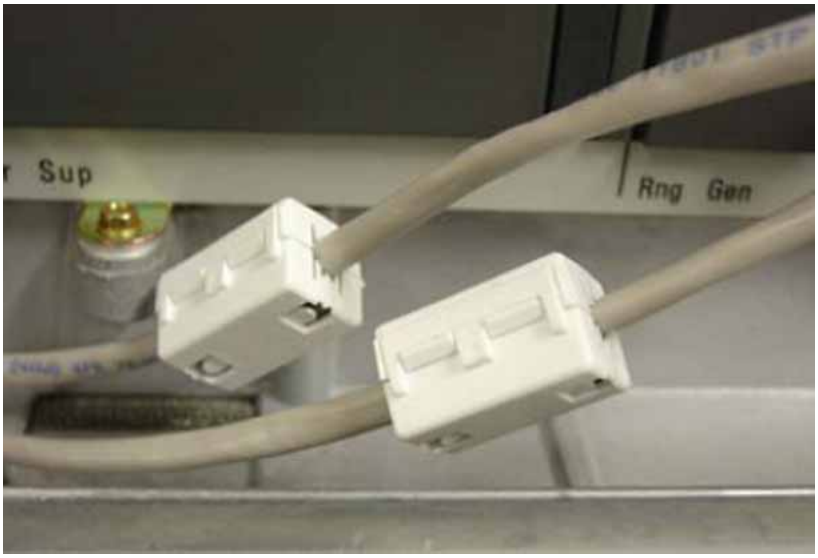
Figure 38
Installed Ethernet port adapter plate



11 Attach the ferrite beads to the Ethernet patch cables.

See the following figure.

Figure 39
Attached Ethernet patch cable ferrite beads



--End--

Hardware connection

Connection checklist

Before you connect a server, complete the following checklist.

Table 4
Connection checklist

Have you:

For IBM X306m or HP DL320-G4 Signaling Servers:

- Obtained the power cable?
    - Check that the power cord is the correct type for the host region. Replace the cord with one of the correct type if necessary.

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

- Obtained a DTE-DTE null modem serial cable to connect your Signaling Server to a maintenance terminal?
- Obtained the CAT5 cables (or better) to connect the server to the ELAN and TLAN subnets?

For Nortel CP PM Signaling Servers:

> **ATTENTION**
> 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.

- Obtained the NTAK19EC cable to adapt 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 a 25-pin to 9-pin straight-through serial cable to connect the 25-pin DB connector on the NTAK19EC cable to a 9-pin serial port on your maintenance terminal?
- Obtained the CAT5 cables (or better) to connect the server to the ELAN and TLAN subnets?

Connect a Nortel CP PM 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 1000Eand CS 1000Msystem respectively. It also contains instructions for connecting a maintenance terminal to the Nortel CP PM Signaling Server.

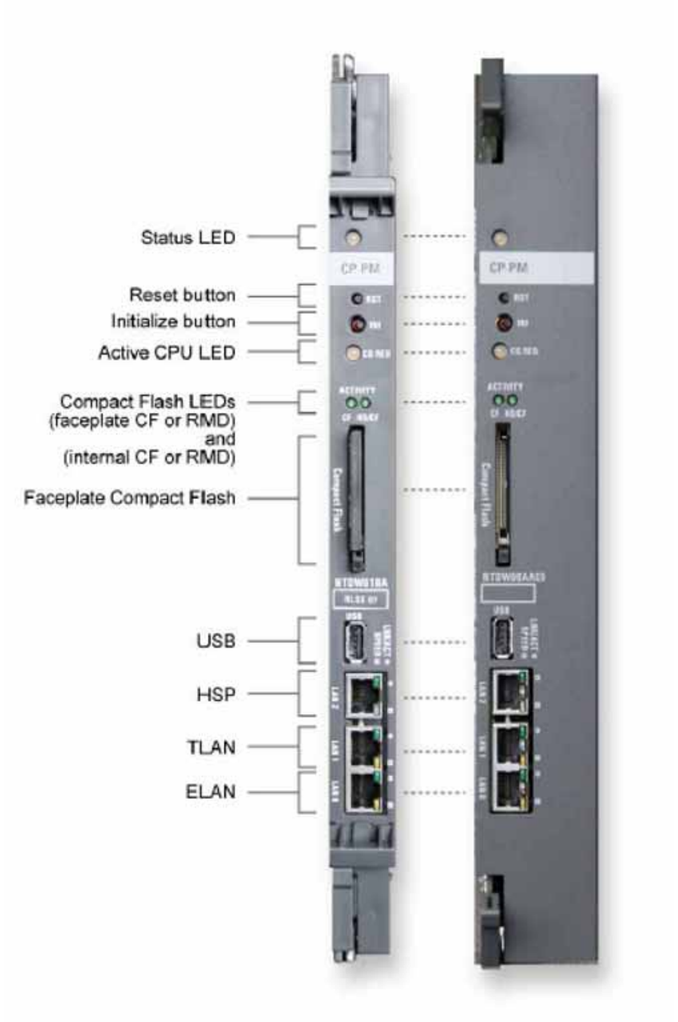
The NTDW61BAE5 model of the Nortel CP PM Signaling Server was designed for use in a CS 1000Esystem. As such, it is inserted into a slot of the Media Gateway (MG 1000E or MG 1000B). The Media Gateway also hosts the Media Gateway Controller (MGC) that has Ethernet ports for connecting to the ELAN and TLAN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

However, it is common in a CS 1000Esystem for the Call Server to be connected to the MGC through the ELAN port. If the Call Server is not connected to the MGC through this port, the NTDW61BAE5 model of the CP PM Signaling Server uses it to connect to the ELAN subnet of the CS 1000Esystem. If the Call Server is using the MGC ELAN port, 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 1000Msystem. 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 1 “Installing ELAN and TLAN Ethernet ports on the back of a CS 1000MUEM” (page 58)).

The following figure shows the faceplates of the two models of the Nortel CP PM server with labeling for all components (NTDW61BAE5 on the left and NTDW66AAE5 on the right).

Figure 40
Faceplates of the Nortel CP PM server


Status LED
Reset button
Initialize button
Active CPU LED
Compact Flash LEDs
(faceplate CF or RMD)
and
(internal CF or RMD)
Faceplate Compact Flash
USB
HSP
TLAN
ELAN
CP PM
Compact Flash
USB

Refer to the preceding figure when you perform the following procedure.

Procedure 2
Connecting a Nortel CP PM Signaling Server

Step	Action
1	Establish a maintenance terminal connection at the back of the Media Gateway (CS 1000E) or Universal Equipment Module (CS 1000M) shelf. The com (SDI) port of the Nortel CP PM server is routed through the backplane to the 50-pin MDF connector on the back of the MG or UEM shelf. A special cable (NTAK19EC) ships with the

Nortel CP PM server that adapts the 50-pin MDF connector to a 25-pin DB connector. You need a 25-pin to 9-pin straight-through serial cable to connect from the 25-pin DB connector to the serial port on the back of your PC.

a Connect the NTAK19EC cable (shipped with the Nortel CP PM server) to the 50-pin MDF connector on the back of the shelf.

b Connect a 25-pin to 9-pin straight-through serial cable to the 25-pin DB connector at the end of the NTAK19EC cable.

c Connect the other end of the serial cable to the serial port on the maintenance terminal.

2 Insert the Nortel CP PM server into the slot corresponding to the shelf where you connected the NTAK19EC cable.

- The server is hot-pluggable so you can insert it without powering off the system.

The maintenance terminal is now connected to the server.

3 Connect the Nortel CP PM Signaling Server to the ELAN and TLAN subnets of the CS 1000 system.

- If you have a CS 1000E system, perform Procedure 3 “Connecting a CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000E system ” (page 71)
- If you have a CS 1000M system, perform Procedure 4 “Connecting a CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000M system ” (page 72)

4 Set the baud rate for the serial port on the Signaling Server to 9600 b/ps.

> ***Note:*** The Nortel CP PM Signaling Server ships with the serial port configured to 9600 b/ps.

To verify or change the baud rate on a Nortel CP PM Signaling Server, see Procedure 5 “Changing the baud rate on a Nortel CP PM Signaling Server” (page 73).

5 Configure the connected maintenance terminal (see “Configure a maintenance terminal” (page 232).

--End--

Use the following procedure to connect a Nortel CP PM Signaling Server (model NTDW61BAE5) to the ELAN and TLAN subnets of a CS 1000E system.

Procedure 3
Connecting a CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000E system

Step **Action**

1 Connect the Signaling Server to the ELAN subnet.

- if the CS 1000 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 CP PM Signaling Server (NTDU0606E6) into the ELAN network interface port (ELAN port) on the faceplate of the CP PM Signaling Server
    - Insert the other end of the 25-cm RJ-45 CAT5 Ethernet cable into the MGC ELAN Ethernet port
- if the CS 1000 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 CP PM Signaling 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 CS 1000 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 CP PM Signaling Server (NTDU0606E6) into the TLAN network interface port (TLAN port) on the faceplate of the CP PM Signaling 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 CP PM Signaling Server
- Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the TLAN Ethernet switch

---

--End--

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.

Use the following procedure to connect a Nortel CP PM Signaling Server (model NTDW66AAE5) to the ELAN and TLAN subnets of a CS 1000M system.

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

Procedure 4
Connecting a CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000M system

Step	Action
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 1000MUEM. You installed this ELAN port at the back of the UEM when you installed the Signaling Server in the UEM (see Procedure 1 “Installing ELAN and TLAN Ethernet ports on the back of a CS 1000MUEM” (page 58).
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 1000MUEM. You installed this TLAN port at the back of the UEM when you installed the Signaling Server in the UEM (see Procedure 1

"Installing ELAN and TLAN Ethernet ports on the back of a CS 1000MUEM" (page 58).

4 Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the TLAN Ethernet switch.

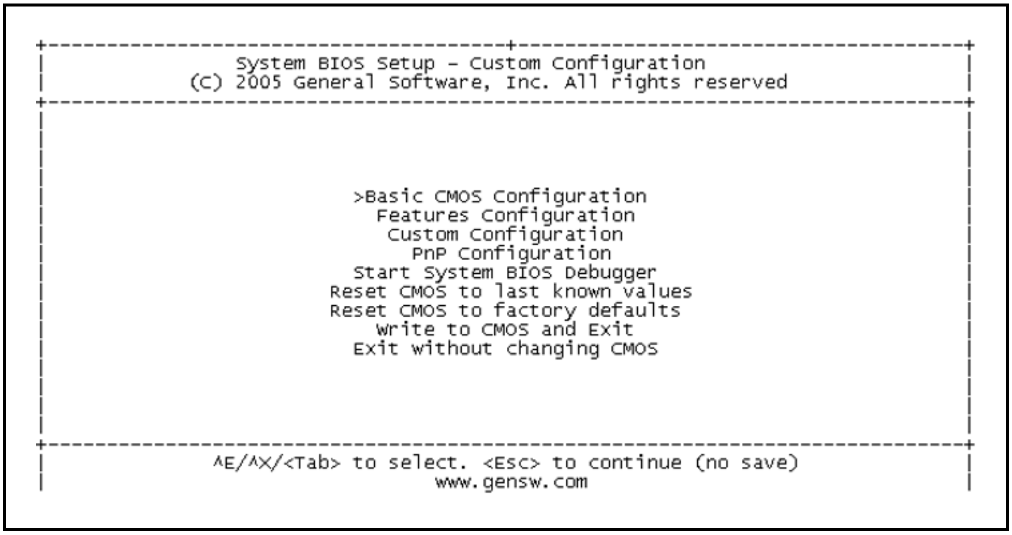
--End--

Use the following procedure to verify or change the baud rate on a Nortel CP PM Signaling Server.

Procedure 5
Changing the baud rate on a Nortel CP PM Signaling Server

Step	**Action**
1	Press the **RST** button on the faceplate of the Signaling Server to boot the Signaling Server.
2	Press `Ctrl+C` keys at the same time to invoke the BIOS Setup menu. The Nortel CP PM System BIOS Menu screen appears.

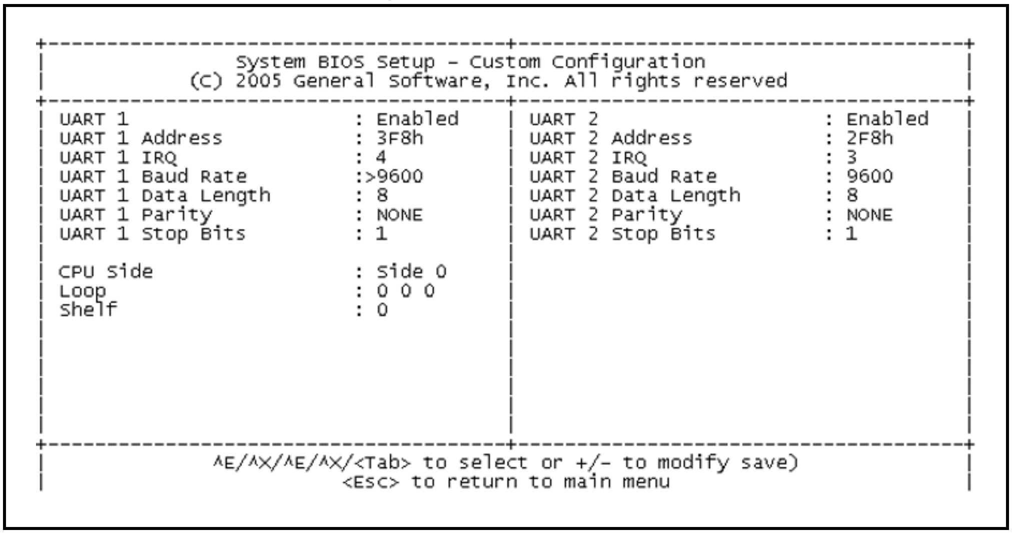
Figure 41
Nortel CP PM System BIOS menu



```
                System BIOS Setup - Custom Configuration
          (C) 2005 General Software, Inc. All rights reserved

                        >Basic CMOS Configuration
                          Features Configuration
                           Custom Configuration
                             PnP Configuration
                        Start System BIOS Debugger
                      Reset CMOS to last known values
                      Reset CMOS to factory defaults
                          Write to CMOS and Exit
                        Exit without changing CMOS

        ^E/^X/<Tab> to select. <Esc> to continue (no save)
                              www.gensw.com
```

Step	**Action**
3	Navigate to and select the **Custom Configuration** option. The Custom Configuration screen appears.

Figure 42
Nortel CP PM Customer Configuration



```
+----------------------------------------+---------------------------------------+
|                 System BIOS Setup - Custom Configuration                        |
|            (C) 2005 General Software, Inc. All rights reserved                  |
+----------------------------------------+---------------------------------------+
| UART 1                      : Enabled  | UART 2                       : Enabled |
| UART 1 Address              : 3F8h     | UART 2 Address               : 2F8h    |
| UART 1 IRQ                  : 4        | UART 2 IRQ                   : 3       |
| UART 1 Baud Rate            :>9600     | UART 2 Baud Rate             : 9600    |
| UART 1 Data Length          : 8        | UART 2 Data Length           : 8       |
| UART 1 Parity               : NONE     | UART 2 Parity                : NONE    |
| UART 1 Stop Bits            : 1        | UART 2 Stop Bits             : 1       |
|                                        |                                        |
| CPU Side                    : Side 0   |                                        |
| Loop                        : 0 0 0    |                                        |
| Shelf                       : 0        |                                        |
|                                        |                                        |
|                                        |                                        |
|                                        |                                        |
|                                        |                                        |
|                                        |                                        |
+----------------------------------------+---------------------------------------+
|               ^E/^X/^E/^X/<Tab> to select or +/- to modify save)               |
|                          <Esc> to return to main menu                          |
```

4. Navigate to the **UART 1 Baud Rate** option and change as necessary.

5. Navigate to the **UART 2 Baud Rate** option and change as necessary.

    Note: UART 2 connection does not print BIOS messages.

6. Press the **Esc** key to save the settings and return to the BIOS Menu screen.

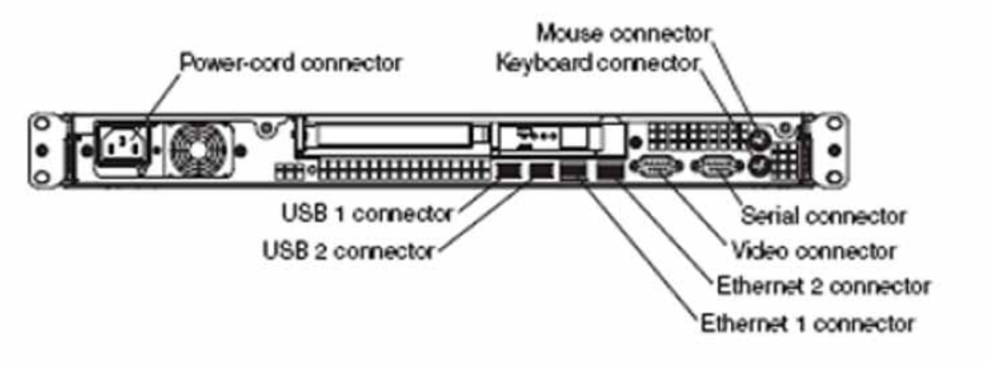
7. Select the **Write to CMOS and Exit** option to exit the Nortel CP PM server BIOS menu system.

--End--

Connect an IBM X306m server

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

Figure 43
Back of an IBM X306m server


Mouse connector
Power-cord connector
Keyboard connector
USB 1 connector
USB 2 connector
Serial connector
Video connector
Ethernet 2 connector
Ethernet 1 connector

Refer to the preceding figure when you perform the following procedure.

Procedure 6
Connecting an IBM X306m server

Step	Action
1	Connect the server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable into the Ethernet 1 connector (TLAN network interface) on the back of the server.
2	Connect the server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable into the Ethernet 2 connector (ELAN network interface) on the back of the server.
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 server power cord. **a** Check that the power cord is the type required in the region where the 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 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 Procedure 7 "Changing the baud rate on an IBM X306m Signaling Server" (page 76) for instructions.

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

6 Configure the connected maintenance terminal (see "Configure a maintenance terminal" (page 232)).

--End--

Use the following procedure to verify or change the baud rate on an IBM X306m Signaling Server.

Procedure 7
Changing the baud rate on an IBM X306m Signaling Server

Step	Action

1 Press the Power switch to boot the server.

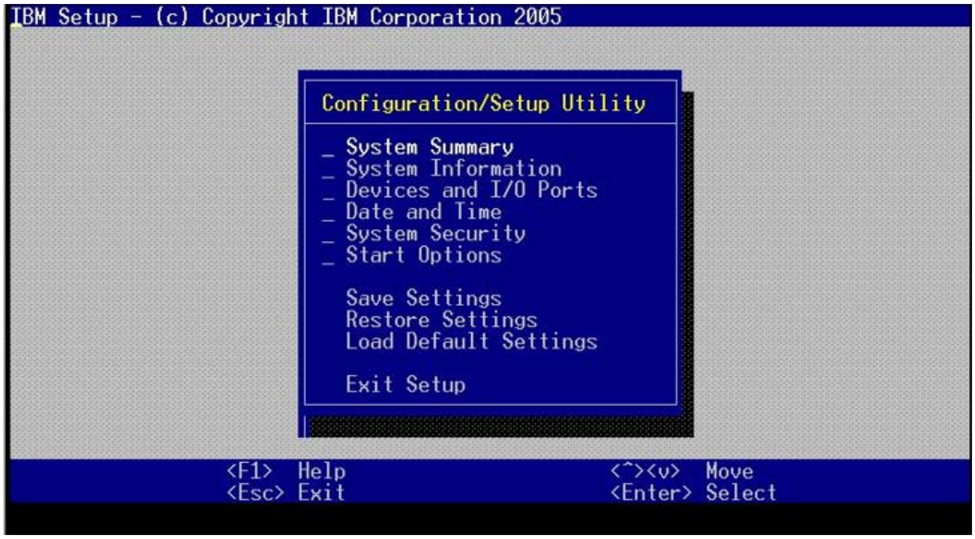
The server boots and a **Press F1 for Configuration/Setup** message appears on the maintenance terminal.

> ***Note:*** If the server is already up and running, press the **Reset** button on the front of the IBM X306m server to reboot and receive the **Press F1 for Configuration/Setup** message.

2 Press `F1` to invoke the IBM X306m server Configuration/Setup Utility.

The Configuration/Setup Utility menu screen appears.

Figure 44
IBM X306m server Configuration/Setup Utility menu

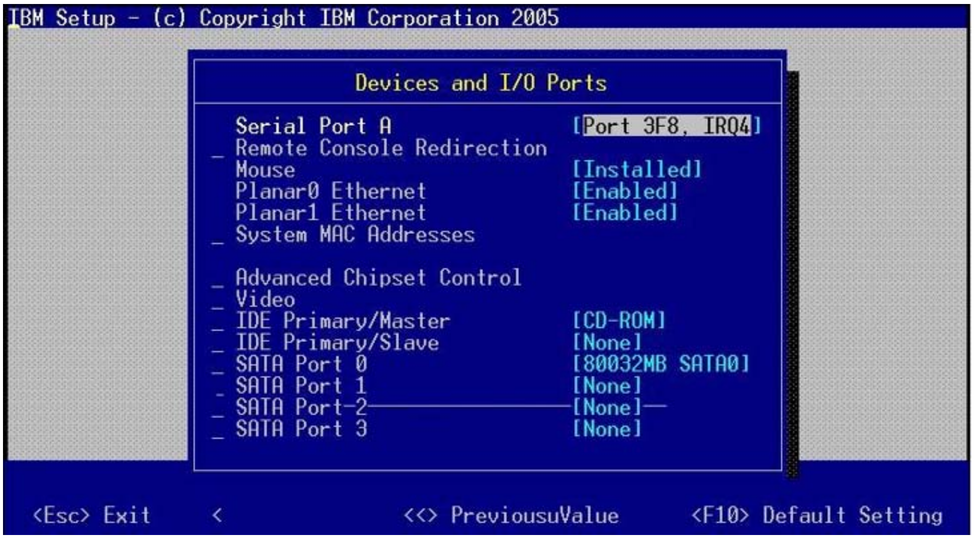


```
IBM Setup - (c) Copyright IBM Corporation 2005

            Configuration/Setup Utility

            _ System Summary
            _ System Information
            _ Devices and I/O Ports
            _ Date and Time
            _ System Security
            _ Start Options

              Save Settings
              Restore Settings
              Load Default Settings

              Exit Setup

      <F1>  Help                    <^><v>  Move
      <Esc> Exit                    <Enter> Select
```

3 Navigate to the **Devices and I/O Ports** option and press `Enter`.

The Devices and I/O Ports menu screen appears.

Figure 45
IBM X306m server Devices and I/O Ports menu

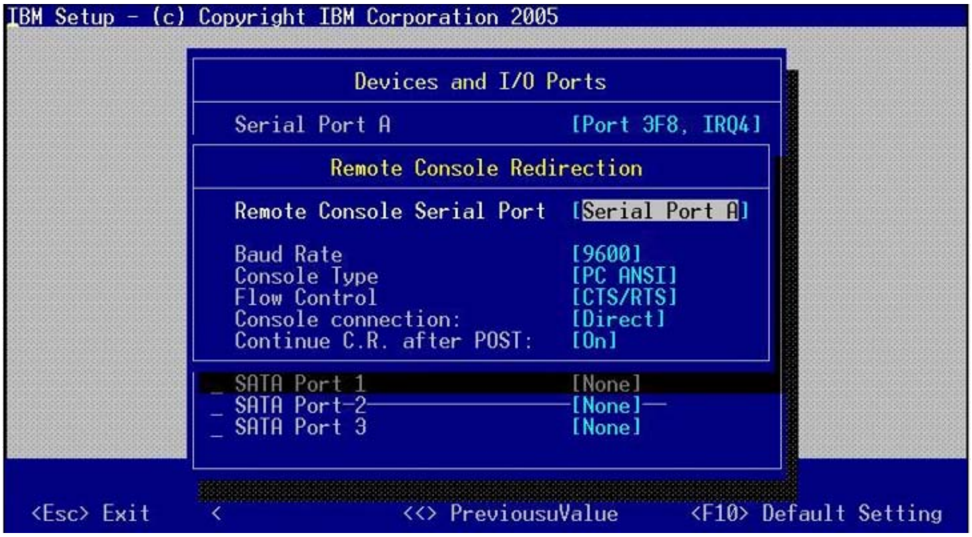


```
IBM Setup - (c) Copyright IBM Corporation 2005

                 Devices and I/O Ports

     Serial Port A                  [Port 3F8, IRQ4]
   _ Remote Console Redirection
     Mouse                          [Installed]
     Planar0 Ethernet               [Enabled]
     Planar1 Ethernet               [Enabled]
   _ System MAC Addresses

   _ Advanced Chipset Control
   _ Video
   _ IDE Primary/Master             [CD-ROM]
   _ IDE Primary/Slave              [None]
   _ SATA Port 0                    [80032MB SATA0]
   _ SATA Port 1                    [None]
   _ SATA Port-2--------------------[None]--
   _ SATA Port 3                    [None]

 <Esc> Exit    <        <<> PreviousuValue    <F10> Default Setting
```

4 Navigate to the **Remote Console Redirection** option and press `Enter`.

The Remote Console Redirection screen appears.

Figure 46
IBM X306m server Remote Console Redirection



```
IBM Setup - (c) Copyright IBM Corporation 2005

                 Devices and I/O Ports
   Serial Port A                  [Port 3F8, IRQ4]
              Remote Console Redirection
   Remote Console Serial Port     [Serial Port A]

   Baud Rate                      [9600]
   Console Type                   [PC ANSI]
   Flow Control                   [CTS/RTS]
   Console connection:            [Direct]
   Continue C.R. after POST:      [On]

 _ SATA Port 1                    [None]
 _ SATA Port-2                    [None]
 _ SATA Port 3                    [None]

<Esc> Exit    <        <<> PreviousValue     <F10> Default Setting
```

5 Navigate to the **Baud Rate** option and enter the value 9600.

6 Press `Enter` to change the serial port speed to 9600 b/ps.

7 Press `ESC` to exit the **Remote Console Redirection** option.

The Devices and I/O Ports menu screen appears.

8 Press `ESC` to exit the **Devices and I/O Ports** option.

The Configuration/Setup Utility menu screen appears.

9 Navigate to the **Save Settings** option and press `Enter` to save the changed parameters.

10 Navigate to the **Exit Setup** option and press `Enter` to exit the IBM X306m Configuration/Setup Utility.

The server will reboot automatically.

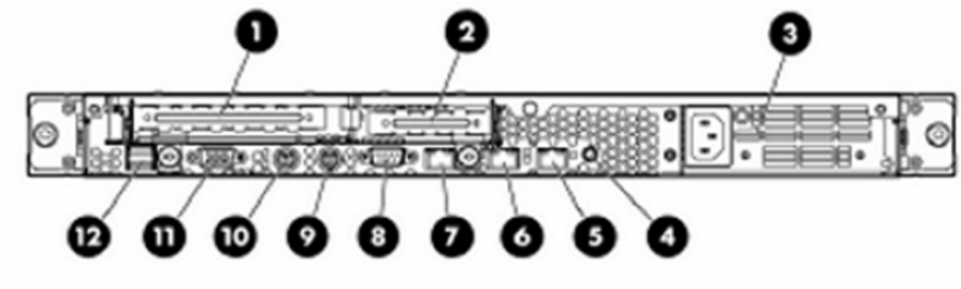
--End--

Refer to the Server Product Guide on the resource CD-ROM shipped with the IBM X306m server for additional operating information.

Connect an HP DL320-G4 Signaling Server

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

Figure 47
Back of an HP DL320-G4 server



Refer to the preceding figure when you perform the following procedure.

Procedure 8
Connecting an HP DL320-G4 server

Step	Action
1	Connect the server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable into the connector labeled with the number 5 (TLAN network interface) on the back of the server.
2	Connect the server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable into the connector labeled with the number 6 (ELAN network interface) on the back of the server.
3	Connect a DTE–DTE null modem serial cable from the serial port on the back of the server (COM1) to a maintenance terminal.
4	Connect the server power cord. **a** Check that the power cord is the type required in the region where you are installing the Server. 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 side of the 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. See Procedure 9 “Configuring the COM1 serial port on an HP DL320-G4 Signaling Server” (page 80) for instructions.

6 Set the baud rate for the COM1 serial port on the Signaling Server to 9 600 b/ps.

See Procedure 10 “Changing the baud rate on an HP DL320-G4 Signaling Server” (page 82) for instructions.

> ***Note:*** The HP DL320-G4 Signaling Server ships with the serial port configured to 9600 b/ps.

7 Configure the connected maintenance terminal (see “Configure a maintenance terminal” (page 232).

--End--

Use the following procedure to configure the COM1 port of an HP DL320-G4 Signaling Server as the communication port for the connected maintenance terminal.

Procedure 9
Configuring the COM1 serial port on an HP DL320-G4 Signaling Server

Step	Action

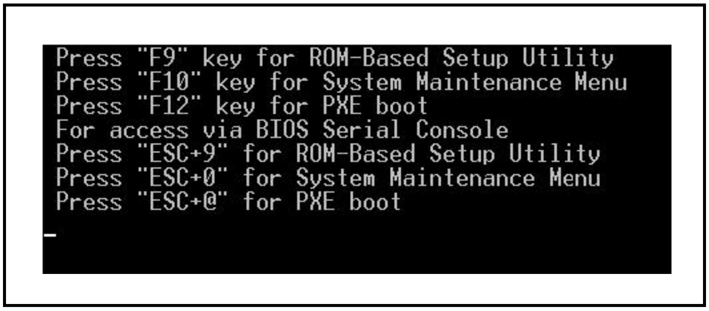
1 Connect a monitor, keyboard and mouse directly to the Signaling Server (through ports on back of Signaling Server) before powering up the Signaling Server.

> ***Note:*** If you use your maintenance terminal connection (Null Modem cable connected to the serial port), you cannot access the Graphical User Interface (GUI) for the ROM-Based Setup Utility. You must use the Command line prompt of the ROM-Based Setup Utility.

2 Press the Power switch to boot the server.

The server boots and the HP DL320-G4 boot screen appears.

Figure 48
HP DL320-G4 server boot screen

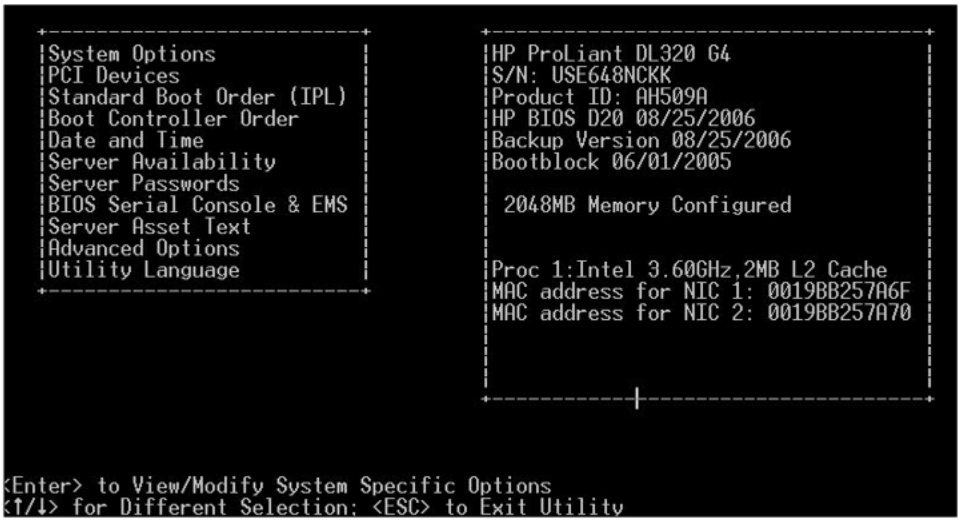


```
Press "F9" key for ROM-Based Setup Utility
Press "F10" key for System Maintenance Menu
Press "F12" key for PXE boot
For access via BIOS Serial Console
Press "ESC+9" for ROM-Based Setup Utility
Press "ESC+0" for System Maintenance Menu
Press "ESC+@" for PXE boot

_
```

3 Press `F9` to invoke the ROM-Based Setup Utility (RBSU) menu screen.

The RBSU menu screen appears.

Figure 49
HP DL320-G4 server RBSU menu



```
+----------------------------+     +--------------------------------------+
|System Options              |     |HP ProLiant DL320 G4                  |
|PCI Devices                 |     |S/N: USE648NCKK                       |
|Standard Boot Order (IPL)   |     |Product ID: AH509A                    |
|Boot Controller Order       |     |HP BIOS D20 08/25/2006                |
|Date and Time               |     |Backup Version 08/25/2006             |
|Server Availability         |     |Bootblock 06/01/2005                  |
|Server Passwords            |     |                                      |
|BIOS Serial Console & EMS   |     | 2048MB Memory Configured             |
|Server Asset Text           |     |                                      |
|Advanced Options            |     |                                      |
|Utility Language            |     |Proc 1:Intel 3.60GHz,2MB L2 Cache     |
+----------------------------+     |MAC address for NIC 1: 0019BB257A6F   |
                                   |MAC address for NIC 2: 0019BB257A70   |
                                   |                                      |
                                   |                                      |
                                   |                                      |
                                   +------------+-------------------------+

<Enter> to View/Modify System Specific Options
<↑/↓> for Different Selection; <ESC> to Exit Utility
```

4 Navigate to the **BIOS Serial Console & EMS** option and press `Enter`.

A BIOS Serial Console & EMS configuration menu screen appears.

5 Navigate to the **BIOS Serial Console Port** option and press `Enter`.

A BIOS Serial Console Port configuration screen appears. This screen presents the user with four options:

- 1 | Auto
- 2 | Disabled
- 3 | COM 1
- 4 | COM 2

6 Navigate to the **COM 1** option and press `Enter`.

This configures the COM 1 port as the serial port for communicating with the connected maintenance terminal.

The BIOS Serial Console & EMS configuration menu screen reappears.

7 Press `ESC` to exit the BIOS Serial Console & EMS configuration menu screen.

The RBSU menu screen reappears.

8 Press `ESC` to exit the ROM-Based Setup Utility.

9 Press **`F10`** to Confirm Exit Utility and reboot the Signaling Server.

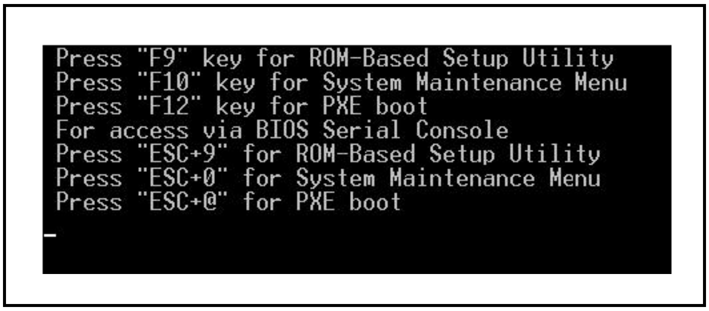
--End--

Use the following procedure to verify or change the baud rate on an HP DL320-G4 Signaling Server.

Procedure 10
Changing the baud rate on an HP DL320-G4 Signaling Server

Step	Action
1	Connect a monitor, keyboard and mouse directly to the Signaling Server (through back plane) before powering up the Signaling Server. ***Note:*** If you use a Null Modem cable connected to the serial port, you cannot access the ROM-Based Setup Utility.
2	Press the Power switch to boot the server. The server boots and the HP DL320-G4 boot screen appears.

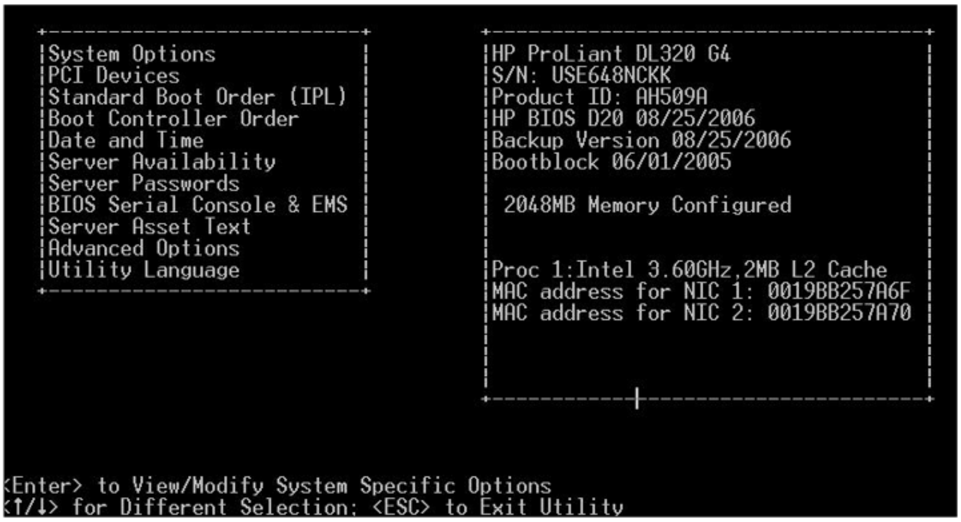
Figure 50
HP DL320-G4 server boot screen



```
Press "F9" key for ROM-Based Setup Utility
Press "F10" key for System Maintenance Menu
Press "F12" key for PXE boot
For access via BIOS Serial Console
Press "ESC+9" for ROM-Based Setup Utility
Press "ESC+0" for System Maintenance Menu
Press "ESC+@" for PXE boot

_
```

Step	Action
3	Press **`F9`** to invoke the ROM-Based Setup Utility (RBSU) menu screen. The RBSU menu screen appears.

Figure 51
HP DL320-G4 server RBSU menu



```
+----------------------------+      +---------------------------------------+
|System Options              |      |HP ProLiant DL320 G4                   |
|PCI Devices                 |      |S/N: USE648NCKK                        |
|Standard Boot Order (IPL)   |      |Product ID: AH509A                     |
|Boot Controller Order       |      |HP BIOS D20 08/25/2006                 |
|Date and Time               |      |Backup Version 08/25/2006              |
|Server Availability         |      |Bootblock 06/01/2005                   |
|Server Passwords            |      |                                       |
|BIOS Serial Console & EMS   |      | 2048MB Memory Configured              |
|Server Asset Text           |      |                                       |
|Advanced Options            |      |                                       |
|Utility Language            |      |Proc 1:Intel 3.60GHz,2MB L2 Cache      |
+----------------------------+      |MAC address for NIC 1: 0019BB257A6F    |
                                    |MAC address for NIC 2: 0019BB257A70    |
                                    |                                       |
                                    |                                       |
                                    |                                       |
                                    +-------------+-------------------------+



<Enter> to View/Modify System Specific Options
<↑/↓> for Different Selection; <ESC> to Exit Utility
```

4 Navigate to the **BIOS Serial Console & EMS** option and press `Enter`.

A BIOS Serial Console & EMS configuration screen appears.

5 Navigate to the **BIOS Serial Console Baud Rate** option and press `Enter`.

A BIOS Serial Console Baud Rate configuration window appears. This window presents you with four settings for the serial port speed:

- 9600
- 19200
- 57600
- 115200

6 Navigate to the **9600** setting and press `Enter`.

This configures the serial port speed to 9600 b/ps.

The BIOS Serial Console & EMS configuration menu screen reappears.

7 Press `ESC` to exit the BIOS Serial Console & EMS configuration menu screen.

The RBSU menu screen reappears.

8 Press `ESC` to exit the ROM-Based Setup Utility.

9 Press `F10` to Confirm Exit Utility and reboot the Signaling Server.

--End--

Refer to the Server Product Guide on the resource CD-ROM shipped with the HP DL320-G4 server for additional operating information.

Software media

Contents

This section contains information on the following topics:

- “Overview” (page 85)
- “Download Signaling Server software” (page 86)
- “Create a Signaling Server software compact disk” (page 86)
- “Create a Signaling Server software compact flash card” (page 87)

Overview

Signaling Server software, operating system, web files, and a Signaling Server Software Installation Tool, are loaded onto a compact disk (CD) or a Compact Flash (CF) card to support the installation and/or upgrade of Signaling Server software and system components on a CS 1000 Release 5.5 Signaling Server. IBM X306m and HP DL320-G4 Signaling Servers use a Signaling Server Software CD, and Nortel CP PM Signaling Servers use a Signaling Server Software CF card.

ATTENTION
The Signaling Server is out of service during software installation and upgrade processes.

The Signaling Server Software Installation Tool component manages all aspects of the Signaling Server software installation or upgrade process. It is used to manage and perform the following tasks:

- Install the Signaling Server software/basic system components, and capture basic system configuration parameters (see “Software installation” (page 95).
- Upgrade the Signaling Server software and basic system components (see “Signaling Server Software upgrade” (page 127))

- Configure the Signaling Server for IP telephony and data networking operations. (see "Signaling Server configuration" (page 139).
- Perform Signaling Server maintenance activities (see "Signaling Server Operation, Administration and Maintenance" (page 231).

Download Signaling Server software

Before you can load the Signaling Server Software Installation Tool, Signaling Server software, operating system, and web files, onto either a CD or a CF card, you must download the appropriate Signaling Server software file from Nortel's Technical Support web site. For instructions on downloading this file, see Downloading Nortel content. Use the following information as a guide:

- **Product Category:** VOIP & Multimedia Communications/Communic ations Servers
- **Product Name:** Signaling Server and IP Peer Networking
- **Content Type:** Software

ATTENTION
Obtain the precise Release, Status, and Title of the software file from your next level of support.

After you download the appropriate Signaling Server software file, you can then create a Signaling Server Software CD or CF card. See "Create a Signaling Server software compact disk" (page 86) or "Create a Signaling Server software compact flash card" (page 87) as appropriate.

After you install the Signaling Server software and enter basic system configuration information, you can configure Signaling Server components using the web-based Element Manager interface. See *Element Manager: System Administration (NN43001-632).* ()

Create a Signaling Server software compact disk

This section describes the steps necessary to create a Signaling Server Software CD. The resulting CD is used to load the Signaling Server Software Installation Tool, along with the Signaling Server software, operating system, and web files onto a Nortel ISP1100, IBM X306m, or HP DL320-G4 Signaling Server.

A single .ISO file is provided to create the Software CD. This file is a ready-to-burn ISO9660 CD image that creates a bootable CD that complies to the El Torito specification. You must use CD writer software that can create a CD from this ISO CD image. Because the ISO CD image is preconfigured, your software automatically creates a bootable CD that contains the Signaling Server Software Installation Tool and all required components. See your CD writer software help pages for instructions to create a CD from an .ISO file. Also review the README file that is associated with the Signaling Server Software download.

Use the following procedure to create a Signaling Server Software CD from the ISO9660 CD image:

Procedure 11
Creating a Signaling Server Software CD

Step	Action
1	Use the software option to "create" a CD from the ISO9660 CD image. Do not drag and drop, as this can result in a file copy and a CD that does not work. Do not write the .ISO file to the CD. ***Note:*** Select the disk-at-once write option.
2	Close the session.
3	Label the CD appropriately. For example, Signaling Server, sse-x.xx.xx where x.xx.xx represents the Signaling Server software version.

--End--

The Software CD must be readable in a standard CD drive. After you create a CD from the CD image, the CD contains several directories and files. If you cannot create a CD, refer to the CD writer documentation.

When all Signaling Server Software and system components are loaded successfully onto the Signaling Server Software CD, it can be used to install Signaling Server software and system components onto an IBM X306m, HP DL320-G4, or Nortel ISP1100 Signaling Server.

Create a Signaling Server software compact flash card

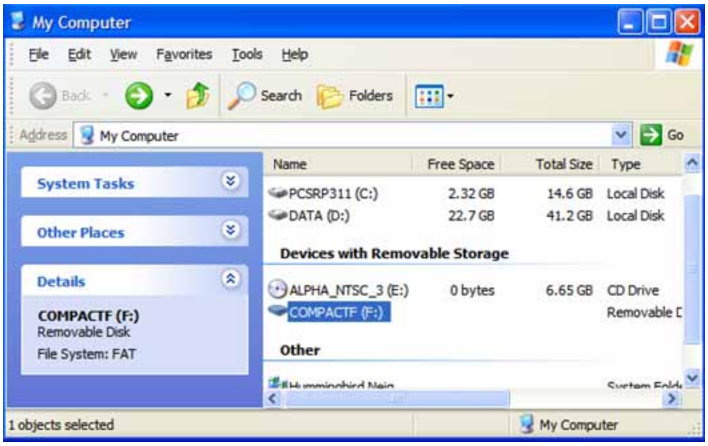
This section describes the steps necessary to create a Signaling Server Software CF Card. A Signaling Server software CF card is necessary to load the Signaling Server Software Installation Tool, along with the Signaling Server software, operating system, and web files onto a CP PM Signaling Server.

Use the following procedure to create a Signaling Server Software CF Card.

Procedure 12
Creating a Signaling Server Software CF Card

Step	Action
1	Navigate to the folder on your local PC into which you downloaded the CP PM Signaling Server Load zip file.
2	Unzip the Signaling Server Software Load zip file. This results in: • parent directory (cf:\) • six child directories (plus other required loadware files) — \licenses — \load — \mkboot — \opensrc — \ssexxxxx.p Where "xxxxx" identifies the current release of Signaling Server software. — \symtabs
3	Open the **\mkboot** directory and locate the mkbootrmd.bat file. This batch file is used to format the CF card.
4	Insert the CF card into a PCMCIA adapter and insert it into your PC. **ATTENTION** The CF card must be 512Mb (CPC# A0548249).
5	Click on **My Computer** to verify the drive letter assigned to the CF drive. The **My Computer** screen appears.

Figure 52
My Computer


My Computer
File Edit View Favorites Tools Help
Back Search Folders
Address My Computer Go
System Tasks
Other Places
Details
My Computer

Name	Free Space	Total Size	Type
PCSRP311 (C:)	2.32 GB	14.6 GB	Local Disk
DATA (D:)	22.7 GB	41.2 GB	Local Disk
Devices with Removable Storage			
ALPHA_NTSC_3 (E:)	0 bytes	6.65 GB	CD Drive
COMPACTF (F:)			Removable D
Other			

COMPACTF (F:)
Removable Disk
File System: FAT

1 objects selected

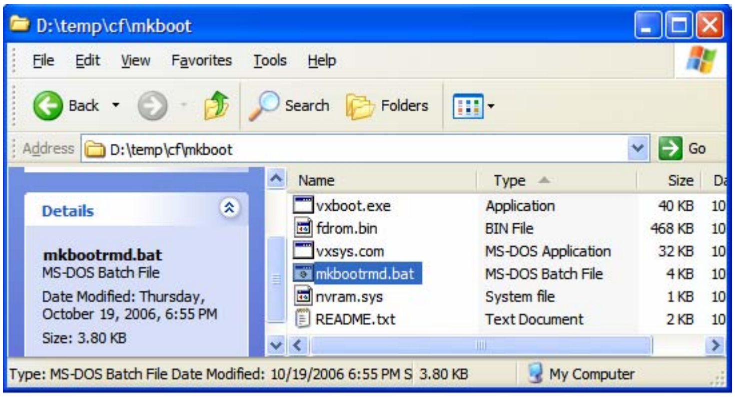
In this example, drive F: is assigned to the CF drive.

6 Navigate to the **Temp** folder on your local PC (or the folder into which you downloaded the CP PM Signaling Server Load zip file).

7 Open the \mkboot folder and locate the mkbootrmd.bat file.

The following is an example of what you should see on the screen.

Figure 53
Run mkbootrmd.bat


D:\temp\cf\mkboot
File Edit View Favorites Tools Help
Back Search Folders
Address D:\temp\cf\mkboot Go
Details
My Computer

Name	Type	Size
vxboot.exe	Application	40 KB
fdrom.bin	BIN File	468 KB
vxsys.com	MS-DOS Application	32 KB
mkbootrmd.bat	MS-DOS Batch File	4 KB
nvram.sys	System file	1 KB
README.txt	Text Document	2 KB

mkbootrmd.bat
MS-DOS Batch File
Date Modified: Thursday, October 19, 2006, 6:55 PM
Size: 3.80 KB

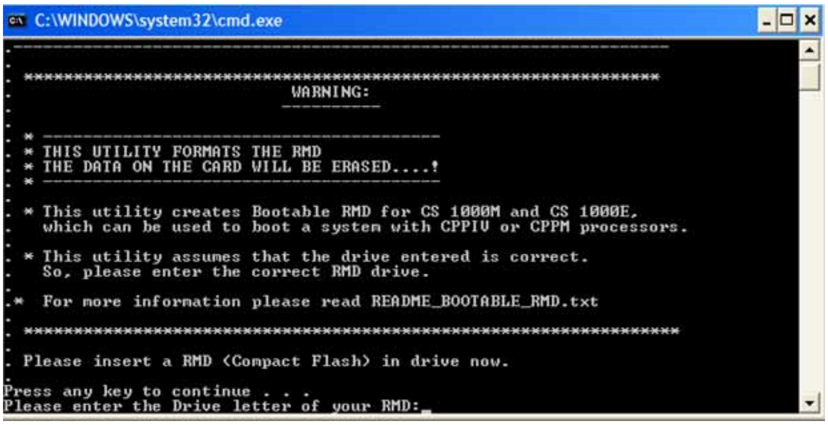
Type: MS-DOS Batch File Date Modified: 10/19/2006 6:55 PM S 3.80 KB

8 Double click the mkbootrmd.bat file to start the application (this batch file is used to format the CF card).

You can press any key to continue when prompted.

The line asking you to enter a CF drive letter appears on the screen.

Figure 54
Enter CF drive letter



```
.---------------------------------------------------------------------
.
. *******************************************************************
.                          WARNING:
.                         ----------
.
.
. * -----------------------------------------
. * THIS UTILITY FORMATS THE RMD
. * THE DATA ON THE CARD WILL BE ERASED....!
. * -----------------------------------------
.
. * This utility creates Bootable RMD for CS 1000M and CS 1000E,
.   which can be used to boot a system with CPPIV or CPPM processors.
.
. * This utility assumes that the drive entered is correct.
.   So, please enter the correct RMD drive.
.
.*  For more information please read README_BOOTABLE_RMD.txt
.
. *********************************************************************
.
. Please insert a RMD (Compact Flash) in drive now.
.
Press any key to continue . . .
Please enter the Drive letter of your RMD:_
```

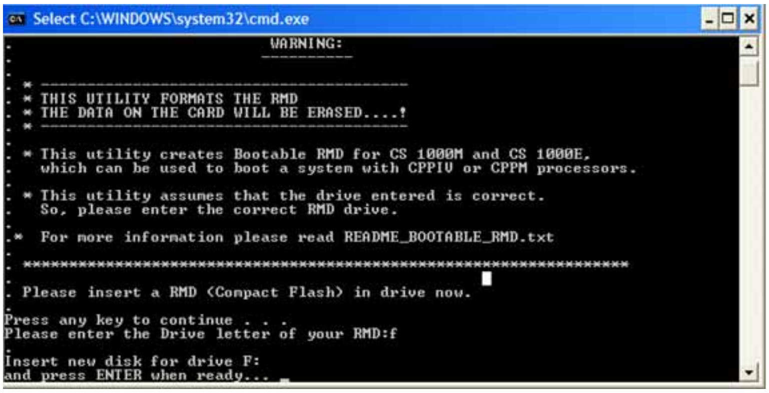
CAUTION

The mkbootrmd.bat file does not verify the drive assignment; it is possible to format other drives on your PC or Laptop.

9 Enter the drive letter assigned to the CF drive on your PC.

A line asking you to insert a new CF card in the CF drive appears on the screen.

Figure 55
Insert new CF card in drive



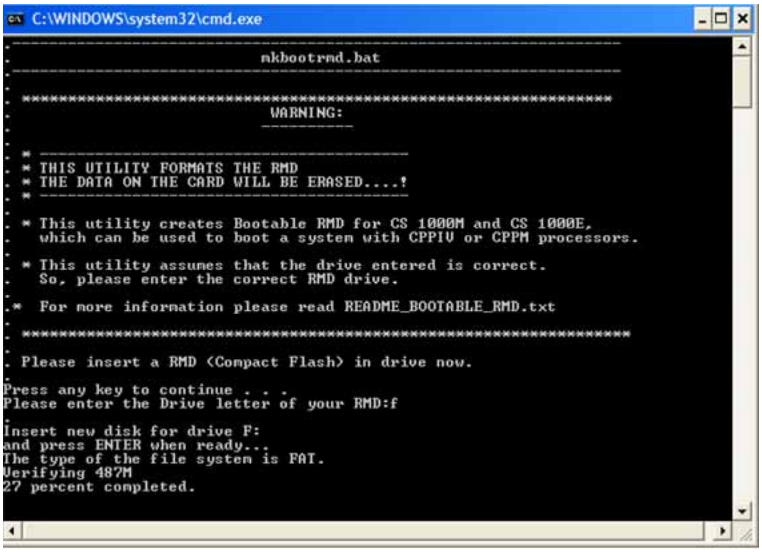
```
.                          WARNING:
.                         ----------
.
.
. * -----------------------------------------
. * THIS UTILITY FORMATS THE RMD
. * THE DATA ON THE CARD WILL BE ERASED....!
. * -----------------------------------------
.
. * This utility creates Bootable RMD for CS 1000M and CS 1000E,
.   which can be used to boot a system with CPPIV or CPPM processors.
.
. * This utility assumes that the drive entered is correct.
.   So, please enter the correct RMD drive.
.
.*  For more information please read README_BOOTABLE_RMD.txt
.
. *********************************************************************
.
. Please insert a RMD (Compact Flash) in drive now.
.
Press any key to continue . . .
Please enter the Drive letter of your RMD:f
.
Insert new disk for drive F:
and press ENTER when ready..._
```

Although a CF card is already in the CF drive, you are requested to insert a new CF card in the drive. Ignore this request and proceed to the next step.

10 Press **Enter** to start formatting the CF card.

The Start of CF card formatting process screen appears.

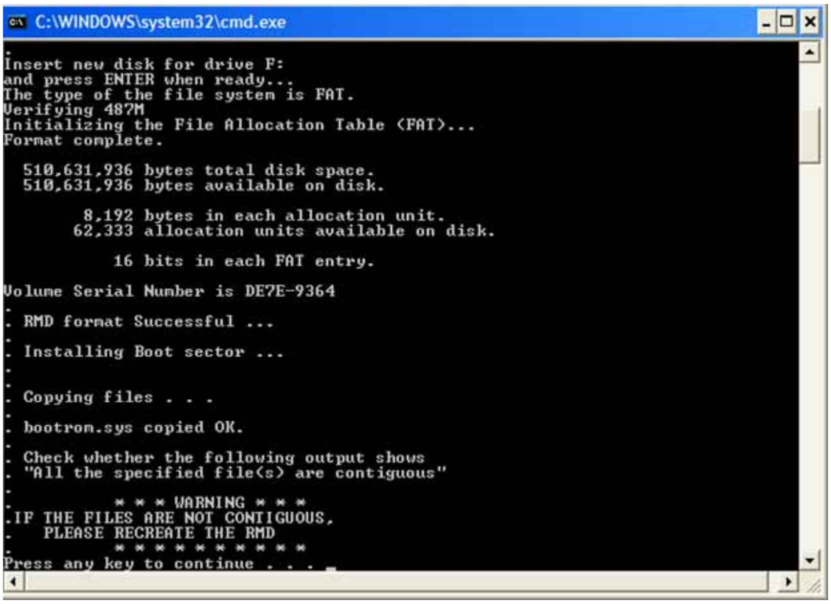
Figure 56
Start of CF card formatting process



```
.-----------------------------------------------------------------------
.                               mkbootrmd.bat
.-----------------------------------------------------------------------
.
. ******************************************************************
.                                WARNING:
.                                ----------
.
. * ----------------------------------------
. * THIS UTILITY FORMATS THE RMD
. * THE DATA ON THE CARD WILL BE ERASED....!
. * ----------------------------------------
.
. * This utility creates Bootable RMD for CS 1000M and CS 1000E,
.   which can be used to boot a system with CPPIV or CPPM processors.
.
. * This utility assumes that the drive entered is correct.
.   So, please enter the correct RMD drive.
.
.*  For more information please read README_BOOTABLE_RMD.txt
.
. ********************************************************************
.
. Please insert a RMD (Compact Flash) in drive now.
.
Press any key to continue . . .
Please enter the Drive letter of your RMD:f
.
Insert new disk for drive F:
and press ENTER when ready...
The type of the file system is FAT.
Verifying 487M
27 percent completed.
```

When the formatting process is almost complete, the End of CF card formatting process screen appears.

Figure 57
End of CF card formatting process



```
.
Insert new disk for drive F:
and press ENTER when ready...
The type of the file system is FAT.
Verifying 487M
Initializing the File Allocation Table (FAT)...
Format complete.

  510,631,936 bytes total disk space.
  510,631,936 bytes available on disk.

        8,192 bytes in each allocation unit.
       62,333 allocation units available on disk.

           16 bits in each FAT entry.

Volume Serial Number is DE7E-9364
.
. RMD format Successful ...
.
. Installing Boot sector ...
.
.
. Copying files . . .
.
. bootrom.sys copied OK.
.
. Check whether the following output shows
. "All the specified file(s) are contiguous"
.
.           * * * WARNING * * *
.IF THE FILES ARE NOT CONTIGUOUS,
.   PLEASE RECREATE THE RMD
.           * * * * * * * * * *
Press any key to continue . . . _
```

You see the following messages (among others):

`RMD format Successful ...` (after the Volume Serial Number string) `bootrom.sys copied OK.`

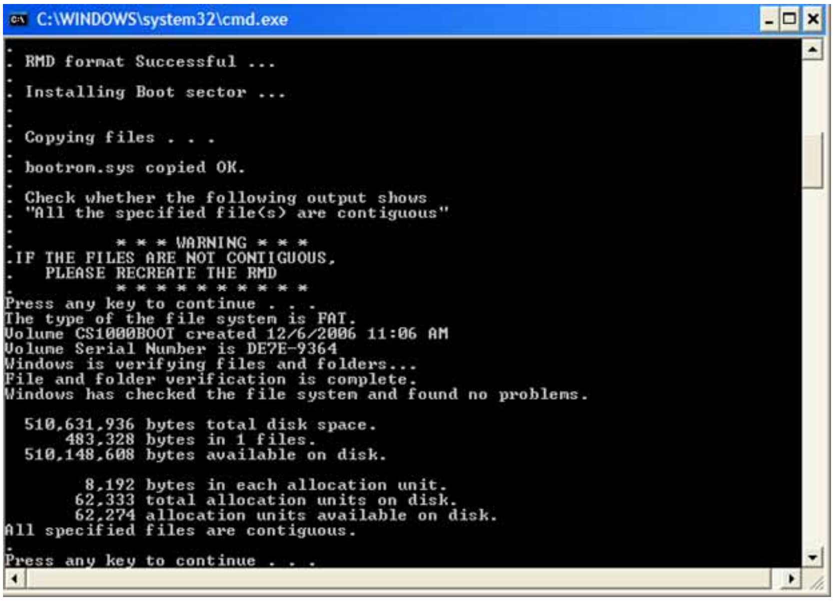
You should also see a very important warning message:

```
Check whether the following output shows
"All the specified file(s) are contiguous".
```

11 Press any key to continue.

The Verify CF card formatting process screen appears.

Figure 58
Verify CF card formatting



```
.
. RMD format Successful ...
.
. Installing Boot sector ...
.
.
. Copying files . . .
.
. bootrom.sys copied OK.
.
. Check whether the following output shows
. "All the specified file(s) are contiguous"
.
.         * * * WARNING * * *
.IF THE FILES ARE NOT CONTIGUOUS,
.   PLEASE RECREATE THE RMD
.         * * * * * * * * * *
Press any key to continue . . .
The type of the file system is FAT.
Volume CS1000BOOT created 12/6/2006 11:06 AM
Volume Serial Number is DE7E-9364
Windows is verifying files and folders...
File and folder verification is complete.
Windows has checked the file system and found no problems.

  510,631,936 bytes total disk space.
      483,328 bytes in 1 files.
  510,148,608 bytes available on disk.

        8,192 bytes in each allocation unit.
       62,333 total allocation units on disk.
       62,274 allocation units available on disk.
All specified files are contiguous.
.
Press any key to continue . . .
```

Look for the following message near the bottom of the screen:

`All specified files are contiguous.`

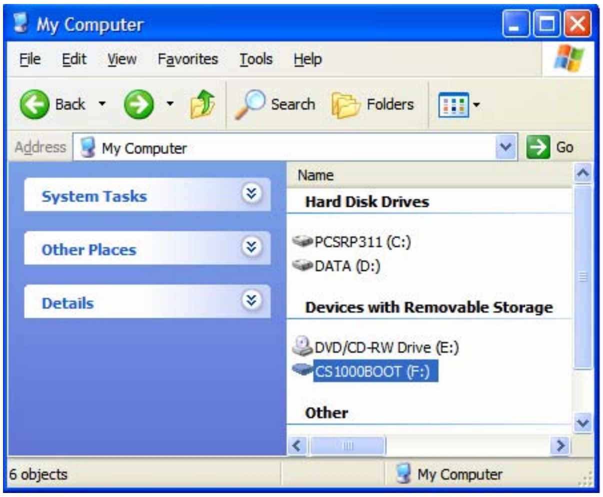
This message indicates that the CF card formatting process has ended successfully and the CF card is now ready to be loaded with the Signaling Server Software and system components.

12 Press any key to close the batch file and associated MS-DOS window.

13 **Click** on **My Computer** to verify that the CF drive has been renamed to **CS1000BOOT**.

The following is an example of what you should see on the screen.

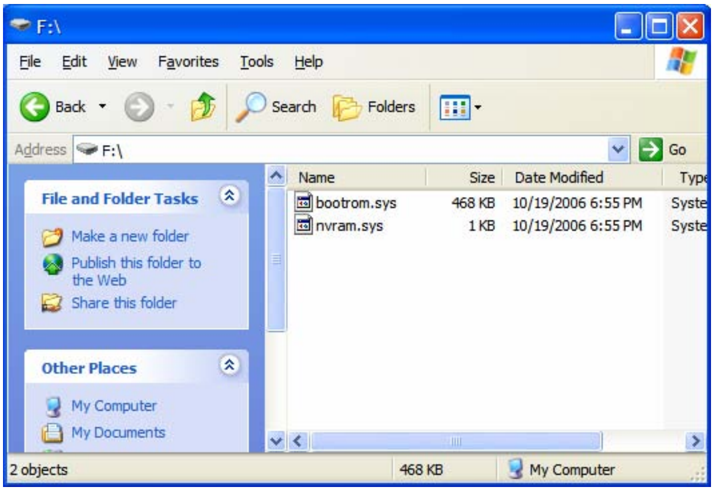
Figure 59
CF drive renamed to CS1000BOOT


My Computer
File Edit View Favorites Tools Help
Back Search Folders
Address My Computer Go
System Tasks
Other Places
Details
Name
Hard Disk Drives
PCSRP311 (C:)
DATA (D:)
Devices with Removable Storage
DVD/CD-RW Drive (E:)
CS1000BOOT (F:)
Other
6 objects
My Computer

14 Double click the CF drive to verify that it contains the bootrom.sys and nvram.sys files.

The following is an example of what you should see on the screen.

Figure 60
Verify contents of CS1000BOOT


F:\
File Edit View Favorites Tools Help
Back Search Folders
Address F:\ Go
File and Folder Tasks
Make a new folder
Publish this folder to the Web
Share this folder
Other Places
My Computer
My Documents
2 objects
468 KB
My Computer

Name	Size	Date Modified	Typ
bootrom.sys	468 KB	10/19/2006 6:55 PM	Syste
nvram.sys	1 KB	10/19/2006 6:55 PM	Syste

15 Navigate to the **Temp** folder on your local PC (or the folder into which you downloaded the CP PM Signaling Server Load zip file).

16 Copy all of the subfolders and files from the parent directory (\cf) to the CF drive.

> ***Note:*** This can take up to 12 minutes depending on the speed of your computer. You are copying files from the hard drive on your local PC to the CF card in the CF drive.

When all subfolders and files are copied successfully to the CF card, it can be used to install and upgrade Signaling Server software on a CP PM Signaling Server.

17 Remove the CF card from the CF drive and label it appropriately.

An example for a label is, Signaling Server, sse-x.xx.xx, where x.xx.xx represents the Signaling Server software version.

--End--

When all Signaling Server Software and system components are loaded successfully onto the Signaling Server Software CF Card, it can be used to install Signaling Server software and system components onto a Nortel CP PM Signaling Server.

Software installation

Contents

This chapter contains the following information:

- “Introduction” (page 95)
- “Overview” (page 95)
- “Boot a new Nortel CP PM Signaling Server” (page 96)
- “Install the software” (page 109)
- “Verify a successful configuration” (page 126)
- “Test the Leader Signaling Server” (page 126)

Introduction

This chapter contains detailed instructions for installing CS 1000 Release 5.5Signaling Server software and system components, and entering basic system configuration parameters, on Nortel CP PM, IBM X306m, and HP DL320-G4 Signaling Servers.

The chapter also contains instructions to follow during the first boot of *new* Nortel CP PM Signaling Servers.

Overview

To install CS 1000 Release 5.5 Signaling Server software and system components on an IBM X306m or HP DL320-G4 Signaling Server, you need to obtain the appropriate Signaling Server Software CD. To install CS 1000 Release 5.5 Signaling Server software and system components on a Nortel CP PM Signaling Server, you need to obtain the appropriate Signaling Server Software CF Card. For instructions to obtain the Signaling Server Software CD or CF Card, see “Software media” (page 85)).

You do not need to install CS 1000 Release 5.5 software and system components on a new Nortel CP PM Signaling Server; it ships with the CS 1000 Release 5.5 operating system, web files and Signaling Server software already loaded on the hard drive. You are prompted to enter only basic system configuration parameters when it is booted for the first time. See “Boot a new Nortel CP PM Signaling Server” (page 96) for instructions.

However, if you replace the hard drive on a Nortel CP PM Signaling Server due to a disk crash or some other hard drive failure, you will need to install the CS 1000 Release 5.5 Signaling Server software and system components on the new hard drive.

For instructions to install CS 1000 Release 5.5 software on your Signaling Server and enter basic system configuration parameters, see “Install the software” (page 109).

Boot a new Nortel CP PM Signaling Server

Before you boot the new Nortel CP PM Signaling Server for the first time and start entering basic system configuration parameters, you must perform the following tasks:

- Install and connect the Signaling Server (refer to “Hardware installation and connection” (page 55).
- 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
  - host name 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)* ())

Use the following procedure to enter basic system configuration parameters when a new Nortel CP PM Signaling Server is booted for the first time.

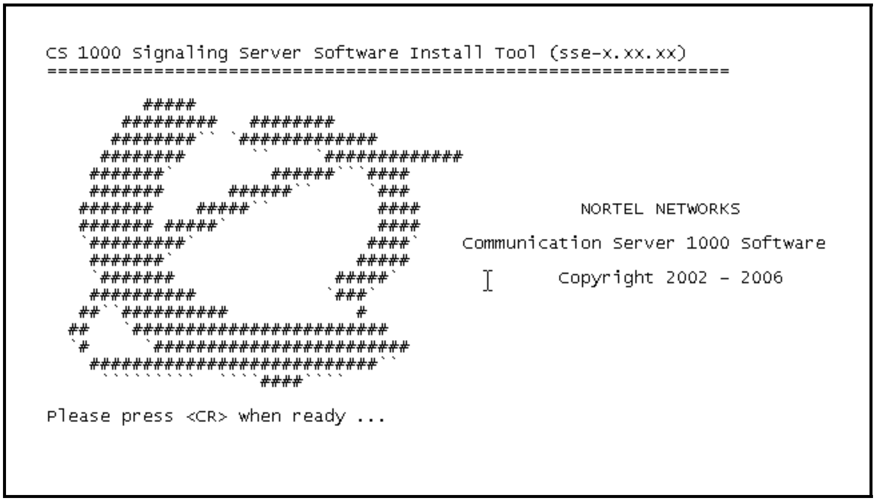
Procedure 13
Booting a new Nortel CP PM Signaling Server

Step	Action
1	Press **RST** on the faceplate of the Nortel CP PM Signaling Server to trigger a cold boot.

The Signaling Server Software Installation Tool is triggered from the hard drive of a new Nortel CP PM Signaling Server.

The Installation Tool banner screen appears.

Figure 61
Installation Tool banner

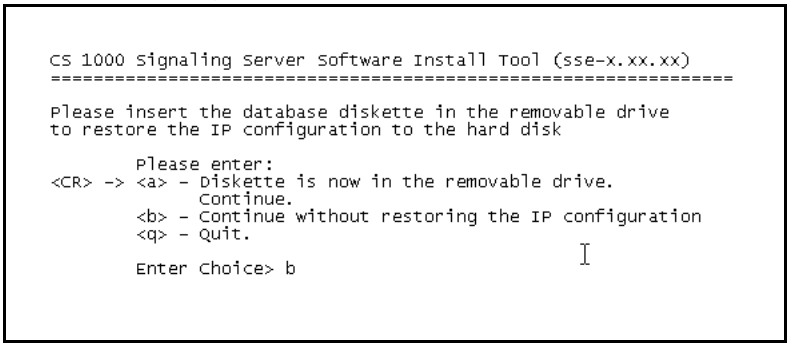


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=============================================================

                                         NORTEL NETWORKS

                                Communication Server 1000 Software

                                      Copyright 2002 - 2006

Please press <CR> when ready ...
```

2 Press `<CR>` to continue with the configuration.

The Restore IP configuration screen appears.

Figure 62
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 Do one of the following:

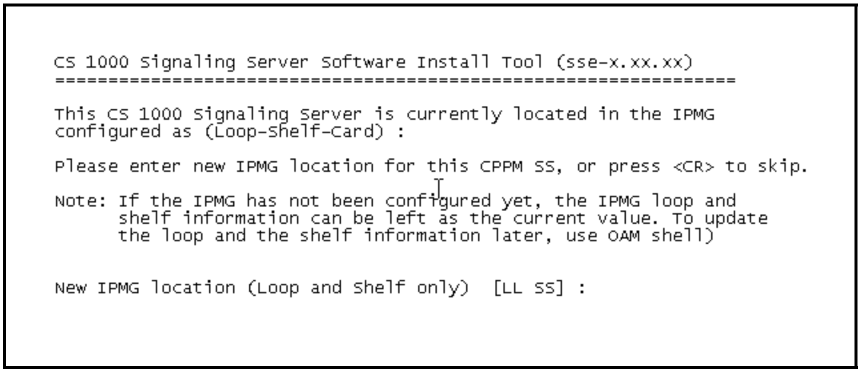
- If you are *migrating* an existing Leader Signaling Server to the new Nortel CP PM Signaling Server (see “Signaling Server migration” (page 155))
  Insert the Removable Media Device (RMD) containing the IP configuration data into the appropriate drive, and press `<CR>` or enter `a` to restore the IP configuration data. After the restore is complete, the following system message appears:

`Done copying IP configuration to disk`

- If you are *creating* a new Leader, Follower, or Standalone - NRS only Signaling Server, or *migrating* an existing Follower or Standalone - NRS only Signaling Server to the new Nortel CP PM Signaling Server (see "Signaling Server migration" (page 155))
  Select **`b`** to bypass the restoration of IP configuration data.

Regardless of the option chosen, the CP PM board location screen appears.

Figure 63
CP PM board location



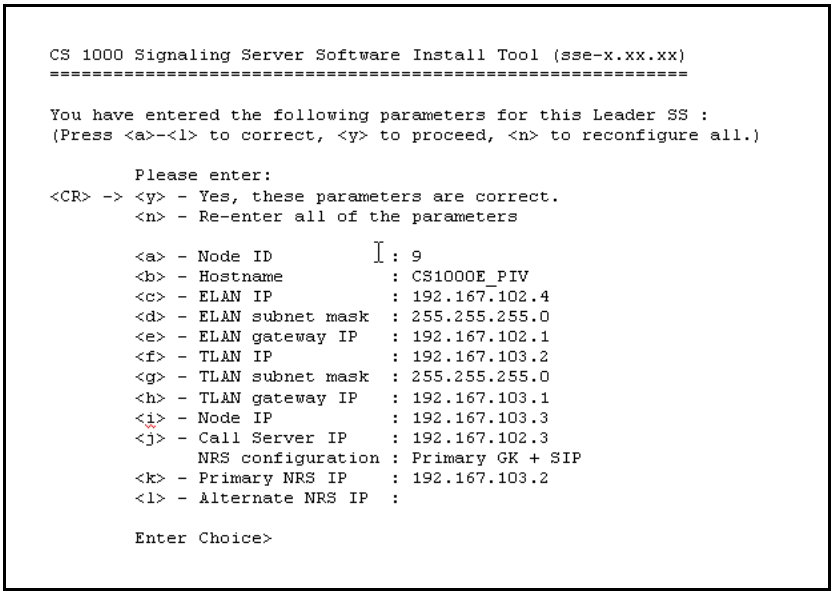
```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
================================================================

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 Nortel CP PM Signaling Server.

> ***Note:*** If the Media Gateway (MG) chassis or Universal Equipment Module (UEM) is not configured yet, you can leave the current location values in place. You can update the location later using OAM shell commands in Element Manager (EM).

- If you restored the IP configuration parameters from the RMD in the prior step, the IP Telephony parameter confirmation screen appears.

Figure 64
IP telephony parameter confirmation

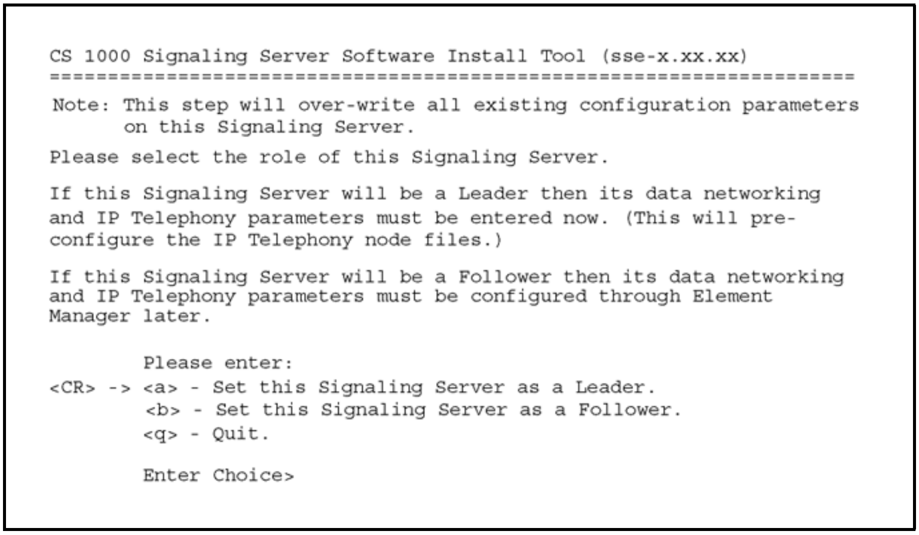


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

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            : 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>
```

Go to step 11.

- If you did not restore IP configuration parameters in the prior step, the Leader/Follower configuration screen appears.

Figure 65
Signaling Server role selection

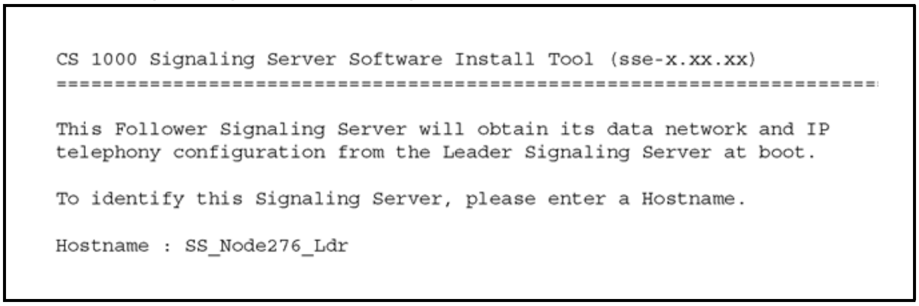


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
==================================================================
Note: This step will over-write all existing configuration parameters
      on this Signaling Server.
Please select the role of this Signaling Server.

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>
```

5 Configure the Signaling Server as a Leader or Follower.

- If a Leader Signaling Server already exists in the IP Telephony node, enter `b` at the prompt to configure this Signaling Server as a Follower.
  The Follower Signaling Server configuration screen appears.

Figure 66
Follower Signaling Server configuration

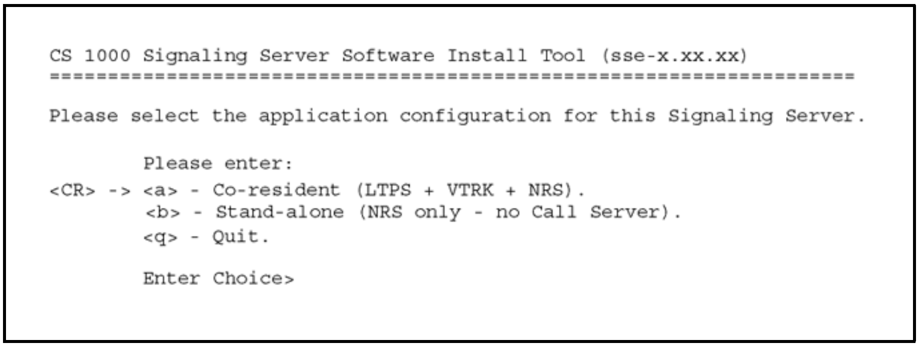


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
======================================================================

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
```

Go to step 9.

- If there is not already a Leader Signaling Server in the IP Telephony node, or if the Signaling Server is to be a Standalone Signaling Server - NRS only, press **`<CR>`** or enter **`a`** at the prompt to configure this Signaling Server as a Leader.
  The Application configuration screen appears.

Figure 67
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>
```

6 Select the appropriate application configuration for this Signaling Server.

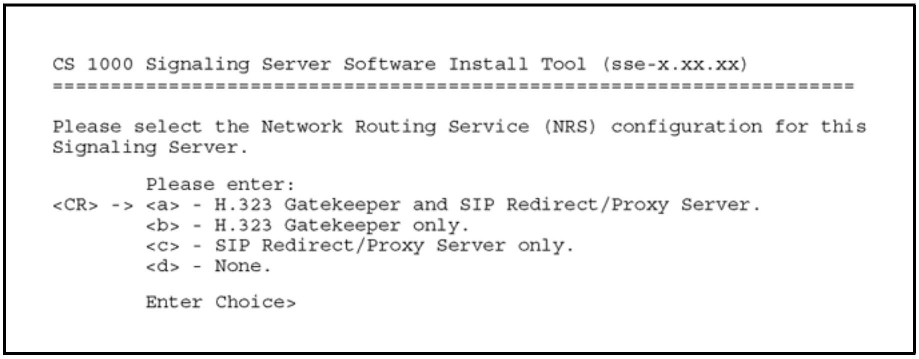
- If the IP Phone TPS, Virtual Trunk TPS, and optional Network Routing Service (NRS) applications are to be enabled on this Signaling Server, press **`<CR>`** or enter **`a`** at the prompt to configure this Signaling Server as a Coresident Signaling Server.
- If only the NRS is to be enabled on this Signaling Server:
  - — If this Signaling Server is to be associated with a Call Server, press **`<CR>`** or enter **`a`** at the prompt to configure this Signaling Server as a Coresident Signaling Server. After you install the Signaling Server software, you can disable the IP Telephone TPS and Virtual Trunk TPS in

Element Manager (refer to *Element Manager: System Administration (NN43001-632)* ()).

— If this Signaling Server is not to be associated with a Call Server, enter **`b`** at the prompt to configure this Signaling Server as a Standalone Signaling Server - NRS only.

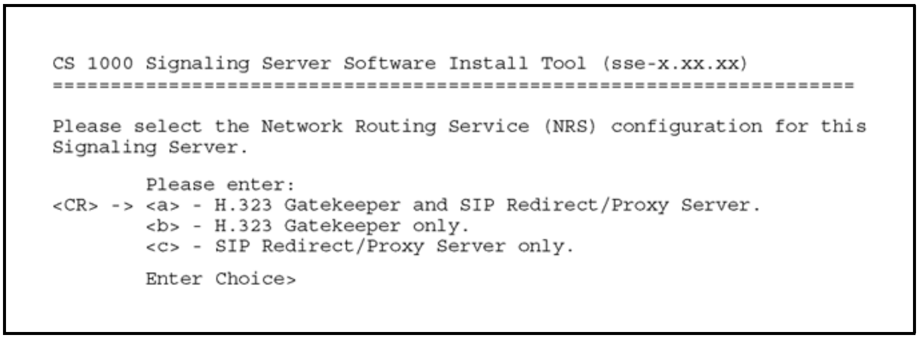
Depending on the application configuration selected, either the NRS: Coresident Signaling Server screen or the NRS: Standalone Signaling Server screen appears.

Figure 68
Network Routing Service (NRS): Coresident 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 69
Network Routing Service (NRS): Standalone Signaling Server

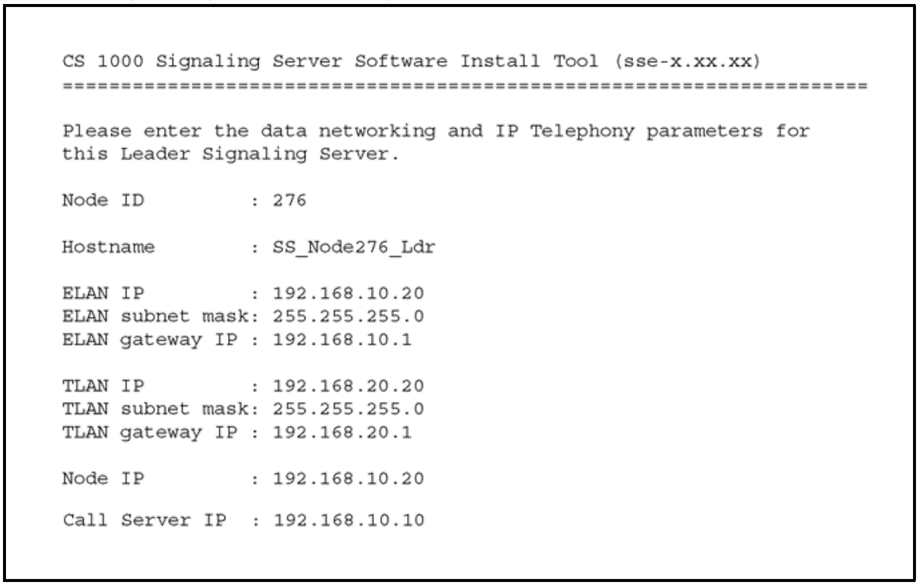


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====================================================================

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.

        Enter Choice>
```

7 Select the Network Routing Service (NRS) to be provided by this Signaling Server.

- If this Signaling Server is configured as a Coresident Leader and is not providing an NRS, enter **`d`** .
  The Leader Signaling Server configuration screen appears.

Figure 70
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
```

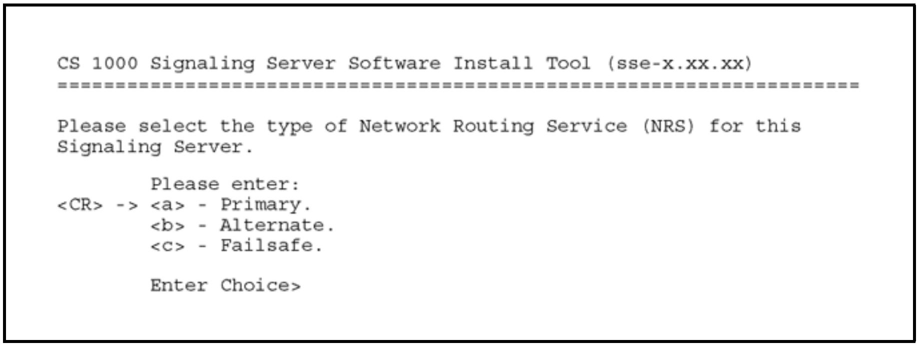
Go to step 9.

- If this Signaling Server is to provide an H.323 Gatekeeper and a SIP Redirect/Proxy Server, press **`<CR>`** or enter **`a`** .
- If this Signaling Server is to provide only an H.323 Gatekeeper, enter **`b`** .
- If this Signaling Server is to provide only a SIP Redirect Server, enter **`c`** .

Note: For more information on NRS, see *IP Peer Networking Installation and Commissioning (NN43001-313)* ().

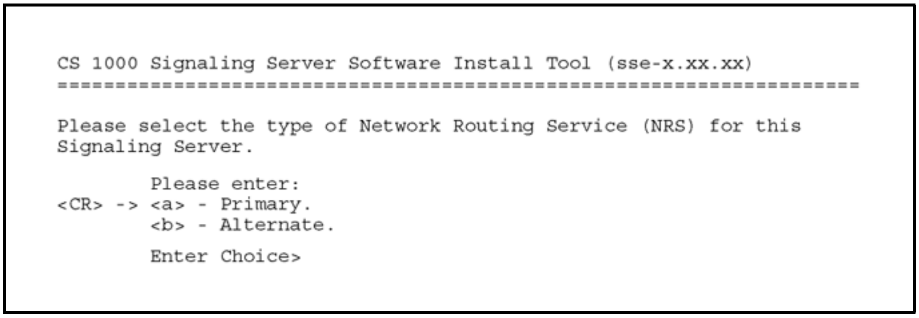
Depending on the application configuration selected, either the NRS type: Coresident Signaling Server screen or the NRS type: Standalone Signaling Server screen appears.

Figure 71
NRS type: Coresident 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 72
NRS type: Standalone 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.

        Enter Choice>
```

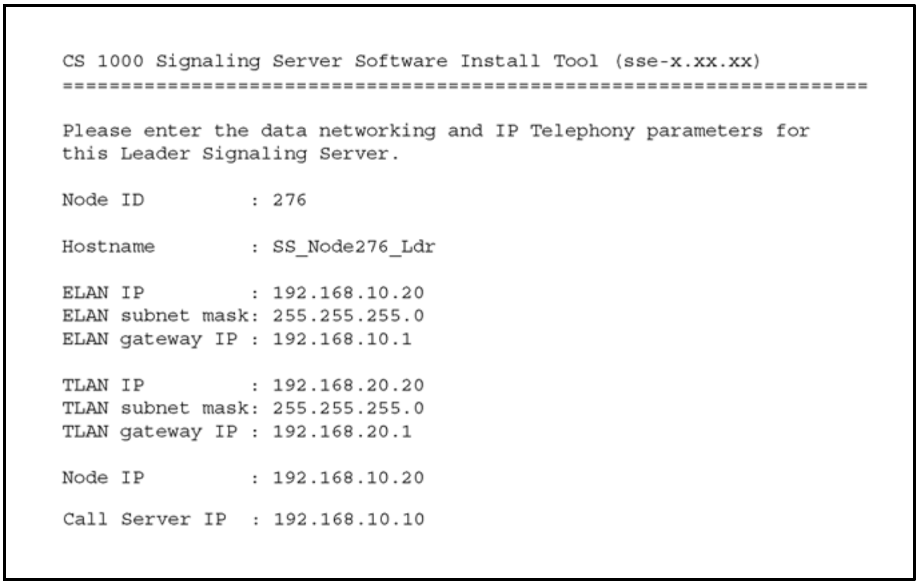
8. Select the type of NRS that this Signaling Server provides.

   - If this Signaling Server is to be the Primary NRS, press **`<CR>`** or enter **`a`** .
   - If this Signaling Server is to be the Alternate NRS, enter **`b`** .
   - If this Signaling Server is configured as Coresident and is to be the Failsafe NRS, enter **`c`** .

   Refer to *Network Routing Service Installation and Commissioning (NN43001-564)* () for more information on the NRS.

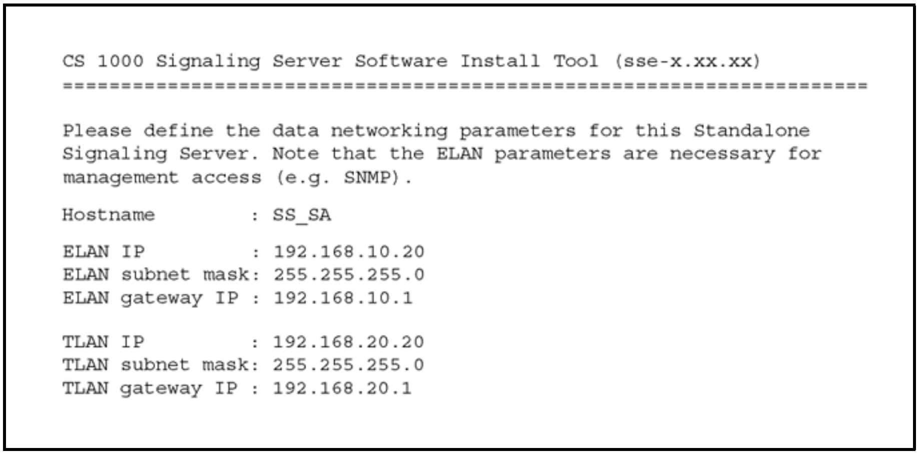
   Depending on whether the Signaling Server is configured as Leader or Standalone, the Leader Signaling Server configuration screen or the Standalone Signaling Server - NRS only configuration screen appears.

Figure 73
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 74
Standalone Signaling Server - NRS only configuration

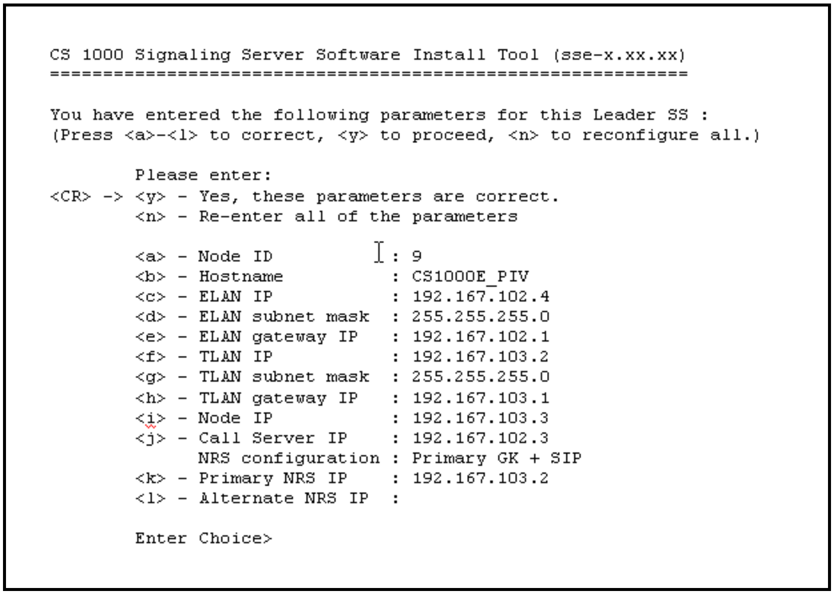


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
======================================================================

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
```

9 Enter the data networking and IP telephony parameters for the Signaling Server, as prompted.

- For a Leader Signaling Server, enter the parameters for the Node, ELAN network interface, TLAN network interface, and Call Server as required. For the Call Server:
  If you install the Signaling Server at an office that is not a branch office, enter the ELAN network interface IP address of the Call Server.
  If you install the Signaling Server at a branch office, enter the ELAN network interface IP address of the MG 1000B Core.
  The data networking and IP telephony information applies to a temporary IP Telephony node to ensure that the existing node is not impacted. The entry of the data networking and IP telephony information also preconfigures temporary IP Telephony node files. After you configure the Signaling Server, the temporary node files are imported into Element Manager for further node configuration.
- For a Follower Signaling Server, enter the host name of the Leader Signaling Server. The IP telephony parameter confirmation screen appears.

Figure 75
IP telephony parameter confirmation



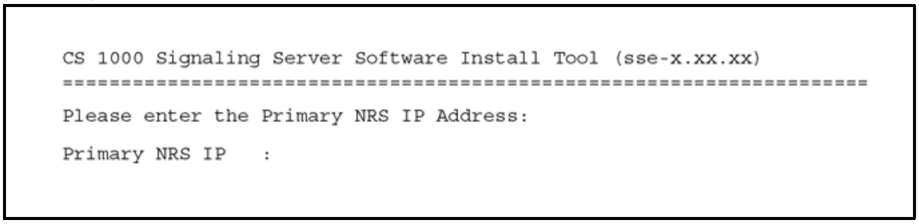
```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

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              : 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>
```

Go to step 11.

- For a Standalone Signaling Server - NRS only not associated with a Call Server (that is, b was selected in step 6, enter the TLAN subnet parameters as required. The Call Server IP address is automatically configured to 0.0.0.0.

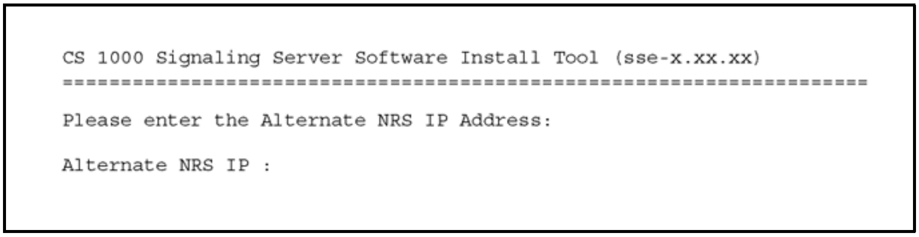
Depending on whether the Signaling Server is configured as Primary, Alternate, or Standalone, the Primary NRS IP address screen, the Alternate NRS IP address screen, or both in succession (for a Standalone Signaling Server - NRS only) appear.

Figure 76
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 77
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 :
```

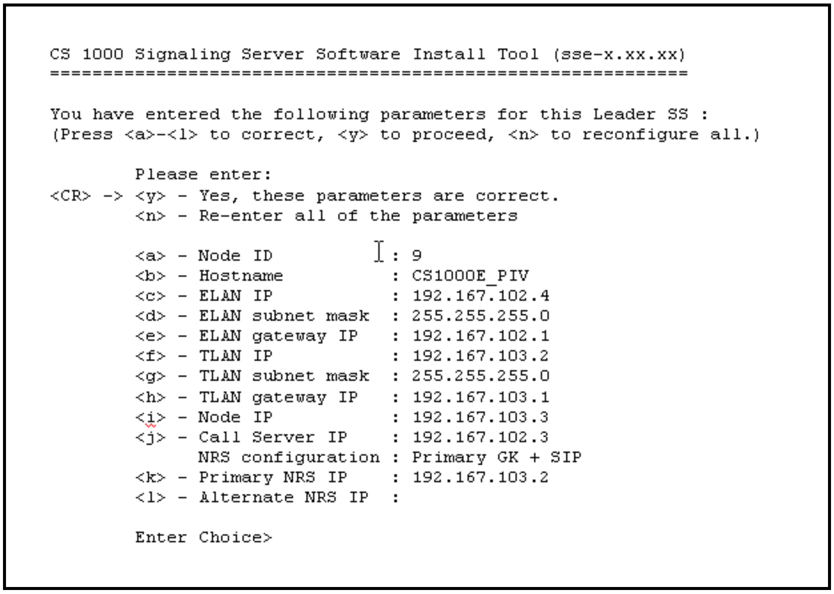
10 Enter the Primary NRS IP address or the Alternate NRS IP address, depending on the option that you entered in step 7 or step 8.

- If you entered **a** in step 8, you can enter the address of the Alternate NRS if you know it, but it is not required.
- If you entered **b** in step 8, enter the address of the Primary NRS.
- If you entered **c** in step 8:
  - — Enter the address of the Primary NRS.
  - — Enter the address of the Alternate NRS.
- If you entered **d** in step 7:
  - — Enter the address of the Primary NRS (optional).
  - — If you entered the address of the Primary NRS, enter the address of the Alternate NRS (optional).

Note: You can later update the Gatekeeper configuration using Element Manager.

The IP Telephony parameter confirmation screen appears.

Figure 78
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            : 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>
```

11 Press **`<CR>`** or enter **`y`** to confirm all parameters, **`n`** to re-enter all parameters, or a letter **`a`** through **`l`** to change the value of the corresponding system parameter.

The configuration screens for a Follower and a Standalone Signaling Server - NRS only are similar, showing the same list of parameters.

- The configuration screen for a Follower Signaling Server contains only a value for the host name parameter; all other values are blank.
- The configuration screen for a Standalone Signaling Server - NRS only contains values for the host name, ELAN network interface, TLAN network interface, and NRS parameters. The Node ID parameter is configured to 0. The Call Server IP parameter is configured to 0.0.0.0.

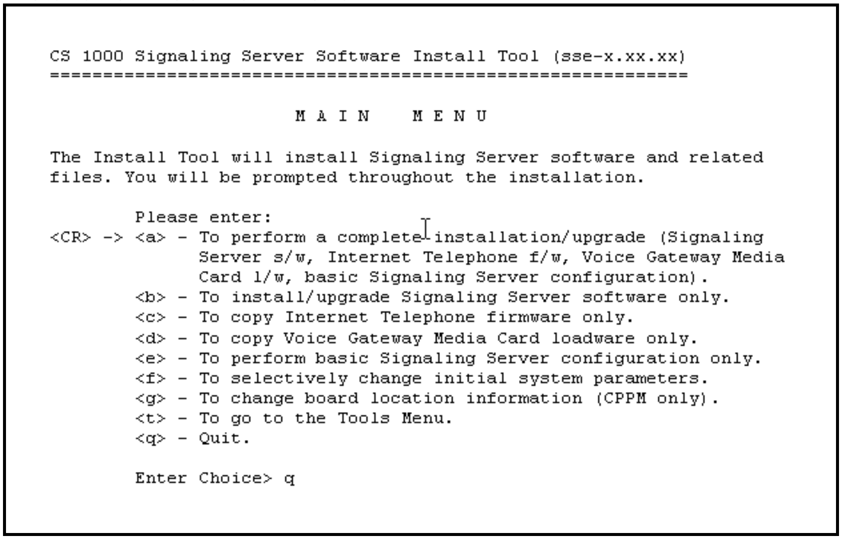
The ELAN MAC address is echoed to the screen:

```
For future reference, the ELAN MAC address is:
"00:02:b3:c5:5l:c6".
```

> ***Note 1:*** The above MAC address is for illustrative purposes only.
>
> ***Note 2:*** You must configure the ELAN network interface MAC address for a newly created Signaling Server on the node configuration web page in Element manager (EM).

The Installation Tool Main Menu screen appears.

Figure 79
Installation Tool Main Menu

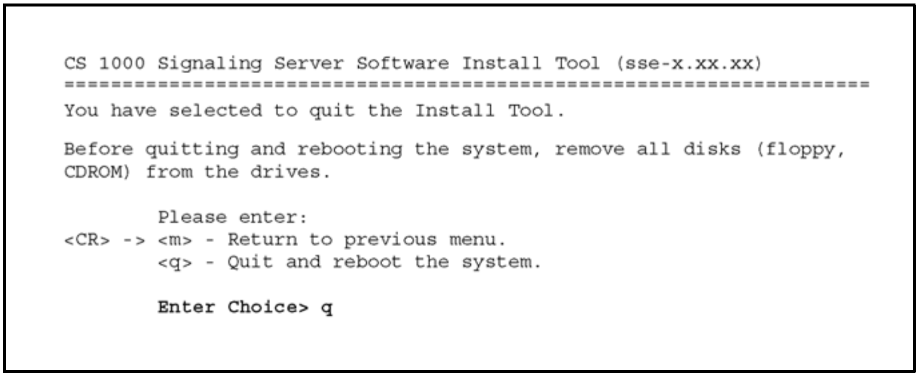


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

                       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, 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
```

12 Enter `q` to close/terminate the Installation Tool.

The Installation Tool quit confirmation screen appears.

Figure 80
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
```

13 Enter `q` to close/terminate the Installation Tool and reboot the Signaling Server.

--End--

If you have configured a Leader Signaling Server, you must import the temporary IP Telephony node files configured during the first boot into Element Manager (EM) for further configuration. A copy of these temporary node files is also stored on the connected Call Server. When the IP Telephony node is fully configured, EM is used to save the updated node configuration files to the connected file server, and to trigger a transfer of the updated node files to all other IP Telephony Node components. For instructions on importing a temporary IP Telephony node into EM, see Procedure 24 “Importing a temporary IP Telephony Node” (page 178).

If you have configured a Follower Signaling Server, when it reboots, it sends out BOOTP requests to the Call Server using File Transfer Protocol (FTP) to acquire the associated IP Telephony node configuration files, and waits for a response. Because the Follower Signaling Server is not yet configured in an IP Telephony node, no BOOTP response is received. Do not wait for a response; use EM to add the Follower Signaling Server to an IP Telephony node, and to acquire the associated node configuration files. For instructions, see Procedure 25 “Adding a Follower Signaling Server to an IP Telephony node” (page 180).

For more information on IP Telephony nodes from the perspective of a Signaling Server, see “IP Telephony node management” (page 177). For more information on IP Telephony nodes from the perspective of Voice Gateway Media Cards, see *IP Line Fundamentals (NN43001-500)* ().

Install the software

Before you install the Signaling Server software and enter basic system configuration parameters, you must perform the following tasks:

- If you are installing the Signaling Server software and system components on an IBM X306m or HP DL320-G4 Signaling Server, you must obtain the appropriate Signaling Server Software CD (for instructions, see "Software media" (page 85)).
- If you are installing the Signaling Server software and system components on a Nortel CP PM Signaling Server, you must obtain the appropriate Signaling Server Software CF Card (for instructions, see "Software media" (page 85).
- Install and connect the Signaling Server (refer to "Hardware installation and connection" (page 55).
- 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
  - host name 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)* ())

Use the following procedure to install the CS 1000 Release 5.5 Software and system components on a new Signaling Server and enter basic system configuration parameters.

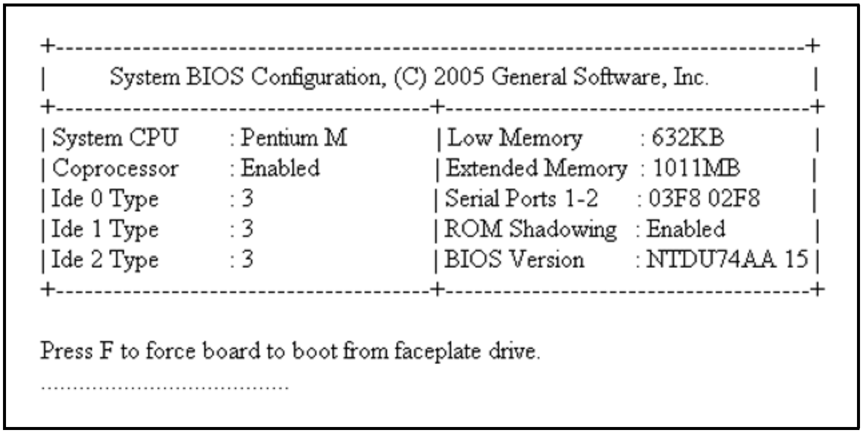
Procedure 14
Installing Signaling Server software

Step	Action
1	Boot the Signaling Server from the Removable Media Device (RMD). • On an IBM X306m or HP DL320-G4 Signaling Server, insert the 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.

- On a Nortel CP PM Signaling Server, insert the 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.

Figure 81
Nortel CP PM system BIOS

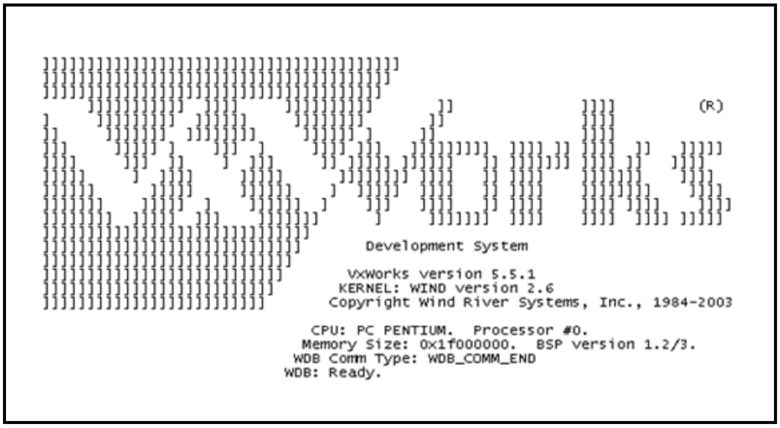


```
+--------------------------------------------------------------------------+
|        System BIOS Configuration, (C) 2005 General Software, Inc.        |
+-------------------------------------+------------------------------------+
| System CPU       : Pentium M        | Low Memory       : 632KB           |
| 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.
........................................
```

Press `F` to force the Signaling Server to boot from the CF card.

The VxWorks™ banner screen appears 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.

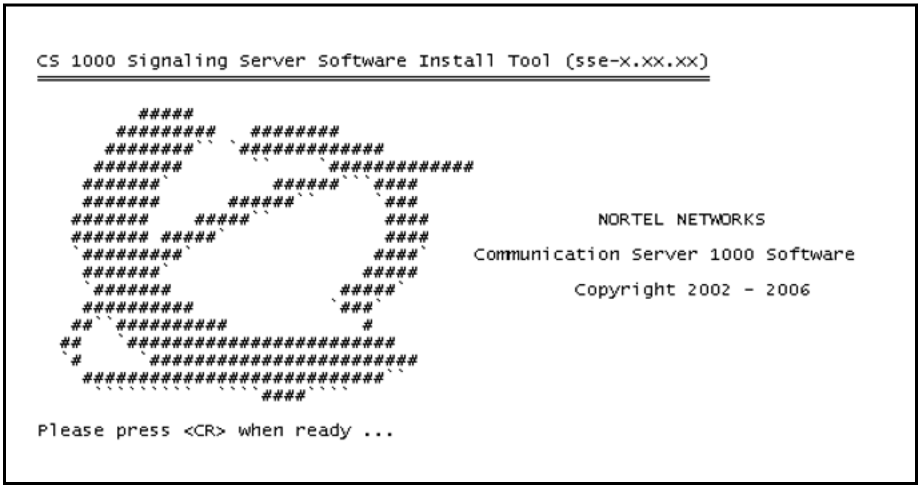
Figure 82
VxWorks system banner



```
                    Development System

                 VxWorks version 5.5.1
               KERNEL: WIND version 2.6
             Copyright Wind River Systems, Inc., 1984-2003

          CPU: PC PENTIUM.  Processor #0.
        Memory Size: 0x1f000000.  BSP version 1.2/3.
      WDB Comm Type: WDB_COMM_END
    WDB: Ready.
```

After the Signaling Sever Software Installation Tool is loaded, the Installation Tool banner screen appears.

Figure 83
Installation Tool banner



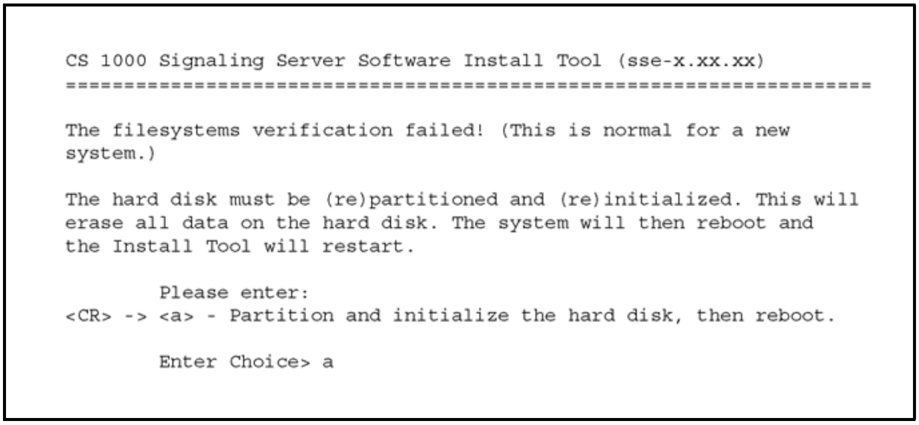
```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

                                    NORTEL NETWORKS

                           Communication Server 1000 Software

                                Copyright 2002 - 2006

Please press <CR> when ready ...
```

2 Press **`<CR>`** to perform system checks.

The system verifies the file systems.

- If the hard drive of the Signaling Server is not partitioned, the file systems verification process fails and the File systems verification failure screen appears.

Figure 84
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
```

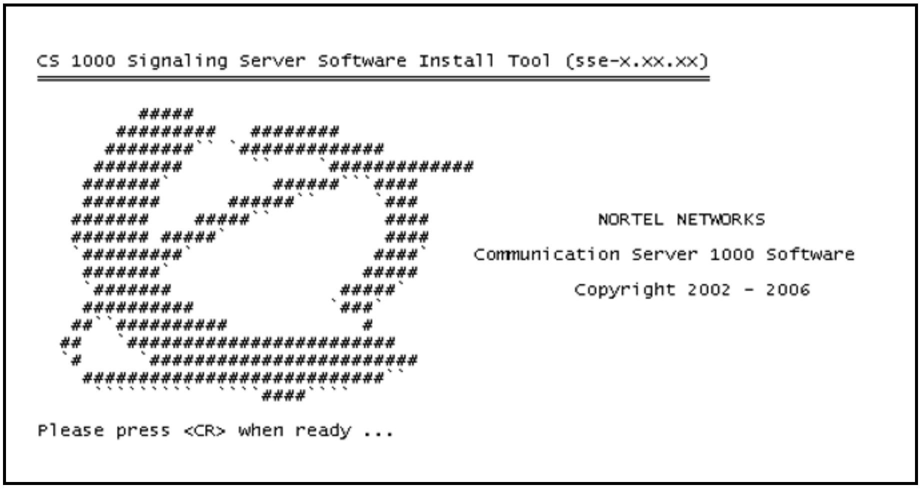
Enter **`a`** to partition and initialize the hard disk, and to reboot the Signaling Server.

The following system messages appear:

```
Partitioning hard disk ...Hard disk partitioning
succeeded.
Creating filesystems ...Filesystems creation
succeeded.
Rebooting system ...
```

The Installation Tool banner screen reappears.

Figure 85
Installation Tool banner

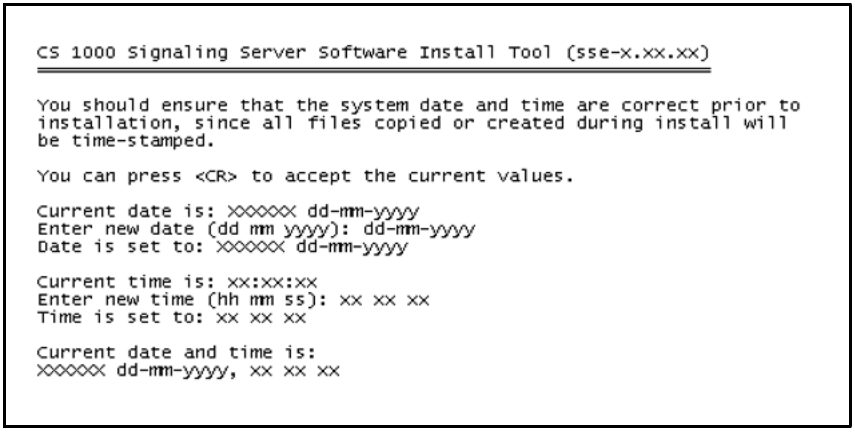


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)

                                   NORTEL NETWORKS

                           Communication Server 1000 Software

                                  Copyright 2002 - 2006

Please press <CR> when ready ...
```

Go back to beginning of step 2.

- If the hard drive of the Signaling Server is partitioned, the following system messages appear.
  `Verifying filesystems ...`
  `Filesystems verification succeeded.`
  Then, the Date and Time screen appears.

Figure 86
Date and Time

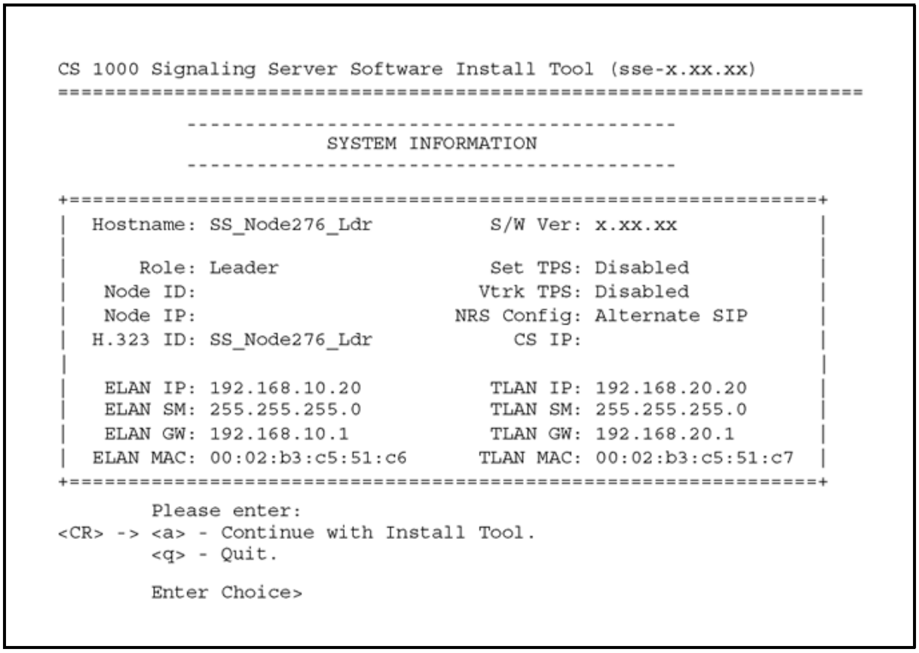


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)

You should ensure that 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: XXXXXX dd-mm-yyyy
Enter new date (dd mm yyyy): dd-mm-yyyy
Date is set to: XXXXXX dd-mm-yyyy

Current time is: xx:xx:xx
Enter new time (hh mm ss): xx xx xx
Time is set to: xx xx xx

Current date and time is:
XXXXXX dd-mm-yyyy, xx xx xx
```

3 Confirm or enter the date and time.

The System Information screen appears.

Figure 87
System Information screen



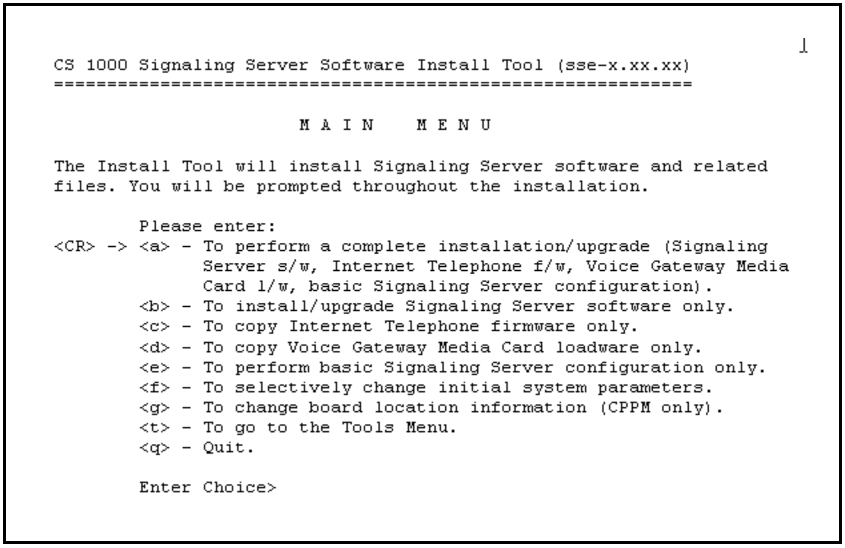
```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====================================================================

           ------------------------------------------
                        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>
```

Note: For a new installation, data fields in the system information screen are normally blank.

4 Press **`<CR>`** or enter **`a`** to continue the installation.

The Installation Tool Main Menu appears.

Figure 88
Installation Tool Main Menu



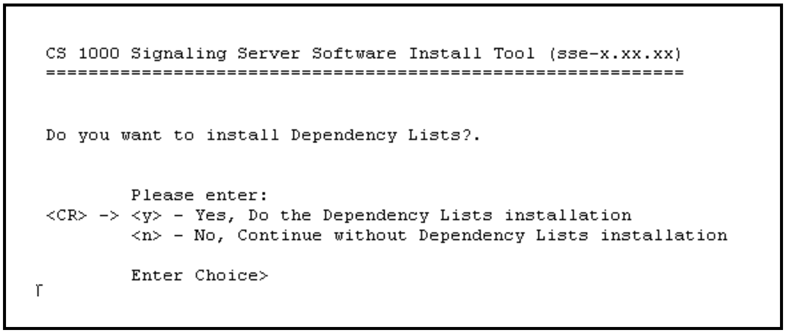
```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

                       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, 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>
```

5 Press **`<CR>`** or enter **`a`** to perform a complete system installation and enter basic system configuration data.

Note: Option **`a`** performs options **`b`**, **`c`**, **`d`**, and **`e`**.

System messages appear on the screen as the Installation Tool processes the option you chose, followed by the Dependency lists installation screen.

Figure 89
Dependency lists installation

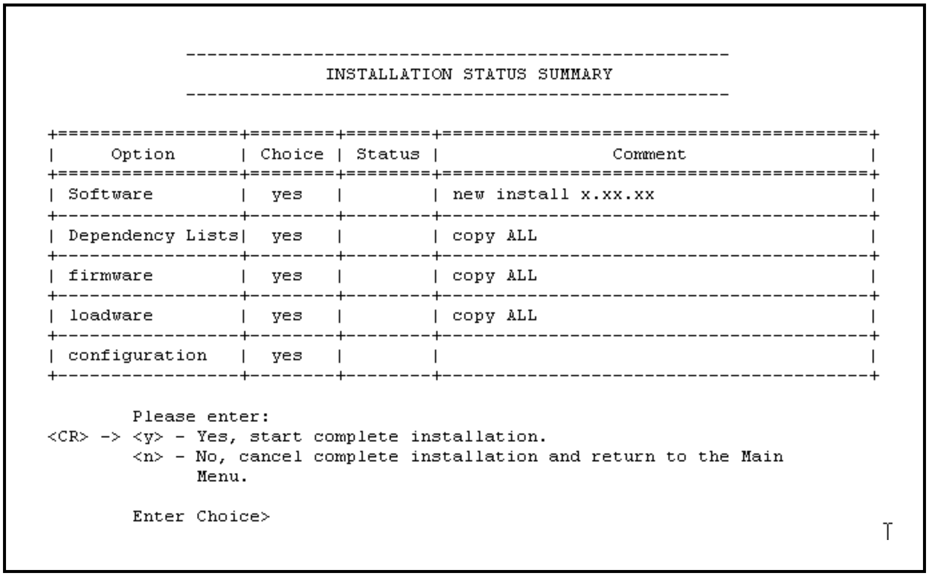


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================


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>
```

6 Press **`<CR>`** or enter **`y`** to install the dependency lists.

The Installation Status Summary screen appears.

Figure 90
Installation Status summary



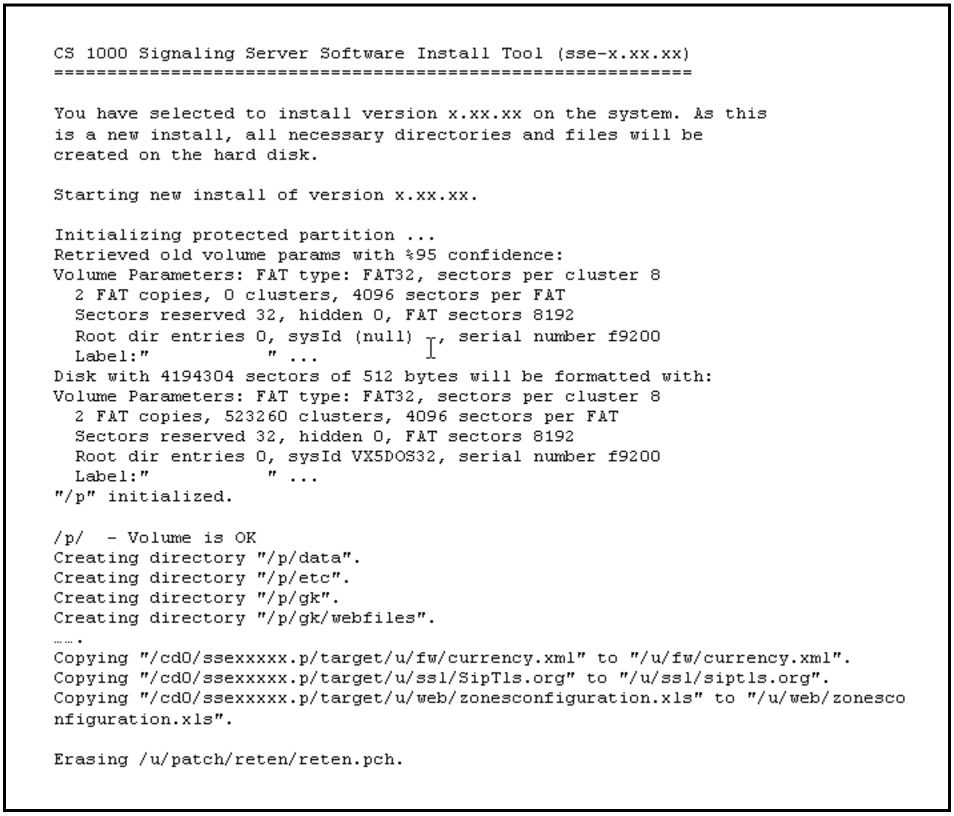
```
             -----------------------------------------------------
                          INSTALLATION STATUS SUMMARY
             -----------------------------------------------------

+=================+========+========+==========================================+
|     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>
```

7 Press **`<CR>`** or enter **`y`** to confirm your selected installation option and start the installation.

The following screens and messages appear in succession.

The first screen deals with installing the Signaling Server software and presents messages indicating the progress of the software installation process.

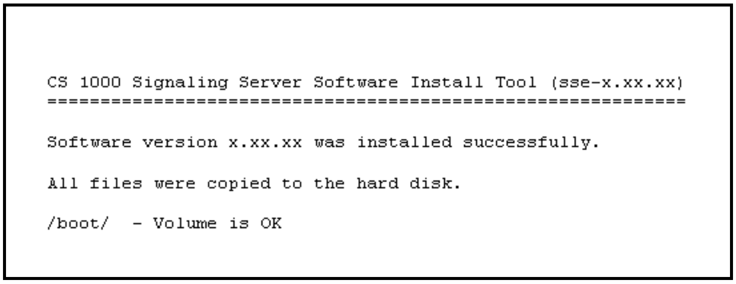
Figure 91
Software installation start



```
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 ...
Retrieved old volume params with %95 confidence:
Volume Parameters: FAT type: FAT32, sectors per cluster 8
  2 FAT copies, 0 clusters, 4096 sectors per FAT
  Sectors reserved 32, hidden 0, FAT sectors 8192
  Root dir entries 0, sysId (null)  , serial number f9200
  Label:"          " ...
Disk with 4194304 sectors of 512 bytes will be formatted with:
Volume Parameters: FAT type: FAT32, sectors per cluster 8
  2 FAT copies, 523260 clusters, 4096 sectors per FAT
  Sectors reserved 32, hidden 0, FAT sectors 8192
  Root dir entries 0, sysId VX5DOS32, serial number f9200
  Label:"          " ...
"/p" initialized.

/p/  - Volume is OK
Creating directory "/p/data".
Creating directory "/p/etc".
Creating directory "/p/gk".
Creating directory "/p/gk/webfiles".
…….
Copying "/cd0/ssexxxxx.p/target/u/fw/currency.xml" to "/u/fw/currency.xml".
Copying "/cd0/ssexxxxx.p/target/u/ssl/SipTls.org" to "/u/ssl/siptls.org".
Copying "/cd0/ssexxxxx.p/target/u/web/zonesconfiguration.xls" to "/u/web/zonesco
nfiguration.xls".

Erasing /u/patch/reten/reten.pch.
```

The second screen presented indicates the successful installation of the Signaling Server software.

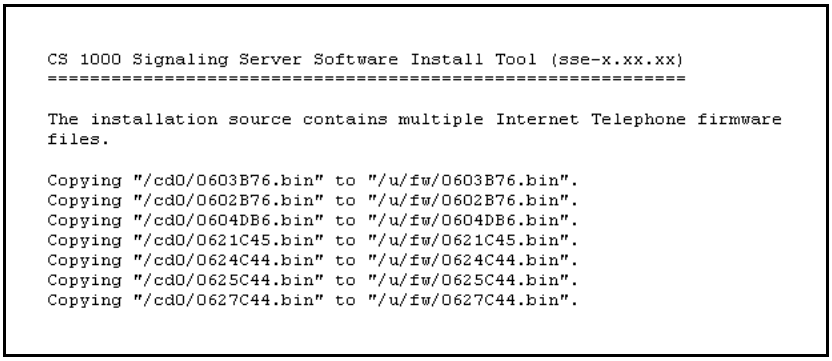
Figure 92
Software installation success



```
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.

/boot/  - Volume is OK
```

The third screen deals with installing the IP phone firmware and presents messages indicating the progress of the IP phone firmware installation process.

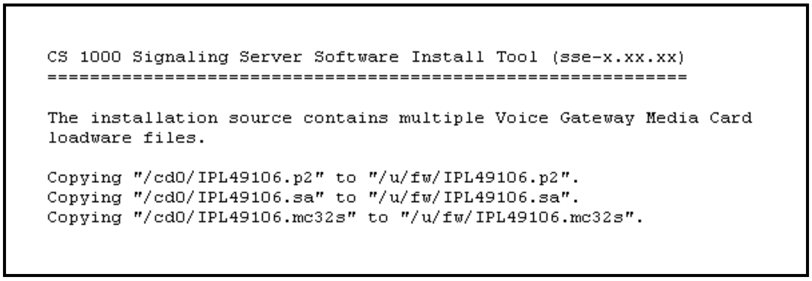
Figure 93
IP Phone firmware installation



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

The installation source contains multiple Internet Telephone firmware
files.

Copying "/cd0/0603B76.bin" to "/u/fw/0603B76.bin".
Copying "/cd0/0602B76.bin" to "/u/fw/0602B76.bin".
Copying "/cd0/0604DB6.bin" to "/u/fw/0604DB6.bin".
Copying "/cd0/0621C45.bin" to "/u/fw/0621C45.bin".
Copying "/cd0/0624C44.bin" to "/u/fw/0624C44.bin".
Copying "/cd0/0625C44.bin" to "/u/fw/0625C44.bin".
Copying "/cd0/0627C44.bin" to "/u/fw/0627C44.bin".
```

The fourth screen deals with installing the Voice Gateway Media Card loadware and presents messages indicating the progress of the Voice Gateway Media Card loadware installation process.

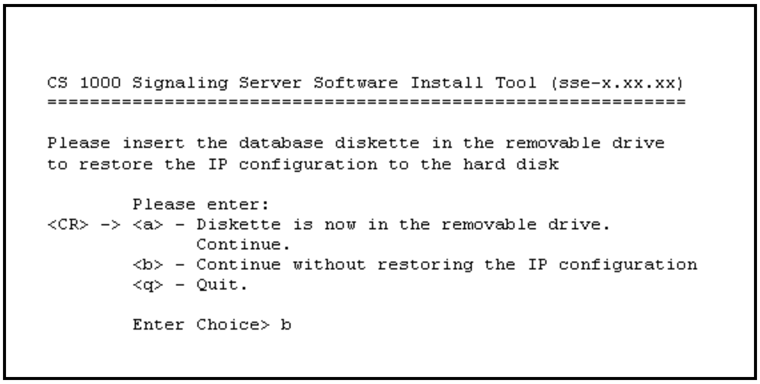
Figure 94
Voice Gateway Media Card loadware installation



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

The installation source contains multiple Voice Gateway Media Card
loadware files.

Copying "/cd0/IPL49106.p2" to "/u/fw/IPL49106.p2".
Copying "/cd0/IPL49106.sa" to "/u/fw/IPL49106.sa".
Copying "/cd0/IPL49106.mc32s" to "/u/fw/IPL49106.mc32s".
```

After the Signaling Server software and system components are installed, the Restore IP configuration screen appears.

Figure 95
Restore IP configuration



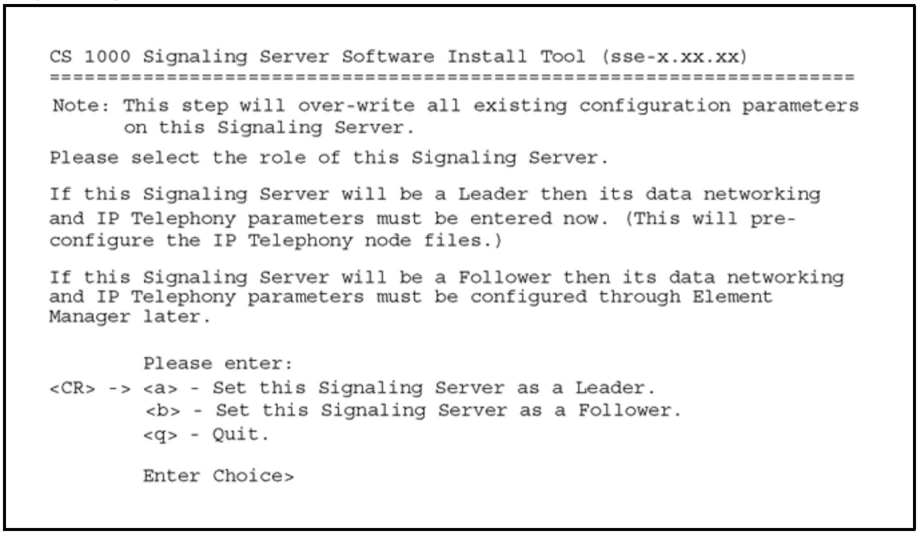
```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=============================================================

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 Select `b` to bypass the restoration of IP configuration data.

You need to enter the IP configuration data in the subsequent steps of this procedure.

The Signaling Server role selection screen appears.

Figure 96
Signaling Server role selection

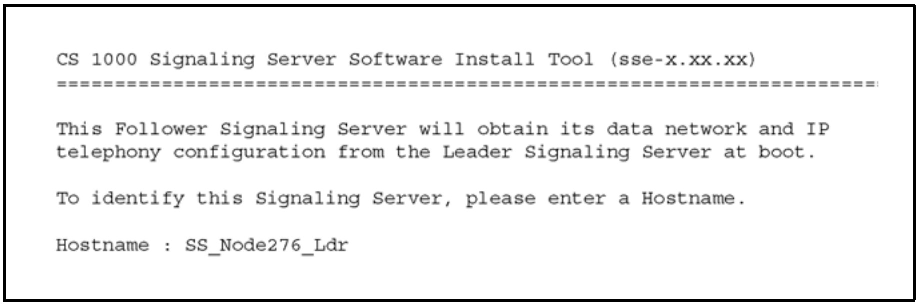


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====================================================================
Note: This step will over-write all existing configuration parameters
      on this Signaling Server.
Please select the role of this Signaling Server.

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>
```

9 Configure the Signaling Server as a Leader or Follower.

- If a Leader Signaling Server already exists in the IP Telephony node, enter **`b`** at the prompt to configure this Signaling Server as a Follower. The Follower Signaling Server configuration screen appears.

Figure 97
Follower Signaling Server configuration

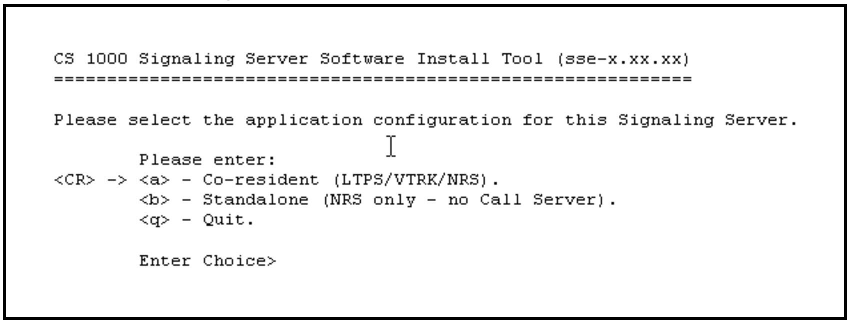


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
======================================================================

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
```

Go to step 13.

- If a Leader Signaling Server does not already exist in the IP Telephony node, or if the Signaling Server is to be a Standalone Signaling Server - NRS only, press **`<CR>`** or enter **`a`** at the prompt to configure this Signaling Server as Leader. The Application configuration screen appears.

Figure 98
Application configuration



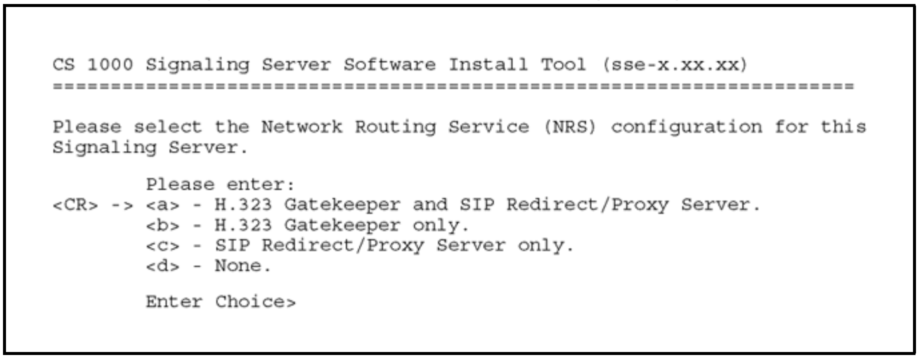
```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

Please select the application configuration for this Signaling Server.

        Please enter:
<CR> -> <a> - Co-resident (LTPS/VTRK/NRS).
        <b> - Standalone (NRS only - no Call Server).
        <q> - Quit.

        Enter Choice>
```

10 Select the appropriate application configuration for this Signaling Server.

- If the IP Phone TPS, Virtual Trunk TPS, and optional Network Routing Service (NRS) applications are to be enabled on this Signaling Server, press **`<CR>`** or enter **`a`** at the prompt to configure this Signaling Server as a Coresident 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, press **`<CR>`** or enter **`a`** at the prompt to configure this Signaling Server as a Coresident Signaling Server. After you finish installing the Signaling Server software, you can disable the IP Phone TPS and Virtual Trunk TPS using Element Manager (refer to *Element Manager: System Administration (NN43001-632)* ()).
  - — If this Signaling Server is not to be associated with a Call Server, enter **`b`** at the prompt to configure this Signaling Server as a Standalone Signaling Server - NRS only.

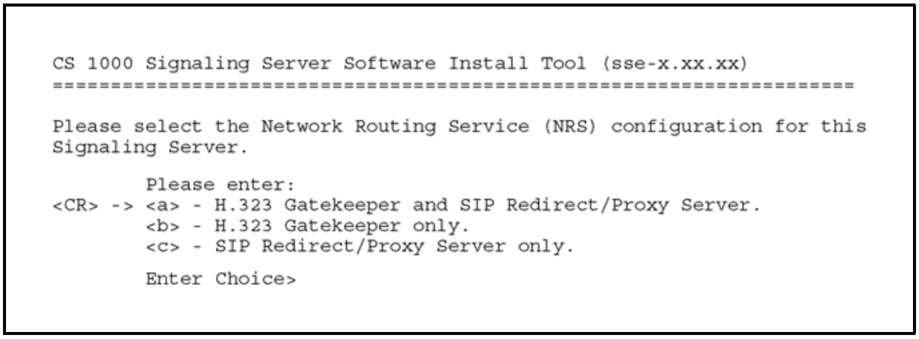
Depending on the application configuration selected, either the NRS - Coresident Signaling Server screen or the NRS - Standalone Signaling Server screen appears.

Figure 99
Network Routing Service (NRS): Coresident 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 100
Network Routing Service (NRS): Standalone 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.

        Enter Choice>
```

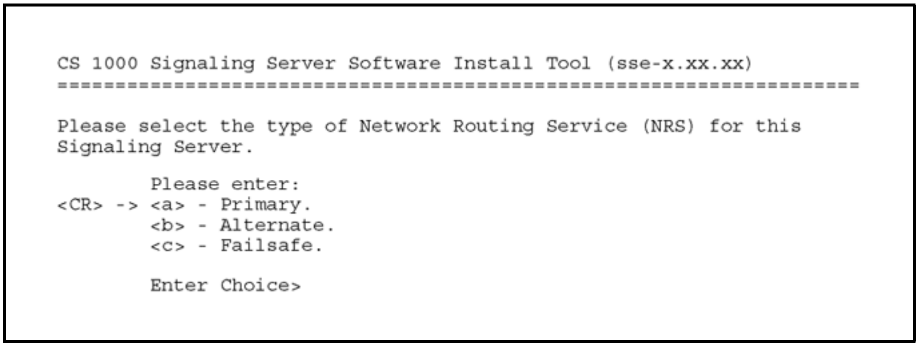
11 Select the Network Routing Service (NRS) configuration for this Signaling Server.

- 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 *IP Peer Networking Installation and Commissioning (NN43001-313)* () for more information on the NRS.

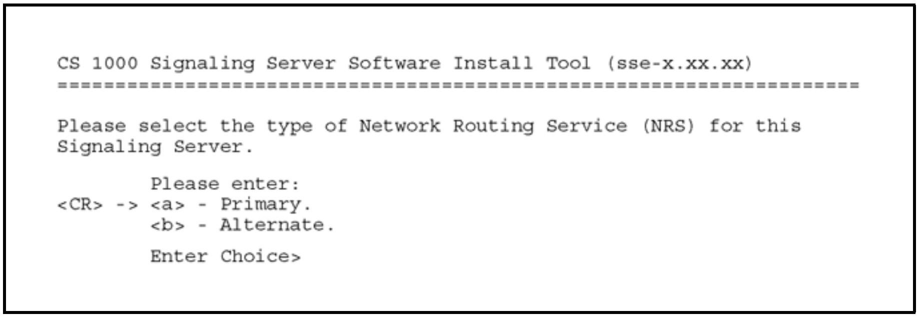
Depending on the application configuration selected, either the NRS type: Coresident Signaling Server screen or the NRS type: Standalone Signaling Server screen appears.

Figure 101
NRS type: Coresident 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 102
NRS type: Standalone 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.

        Enter Choice>
```

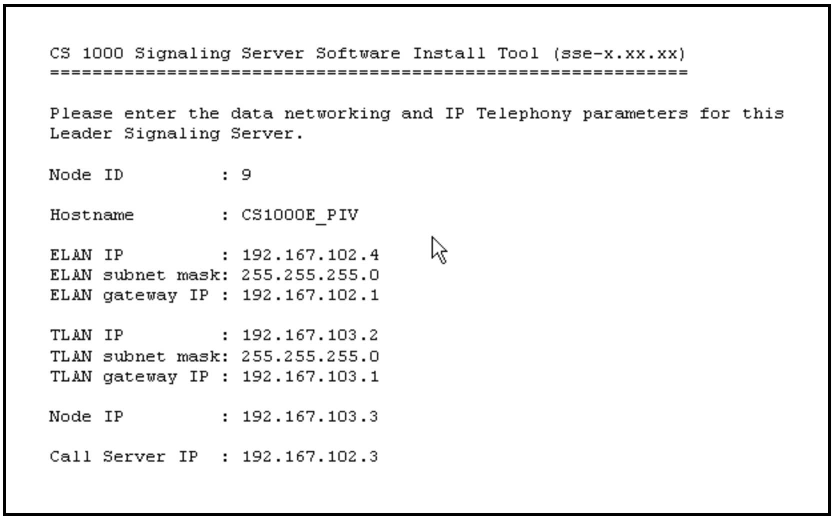
12. Select the type of NRS that this Signaling Server is to provide.

    - If this Signaling Server is to be the Primary NRS, press **`<CR>`** or enter **`a`**.
    - If this Signaling Server is to be the Alternate NRS, enter **`b`**.
    - If this Signaling Server is configured as Coresident and is to be the Failsafe NRS, enter **`c`**.

    Refer to *Network Routing Service Installation and Commissioning (NN43001-564)* () for more information on the NRS.

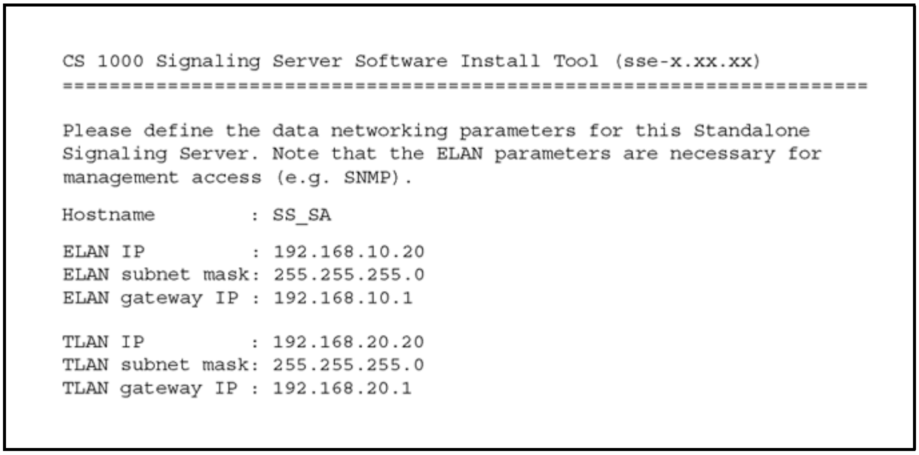
    Depending on whether the Signaling Server is configured as a Leader or a Standalone, either the Leader Signaling Server configuration screen or the Standalone Signaling Server - NRS only configuration screen appears.

Figure 103
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          : 9

Hostname         : CS1000E_PIV

ELAN IP          : 192.167.102.4
ELAN subnet mask: 255.255.255.0
ELAN gateway IP : 192.167.102.1

TLAN IP          : 192.167.103.2
TLAN subnet mask: 255.255.255.0
TLAN gateway IP : 192.167.103.1

Node IP          : 192.167.103.3

Call Server IP   : 192.167.102.3
```

Figure 104
Standalone 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
```

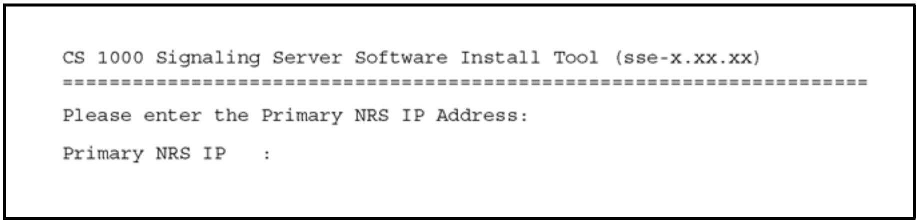
13 Enter the data networking and IP telephony parameters for the Signaling Server, as prompted.

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 temporary IP Telephony node files. After the installation of Signaling Server software, the temporary node files are imported into Element Manager for further configuration.

- For a Leader Signaling Server, enter the parameters for the Node, ELAN network interface, TLAN network interface, and Call Server as required.
  If you install the Leader Signaling Server at an office that is not a branch office, enter the ELAN network interface IP address of the Call Server.
  If you install the Leader Signaling Server at a branch office, enter the ELAN network interface IP address of the MG 1000B Core.
- For a Follower Signaling Server, enter the host name of the Leader Signaling Server, and then go to step 15.
- For a Standalone Signaling Server - NRS only that is not associated with a Call Server (that is, `b` was selected in step 10), enter the TLAN subnet parameters as required. The Call Server IP address is automatically configured to 0.0.0.0.

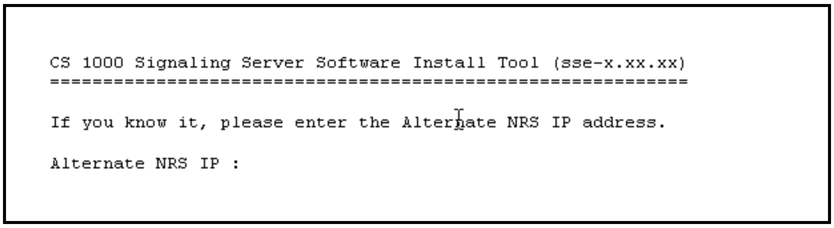
Depending on whether the Signaling Server is configured as Primary, Alternate, or Standalone, either the Primary NRS IP address screen, the Alternate NRS IP address screen, or both (in succession) appear. Both screens appear in succession for a Standalone Signaling Server - NRS only.

Figure 105
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 106
Alternate NRS IP address



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

If you know it, please enter the Alternate NRS IP address.

Alternate NRS IP :
```

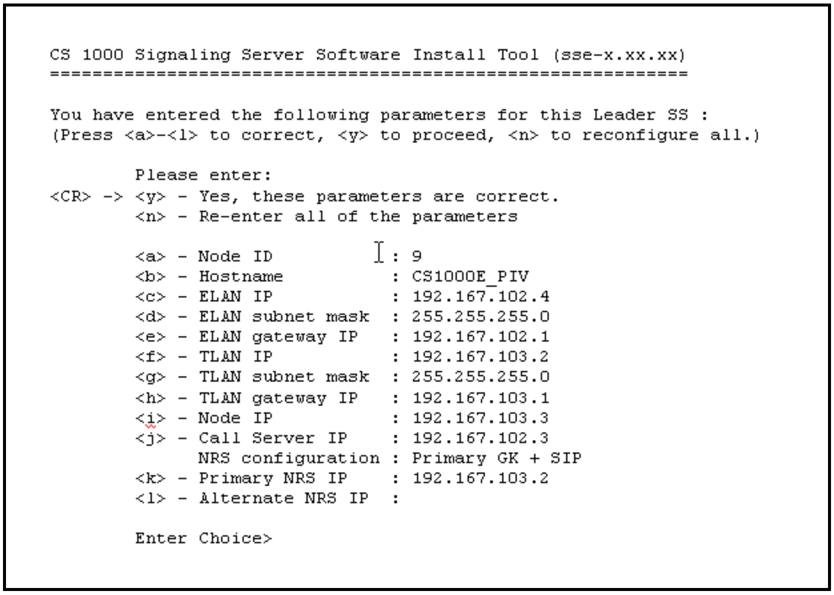
14 Enter the Primary NRS IP address or the Alternate NRS IP address, depending on the option entered in step 11 or step 12.

- If you entered **a** in step 12, you can enter the address of the Alternate NRS if you know it, but it is not required.
- If you entered **b** in step 12, enter the address of the Primary NRS.
- If you entered **c** in step 12:
  - — Enter the address of the Primary NRS.
  - — Enter the address of the Alternate NRS.
- If you entered **d** in step 11:
  - — Enter the address of the Primary NRS (optional).
  - — If you entered the address of the Primary NRS, enter the address of the Alternate NRS (optional).

Note: You can later update the Gatekeeper configuration using Element Manager.

The IP Telephony parameter confirmation screen appears.

Figure 107
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           : 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>
```

15 Press **`<CR>`** or enter **`y`** to confirm all parameters, or enter the letter preceding any parameter to dynamically change its value.

The example in Figure 107 "IP telephony parameter confirmation" (page 123) is for a Leader Signaling Server configured with an Alternate H.323 and SIP NRS. The configuration screens for a Follower and a Standalone Signaling Server - NRS only are similar, showing the same list of parameters.

- The configuration screen for a Follower Signaling Server contains only a value for the host name; all other values are blank.
- The configuration screen for a Standalone Signaling Server - NRS only contains values for the host name, ELAN network interface, TLAN network interface, and NRS parameters. The Node ID parameter is configured to 0. The Call Server IP parameter is configured to 0.0.0.0.

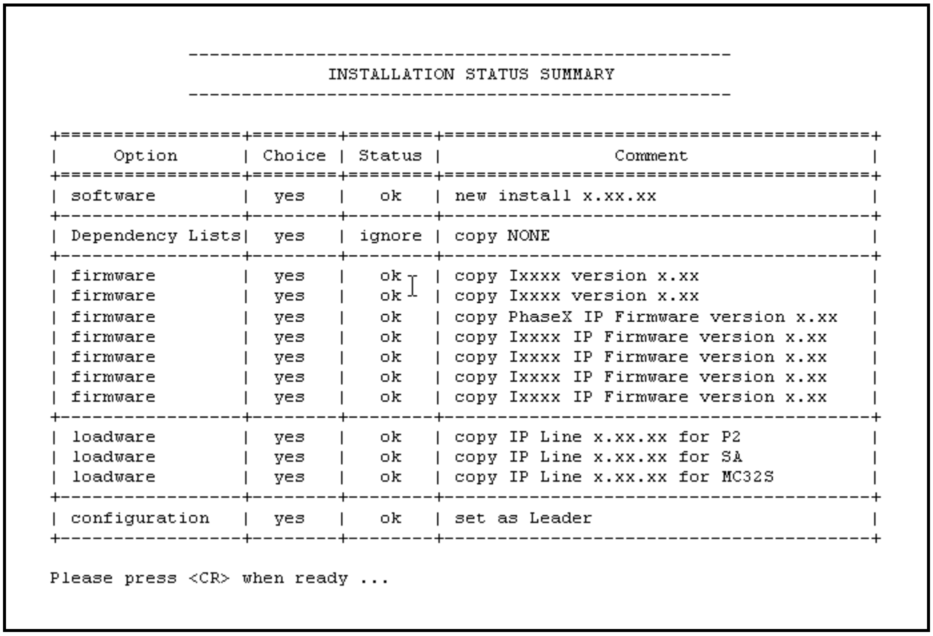
After you confirm the IP configuration, the following system messages appear:

```
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.

The Installation Status Summary screen appears.

Figure 108
Installation Status Summary

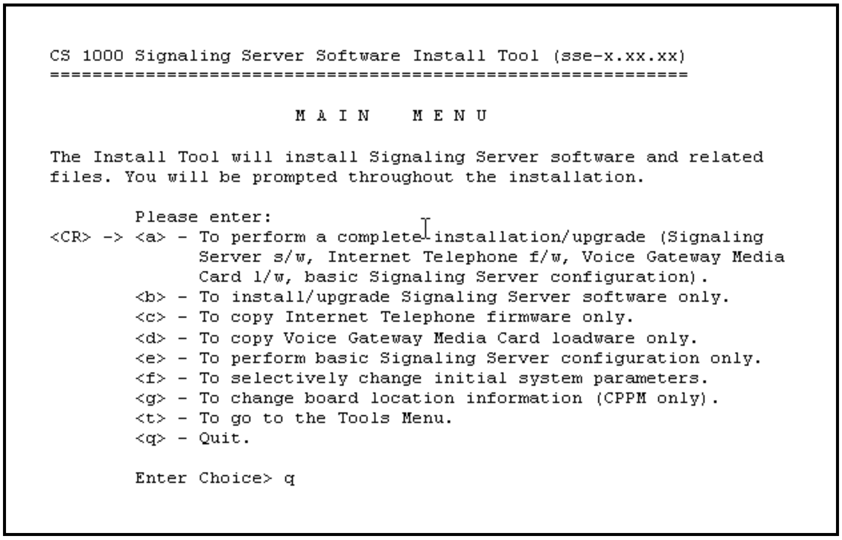


```
                 ---------------------------------------------------
                              INSTALLATION STATUS SUMMARY
                 ---------------------------------------------------

+=================+========+========+========================================+
|      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 ...
```

16 Press **`<CR>`** to exit to the Main Menu.

The Installation Tool Main Menu screen appears.

Figure 109
Installation Tool Main Menu

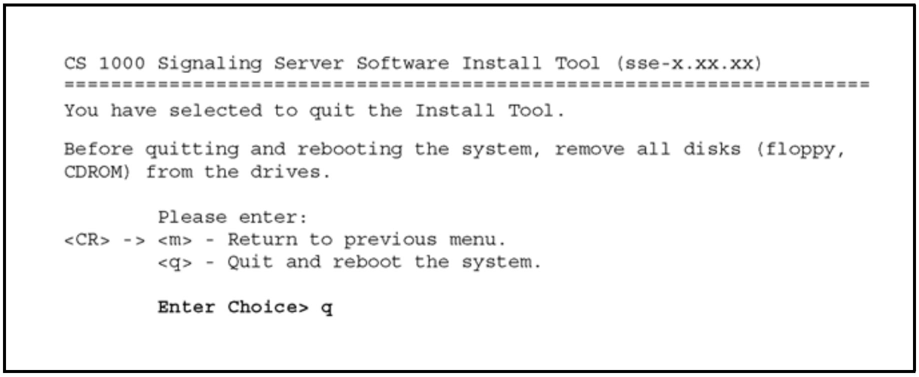


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

                       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, 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
```

17 Enter `q` to close/terminate the Installation Tool.

The Installation Tool quit confirmation screen appears.

Figure 110
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
```

18 Remove the Signaling Server Software CD or 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--

If you have installed and configured a Leader Signaling Server, you must import the temporary IP Telephony node files configured during the software installation into Element Manager (EM) for further configuration. A copy of these temporary node files is also stored on the connected Call Server. When the IP Telephony node is fully configured, EM is used to save the updated node configuration files to the connected file server, and tot trigger a transfer of the updated node files to all other IP Telephony Node components. For instructions on importing a temporary IP Telephony node into EM, see Procedure 24 “Importing a temporary IP Telephony Node” (page 178).

If you have installed and configured a Follower Signaling Server, when it reboots, it sends out BOOTP requests to the Call Server using File Transfer Protocol (FTP) to acquire the associated IP Telephony node configuration files, and waits for a response. Because the Follower Signaling Server is not yet configured in an IP Telephony node, no BOOTP response is received. Do not wait for a response; use EM to add the Follower Signaling Server to an IP Telephony node, and to acquire the associated node configuration files. For instructions, see Procedure 25 “Adding a Follower Signaling Server to an IP Telephony node” (page 180).

For more information on IP Telephony nodes from the perspective of a Signaling Server, see "IP Telephony node management" (page 177). For more information on IP Telephony nodes from the perspective of Voice Gateway Media Cards, see *IP Line Fundamentals (NN43001-500)* ().

Verify a successful configuration

To ensure that you have successfully configured the Signaling Server Ethernet connections (for the ELAN and TLAN subnets), perform a ping test to one or more of the other devices connected to the network, particularly the Call Server.

Procedure 15
Verifying the Signaling Server Ethernet connections

Step	Action
1	Log on to the Signaling Server. For instructions, see Procedure 31 "Logging on to the Signaling Server" (page 236).
2	Ping the IP address of the Signaling Server. Enter the command **`ping x.x.x.x`** where **`x.x.x.x`** is the IP address of the ELAN network interface on the Signaling Server.
3	Ping the IP address of the Call Server. Enter the command **`ping x.x.x.x`** where **`x.x.x.x`** is the IP address of the ELAN network interface on the Call Server.
4	If desired, repeat step 3 for other devices connected to the network.

--End--

Test the Leader Signaling Server

Configure two IP Phones to register to the Leader Signaling Server on an IP telephony node. You must provision these IP Phones on the Call Server. See *Communication Server 1000E Installation and Commissioning (NN43041-310)* (), *Meridian 1: Small System Installation and Commissioning (NN43011-310)* () or *Communication Server 1000M and Meridian 1 Large System Installation and Commissioning (NN43021-310)* () for the procedure appropriate to the system. After provisioning, the IP Phones can call each other.

Signaling Server Software upgrade

Contents

This chapter contains the following information:

- “Introduction” (page 127)
- “Overview” (page 128)
- “Before starting your upgrade” (page 128)
- “Upgrade paths” (page 129)
- “Upgrade procedures” (page 130)

Introduction

This chapter contains instructions to upgrade the software on your existing Signaling Server to CS 1000 Release 6.0. Support is available to upgrade from Succession 1000 Release 3.0, Communication Server 1000 Release 4.0, , Communication Server 1000 Release 4.5, Communication Server 1000 Release 5.0, and CS 1000 Release 5.5.

All Signaling Servers are subject to software upgrades in CS 1000 Release 6.0. Nortel CP PM, IBM X306m, and HP DL320-G4 Signaling Servers can not run software older than CS 1000 Release 5.0, so are subject to a software upgrade only from CS 1000 Release 5.0.

> ***Note:*** You can contact Nortel Global Professional Services to assist you with your upgrade.

ATTENTION
The Upgrade procedure includes options to copy new IP Phone firmware and Voice Gateway Media Card loadware to the Signaling Server. If you use these options during the upgrade, ensure that you upgrade the firmware and loadware on all connected IP Phones and Voice Gateway Media Cards respectively.

Overview

In Succession 1000 Release 3.0, only H.323 signaling was supported on the Signaling Server. Session Initiation Protocol (SIP) signaling was introduced on the Signaling Server in Communication Server 1000 Release 4.0. Communication Server 1000 Release 4.0 also introduced Network Routing Service (NRS) functionality on the Signaling Server. When upgrading your Signaling Server from Succession 1000 Release 3.0 to a newer release, conversion of the H.323 signaling infrastructure to an NRS infrastructure is a critical component of the upgrade. For more information on an NRS upgrade, see (NN43001-130).

CS 1000 Release 6.0 Signaling Server software requires 2 GB of RAM to support operational requirements. Nortel CP PM, IBM X306m, and HP DL320-G4 Signaling Servers come with 1 or more GB of RAM already configured. For more information on system requirements, see (NN43001-315).

Before starting your upgrade

Read through the following important information before getting started with your CS 1000 Release 6.0 upgrade:

- The Signaling Server is out of service during a software upgrade.
- Ensure that you back up all data to a remote device or FTP server.

  ISP 1100 servers are not supported in CS 1000 Release 6.0; all saved data must be migrated to a supported hardware platform. For CP PM and COTS servers, all hard drives must be reformatted before an upgrade to CS 1000 Release 6.0.
- In earlier versions of CS 1000, there might be more than one database. For example, Signaling Server might be installed with IP Line and NRS. Ensure that you back up all databases that exist.

  All databases might not be restored to the same platform in CS 1000 Release 6.0. For example, Signaling Server applications and NRS can be deployed to different platforms in Release 6.0.

Signaling Server software upgrade task flow

The following is a high-level list of tasks that you go through to complete your upgrade to CS 1000 Release 6.0:

- Back up all databases to a remote device or FTP server. See the procedures in this chapter. For information about the NRS database, see (NN43001-130).
- Deploy the Linux base platform. For more information, see (NN43001-315).
-

- Deploy and configure the Signaling Server Upgrade the RAM on a Nortel ISP1100package. For more information, see Signaling Server application installation
- Log on to Unified Communications Manager (UCM). For more information, see Access UCM
- Access Element Manager through UCM to restore your databases.

Upgrade paths

The following upgrade paths are available to upgrade your Signaling Server software:

- from Succession 1000 Release 3.0 to CS 1000 Release 6.0 (see "Upgrade from Succession 1000 Release 3.0" (page 129))
- from Communication Server 1000 Release 4.0 to CS 1000 Release 6.0 (see "Upgrade from Communication Server 1000 Release 4.0" (page 129))
- from CS 1000 Release 4.5 to CS 1000 Release 6.0 (see "Upgrade from Communication Server 1000 Release 4.5" (page 130))
- from CS 1000 Release 5.0 to CS 1000 Release 6.0 (see "Upgrade from Communication Server 1000 Release 5.0" (page 130))
- from CS 1000 Release 5.5 to CS 1000 Release 6.0 (see "Upgrade from Communication Server 1000 Release 5.5" (page 130)

Upgrade from Succession 1000 Release 3.0

The following task list contains all tasks necessary to upgrade your Signaling Server software from Succession 3.0 to CS 1000 Release 6.0.

1. Upgrade the Signaling Server software.

   For instructions, see Procedure 17 "Upgrading the Signaling Server software" (page 132).

Upgrade from Communication Server 1000 Release 4.0

The following task list contains all of the tasks necessary to upgrade your Signaling Server software from CS 1000 Release 4.0 to CS 1000 Release 6.0.

1. Back up the IP Phone Application Server database (if present).

   For instructions, see Procedure 16 "Backing up the IP Phone Application Server database" (page 131)

2. Determine if an NRS database is present.

For more information about upgrading the NRS application, see (NN43001-130).

3. Upgrade the Signaling Server software.

   For instructions, see Procedure 17 “Upgrading the Signaling Server software” (page 132).

4. Restore the IP Phone Application Server database (if present).

   For instructions, see Procedure 19 “Restoring the IP Phone Application Server database” (page 135).

Upgrade from Communication Server 1000 Release 4.5

The following task list contains the tasks necessary to upgrade your Signaling Server software from CS 1000 Release 4.5 to CS 1000 Release 6.0.

- Perform the instructions to upgrade Signaling Server software (see Procedure 17 “Upgrading the Signaling Server software” (page 132)).

Upgrade from Communication Server 1000 Release 5.0

The following task list contains the tasks necessary to upgrade your Signaling Server software from CS 1000 Release 5.0 to CS 1000 Release 6.0.

- Perform the instructions to upgrade Signaling Server software (see Procedure 17 “Upgrading the Signaling Server software” (page 132)).

Upgrade from Communication Server 1000 Release 5.5

The following task list contains the tasks necessary to upgrade your Signaling Server software from CS 1000 Release 5.5 to CS 1000 Release 6.0.

- Perform the instructions to upgrade Signaling Server software (see Procedure 17 “Upgrading the Signaling Server software” (page 132)).

Upgrade procedures

This section contains the procedures that you use during the Signaling Server software upgrade.

- Procedure 16 “Backing up the IP Phone Application Server database” (page 131)
- Procedure 17 “Upgrading the Signaling Server software” (page 132)

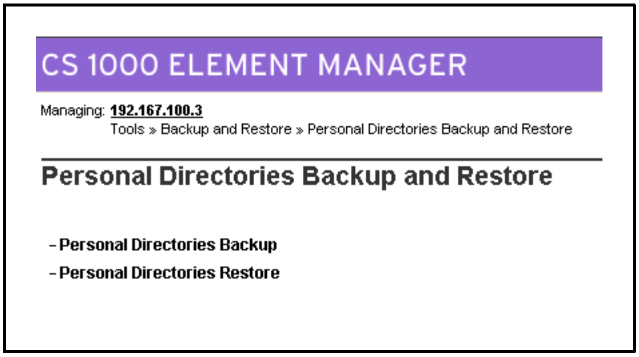
- Procedure 18 “Synchronize IP Telephony nodes” (page 133)
- Procedure 19 “Restoring the IP Phone Application Server database” (page 135)

Perform the following procedure to back up the IP Phone Application Server database.

Procedure 16
Backing up the IP Phone Application Server database

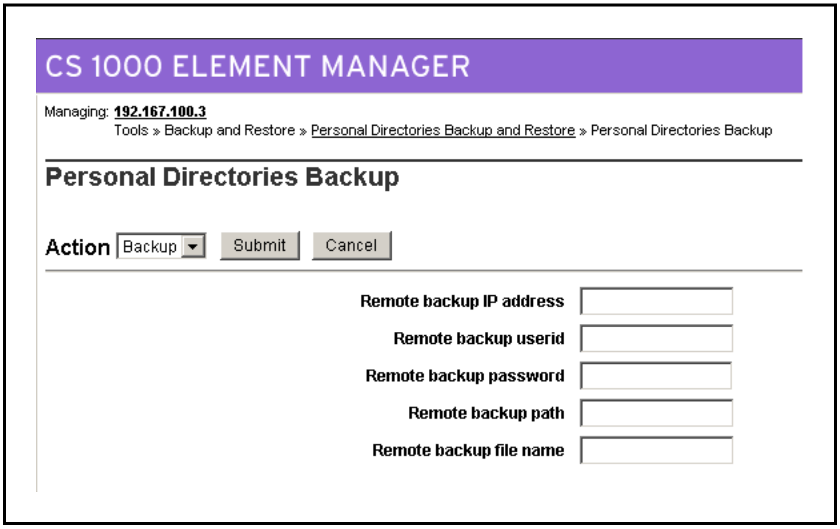
Step	Action
1	In the Element Manager navigator, click **Tools, Backup and Restore, Personal Directories**.
	The Personal Directories Backup and Restore window appears.

Figure 111
Personal Directories backup and restore


CS 1000 ELEMENT MANAGER
Managing: 192.167.100.3
Tools » Backup and Restore » Personal Directories Backup and Restore
Personal Directories Backup and Restore
- Personal Directories Backup
- Personal Directories Restore

Step	Action
2	Click **Personal Directories Backup**.
	The Personal Directories Backup window appears.

Figure 112
Personal Directories backup


CS 1000 ELEMENT MANAGER
Managing: 192.167.100.3
Tools » Backup and Restore » Personal Directories Backup and Restore » Personal Directories Backup
Personal Directories Backup
Action
Backup
Submit
Cancel
Remote backup IP address
Remote backup userid
Remote backup password
Remote backup path
Remote backup file name

3 Enter the data for the **Remote backup IP address**, **Remote backup userid**, **Remote backup password**, **Remote backup path**, and **Remote backup file name fields**.

4 Click **Submit**.

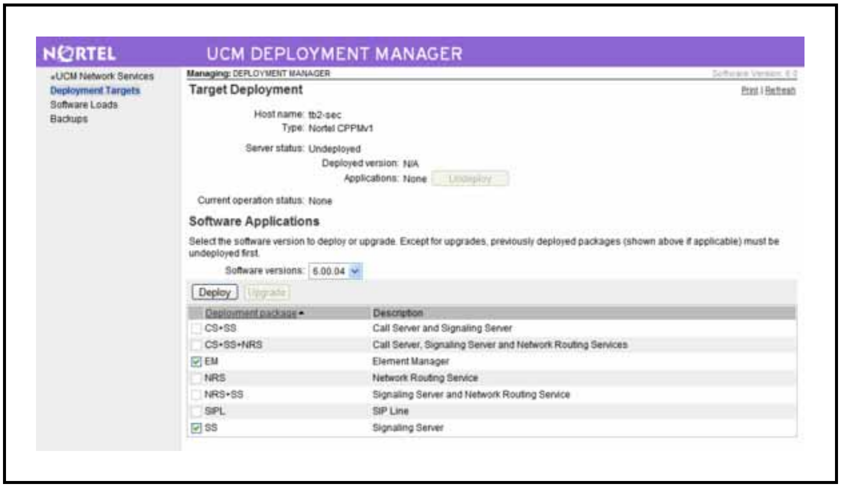
--End--

Perform the following procedure to upgrade the software on your Signaling Server.

Procedure 17
Upgrading the Signaling Server software

Step	Action
1	Log on to UCM using the Primary UCM Server ID and password credentials.
2	Select **Network, CS 1000 Servers, Software Deployment**. The Target Deployment window appears.
3	Select the target server and click **Deploy**.
4	Select the SS and EM applications.

Figure 113
Target Deployment - Software Applications window



Managing: DEPLOYMENT MANAGER

Target Deployment

Host name: tb2-sec
Type: Nortel CPPMv1

Server status: Undeployed
Deployed version: N/A
Applications: None

Current operation status: None

Software Applications

Select the software version to deploy or upgrade. Except for upgrades, previously deployed packages (shown above if applicable) must be undeployed first.

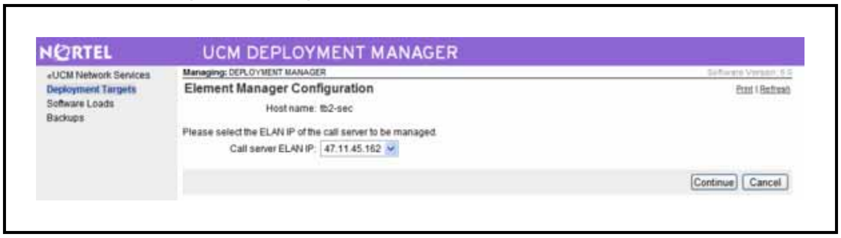
Software versions: 6.00.04

	Deployment package	Description
☐	CS+SS	Call Server and Signaling Server
☐	CS+SS+NRS	Call Server, Signaling Server and Network Routing Services
☑	EM	Element Manager
☐	NRS	Network Routing Service
☐	NRS+SS	Signaling Server and Network Routing Service
☐	SIPL	SIP Line
☑	SS	Signaling Server

5 On the Element Manager Configuration window, select the Call Server ELAN IP address and click **Continue**.

The Call Server must be joined to the Security domain before you proceed with this step.

Figure 114
Element Manager Configuration window


NORTEL
UCM DEPLOYMENT MANAGER
«UCM Network Services
Deployment Targets
Software Loads
Backups
Print | Refresh
Continue
Cancel

Managing: DEPLOYMENT MANAGER

Element Manager Configuration

Host name: tb2-sec

Please select the ELAN IP of the call server to be managed.

Call server ELAN IP: 47.11.45.162

The application deployment starts. Deploying applications might take a few minutes. When the deployment finishes, the Server Status is Deployed.

--End--

Perform the following procedure to synchronize the IP Telephony nodes using Element Manager.

Procedure 18
Synchronize IP Telephony nodes

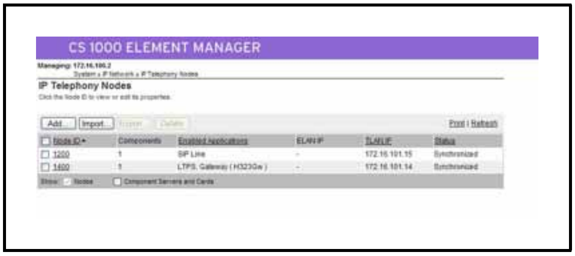
Step **Action**

1 Log on to UCM using the Primary UCM Server ID and password credentials.

2 Log on to Element Manager.

3 Select **System, IP Network, Nodes: Server, Media Cards**. The IP Telephony Nodes window appears.

Figure 115
IP Telephony Nodes window


CS 1000 ELEMENT MANAGER
Add...
Import...
Export
Delete
Print | Refresh

Managing: 172.16.100.2
System » IP Network » IP Telephony Nodes

IP Telephony Nodes

Click the Node ID to view or edit its properties.

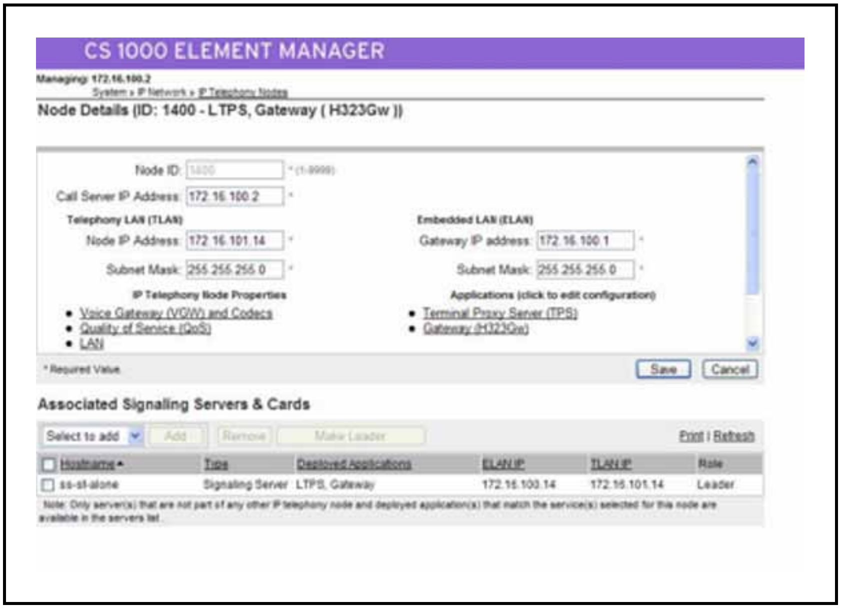
Node ID	Components	Enabled Applications	ELAN IP	TLAN IP	Status
☐ 1200	1	SIP Line	-	172.16.101.15	Synchronized
☐ 1400	1	LTPS, Gateway (H323Gw)	-	172.16.101.14	Synchronized

Show: ☑ Nodes ☐ Component Servers and Cards

4 Select the link for a Node ID. The Node Details window appears.

5 On the Node Details window ensure the information is correct. Select the various links (TPS, Gateway) to ensure that information is correct.

Figure 116
Node Details window


CS 1000 ELEMENT MANAGER
System » IP Network » IP Telephony Nodes
IP Telephony Node Properties
Voice Gateway (VGW) and Codecs
Quality of Service (QoS)
LAN
Applications (click to edit configuration)
Terminal Proxy Server (TPS)
Gateway (H323Gw)
Save
Cancel
Select to add
Add
Remove
Make Leader
Print | Refresh

Managing: 172.16.100.2

Node Details (ID: 1400 - LTPS, Gateway (H323Gw))

Node ID: 1400 * (1-9999)

Call Server IP Address: 172.16.100.2 *

Telephony LAN (TLAN)

Node IP Address: 172.16.101.14 *

Subnet Mask: 255.255.255.0 *

Embedded LAN (ELAN)

Gateway IP address: 172.16.100.1 *

Subnet Mask: 255.255.255.0 *

* Required Value.

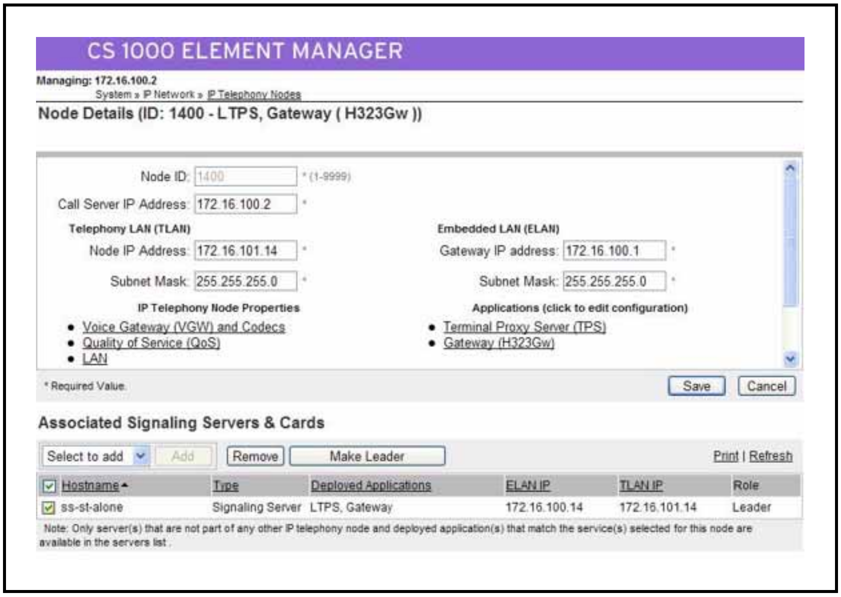
Associated Signaling Servers & Cards

☐ Hostname ▲	Type	Deployed Applications	ELAN IP	TLAN IP	Role
☐ ss-st-alone	Signaling Server	LTPS, Gateway	172.16.100.14	172.16.101.14	Leader

Note: Only server(s) that are not part of any other IP telephony node and deployed application(s) that match the service(s) selected for this node are available in the servers list .

6 In the Associated Signaling Servers & Cards section of the window, select the Signaling Server from the Select to add list and click **Make Leader**.

Figure 117
Node Details window - select Leader Signaling Server


CS 1000 ELEMENT MANAGER
System » IP Network » IP Telephony Nodes
IP Telephony Node Properties
Voice Gateway (VGW) and Codecs
Quality of Service (QoS)
LAN
Applications (click to edit configuration)
Terminal Proxy Server (TPS)
Gateway (H323Gw)
Save
Cancel
Select to add
Add
Remove
Make Leader
Print | Refresh

Managing: 172.16.100.2

Node Details (ID: 1400 - LTPS, Gateway (H323Gw))

Node ID: 1400 * (1-9999)

Call Server IP Address: 172.16.100.2 *

Telephony LAN (TLAN)

Node IP Address: 172.16.101.14 *

Subnet Mask: 255.255.255.0 *

Embedded LAN (ELAN)

Gateway IP address: 172.16.100.1 *

Subnet Mask: 255.255.255.0 *

* Required Value.

Associated Signaling Servers & Cards

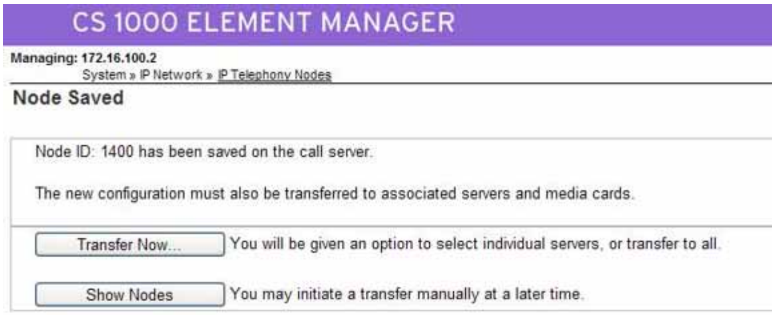
☑ Hostname ▲	Type	Deployed Applications	ELAN IP	TLAN IP	Role
☑ ss-st-alone	Signaling Server	LTPS, Gateway	172.16.100.14	172.16.101.14	Leader

Note: Only server(s) that are not part of any other IP telephony node and deployed application(s) that match the service(s) selected for this node are available in the servers list .

7 Click **Save**.

8 Select the follower Signaling Server from the list and click **Add**. Click **Save**. The Node Saved window appears.

Figure 118
Node Saved window


CS 1000 ELEMENT MANAGER
Managing: 172.16.100.2
System » IP Network » IP Telephony Nodes
Node Saved
Transfer Now...
Show Nodes

Node ID: 1400 has been saved on the call server.

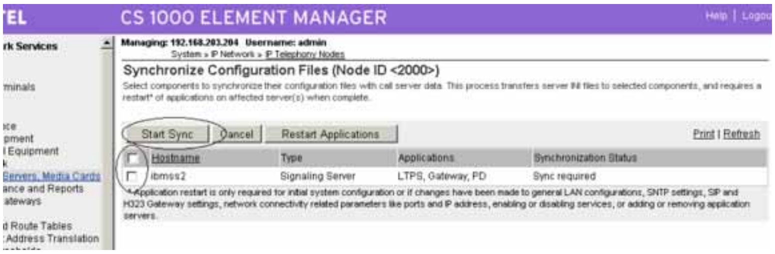
The new configuration must also be transferred to associated servers and media cards.

Transfer Now... You will be given an option to select individual servers, or transfer to all.

Show Nodes You may initiate a transfer manually at a later time.

9 Click **Transfer Now**. The Synchronize Configuration Files window appears.

Figure 119
Synchronize Configuration Files window


CS 1000 ELEMENT MANAGER
Help | Logou
Managing: 192.168.203.204 Username: admin
System » IP Network » IP Telephony Nodes
Synchronize Configuration Files (Node ID <2000>)
Start Sync
Cancel
Restart Applications
Print | Refresh

Select components to synchronize their configuration files with call server data. This process transfers server INI files to selected components, and requires a restart* of applications on affected server(s) when complete.

☐	Hostname	Type	Applications	Synchronization Status
☐	ibmss2	Signaling Server	LTPS, Gateway, PD	Sync required

*Application restart is only required for initial system configuration or if changes have been made to general LAN configurations, SNTP settings, SIP and H323 Gateway settings, network connectivity related parameters like ports and IP address, enabling or disabling services, or adding or removing application servers.

10 Select the check boxes for the nodes to synchronize and select **Start Sync**. The Synchronization Status column displays Synchronized when the synchronization finishes.

11 Click **Restart Applications** to restart the Signaling Server applications. The LTPS, Gateway (SIP and H.323), and PD applications are now successfully deployed.

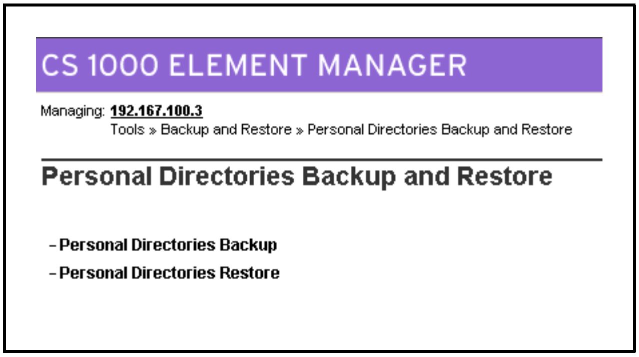
--End--

Perform the following procedure to restore the IP Phone Application Server database.

Procedure 19
Restoring the IP Phone Application Server database

Step	Action
1	In the Element Manager navigator, select **Tools, Backup and Restore, Personal Directories**. The Personal Directories Backup and Restore window appears.

Figure 120
Personal Directories backup and restore

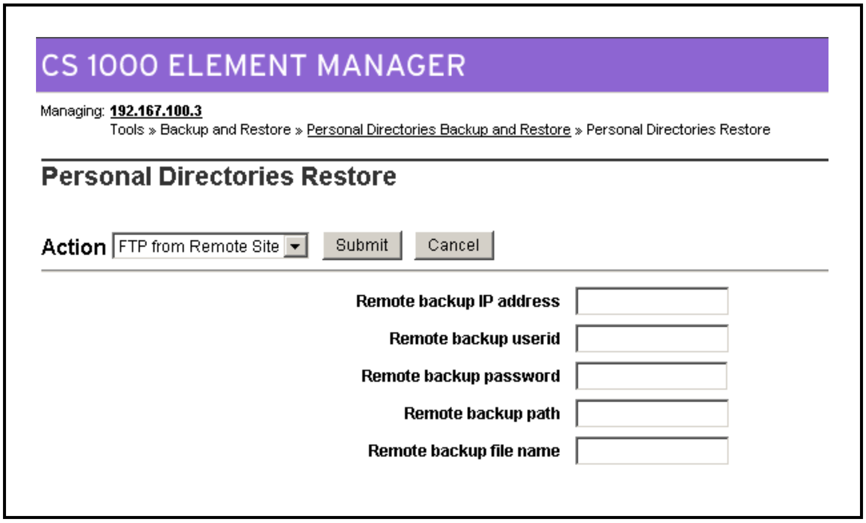

CS 1000 ELEMENT MANAGER
Tools » Backup and Restore » Personal Directories Backup and Restore
Personal Directories Backup and Restore
- Personal Directories Backup
- Personal Directories Restore

Managing: 192.167.100.3

2 Click **Personal Directories Restore**.

The Personal Directories Restore window appears.

Figure 121
Personal Directories restore


CS 1000 ELEMENT MANAGER
Tools » Backup and Restore » Personal Directories Backup and Restore » Personal Directories Restore
Personal Directories Restore
Submit
Cancel
Remote backup IP address
Remote backup userid
Remote backup password
Remote backup path
Remote backup file name

Managing: 192.167.100.3

Action: FTP from Remote Site

3 From the **Action** list, select **FTP from Remote Site** if you saved the backup on a remote server.

4 Enter the data for the **Remote backup IP address, Remote backup userid, Remote backup password, Remote backup path, and Remote backup file name** fields.

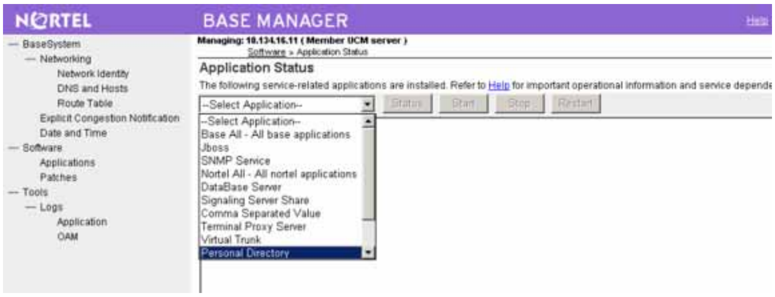
5 Click **Submit**.

6 Click **OK**.

7 Select **System, IP Networks, Maintenance and Reports**. The Node Maintenance and Reports window appears.

8 Click **Reset**. The Base Manager window for the server appears.

Figure 122
Base Manager window


NORTEL
BASE MANAGER
Help
BaseSystem
Networking
Network Identity
DNS and Hosts
Route Table
Explicit Congestion Notification
Date and Time
Software
Applications
Patches
Tools
Logs
Application
OAM
--Select Application--
Status
Start
Stop
Restart
--Select Application--
Base All - All base applications
Jboss
SNMP Service
Nortel All - All nortel applications
DataBase Server
Signaling Server Share
Comma Separated Value
Terminal Proxy Server
Virtual Trunk
Personal Directory

Managing: 10.134.16.11 (Member UCM server)

Software » Application Status

Application Status

The following service-related applications are installed. Refer to Help for important operational information and service depende

9 Select **Personal Directory** and click **Restart**.

10 Click **OK** to confirm that you want to restart the application. The status of the Personal Directory restart updates when the restart finishes.

--End--

ATTENTION
The length of time to restore an IP Phone Application Server database depends on the number of records.

Signaling Server configuration

Contents

This section contains information on the following topics:

- "Introduction" (page 139)
- "Configure the Signaling Server" (page 139)

Introduction

This chapter describes the procedure for configuring your Signaling Server with IP telephony, data networking, and NRS parameters. Use the Signaling Server Software Installation Tool to configure your Signaling Server.

Configure the Signaling Server

Use the following procedure to configure or reconfigure your Signaling Server.

Procedure 20
Configuring the Signaling Server

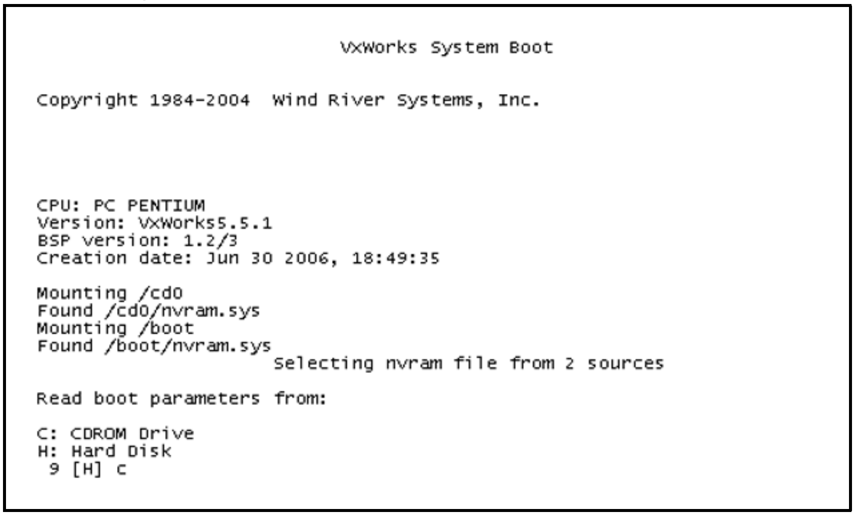
Step	Action
1	From your Planning and Engineering group, obtain the appropriate network and IP Telephony data to configure or reconfigure your Signaling Server: • node ID for the IP Telephony node • node IP address for the IP Telephony node • host name for the Signaling Server • ELAN network interface IP address, subnet mask, and gateway • TLAN network interface IP address, subnet mask, and gateway • ELAN network interface IP address of the Call Server

- Gatekeeper role (refer to *IP Peer Networking Installation and Commissioning (NN43001-313)* () for details on the Gatekeeper)
- primary and alternate Gatekeeper IP addresses for this networked system (refer to *IP Peer Networking Installation and Commissioning (NN43001-313)* ())
- NRS role (refer to *Network Routing Service Installation and Commissioning (NN43001-564)* () for details on NRS

2 Trigger the Signaling Server Software Installation Tool on the Signaling Server.

- On IBM X306m, HP DL320-G4, and Nortel ISP1100 Signaling Servers:
  - — insert the Signaling Server Software CD into the CD drive
  - — press the **RST** button on the front of the Signaling Server or enter the`reboot -1` command on the CLI of the Signaling Server to trigger a cold boot.
    The VxWorksTM system boot banner screen appears.

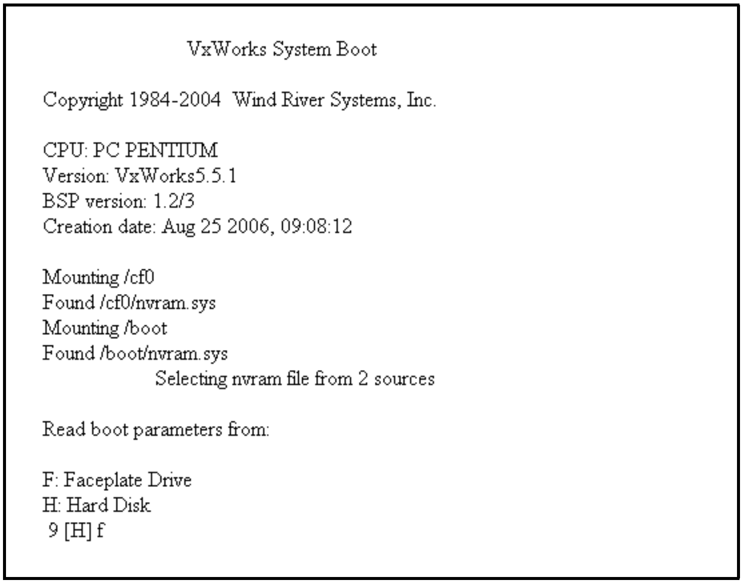
Figure 123
VxWorks system boot banner



```
                              VxWorks System Boot


  Copyright 1984-2004  Wind River Systems, Inc.




  CPU: PC PENTIUM
  Version: VxWorks5.5.1
  BSP version: 1.2/3
  Creation date: Jun 30 2006, 18:49:35

  Mounting /cd0
  Found /cd0/nvram.sys
  Mounting /boot
  Found /boot/nvram.sys
                      Selecting nvram file from 2 sources

  Read boot parameters from:

  C: CDROM Drive
  H: Hard Disk
   9 [H] c
```

  - — enter `c` at the countdown prompt to trigger the Signaling Server to boot from the CD drive
- On Nortel CP PM Signaling Servers (when no Signaling Server Software CF card is available):
  - — press the **RST** button on the faceplate of the Signaling Server to trigger a cold-re-boot.
    The VxWorksTM boot banner screen appears.

Figure 124
VxWorks system boot banner

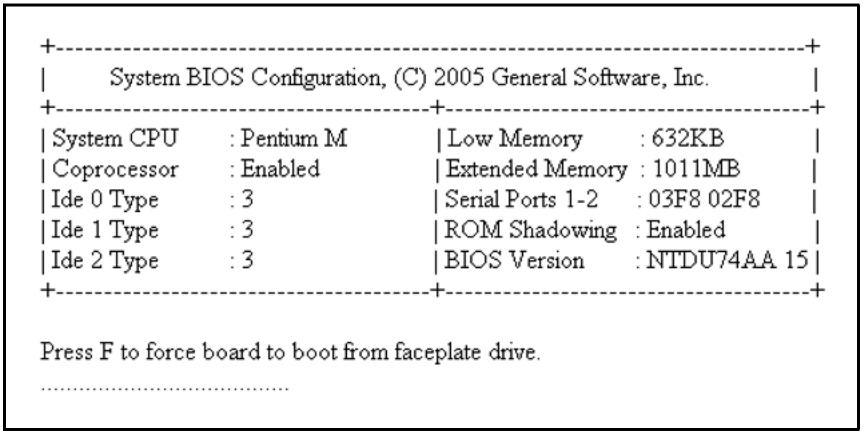


```
                VxWorks System Boot

Copyright 1984-2004  Wind River Systems, Inc.

CPU: PC PENTIUM
Version: VxWorks5.5.1
BSP version: 1.2/3
Creation date: Aug 25 2006, 09:08:12

Mounting /cf0
Found /cf0/nvram.sys
Mounting /boot
Found /boot/nvram.sys
          Selecting nvram file from 2 sources

Read boot parameters from:

F: Faceplate Drive
H: Hard Disk
 9 [H] f
```

  - enter `Ctrl+B` at the countdown prompt to stop the boot sequence
  - enter `c` to change the boot parameters
  - press `<CR>` until you reach the "flags" parameter
  - update the contents of the "flags" parameter with the value `0x40000`
  - press `<CR>` until the VxWorks™ system boot banner screen re-appears.
  - enter `@` to continue the boot sequence

- On Nortel CP PM Signaling Servers (when a Signaling Server Software CF card is available):
  - insert the CF card into the faceplate CF drive
  - press the **RST** button on the faceplate of the Signaling Server.
    The CP PM System BIOS Configuration screen appears.

Figure 125
Nortel CP PM system BIOS



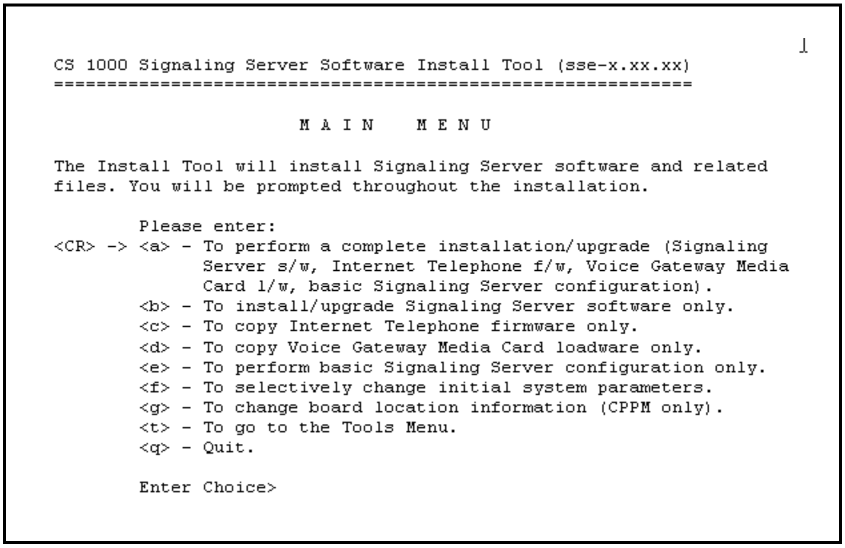
```
+---------------------------------------------------------------------------+
|        System BIOS Configuration, (C) 2005 General Software, Inc.         |
+-------------------------------------+-------------------------------------+
| System CPU       : Pentium M        | Low Memory       : 632KB            |
| 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.
......................................
```

— press**F** to force the Signaling Server to boot from the CF drive.

> ***Note:*** Press **F** before dots have completely underlined the textual prompt to ensure that the Signaling Server boots from the CF drive.

The Installation Tool Main Menu appears.

Figure 126
Installation Tool Main Menu

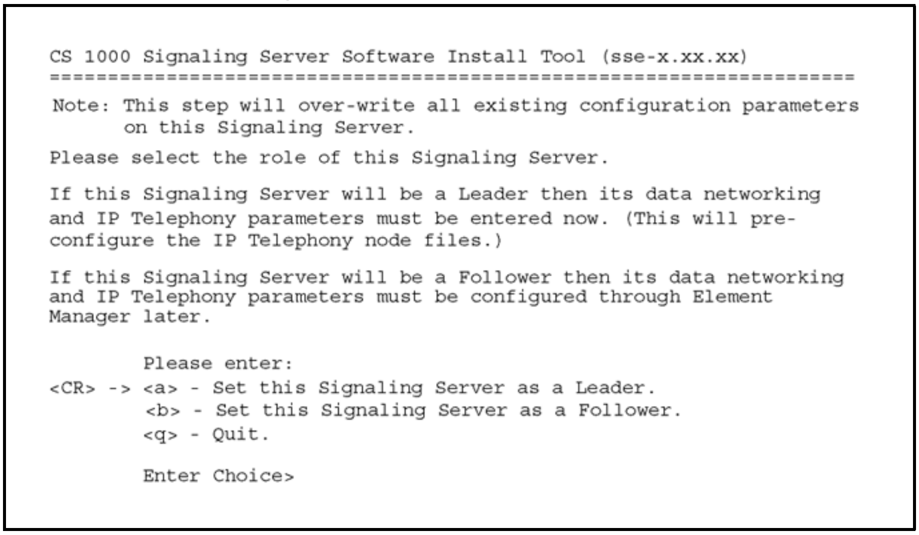


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

                       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, 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>
```

3 Enter **e** to configure the Signaling Server.

- If an nrsconf.xml file exists already, the Leader/Follower configuration screen appears.

Figure 127
Leader/Follower configuration

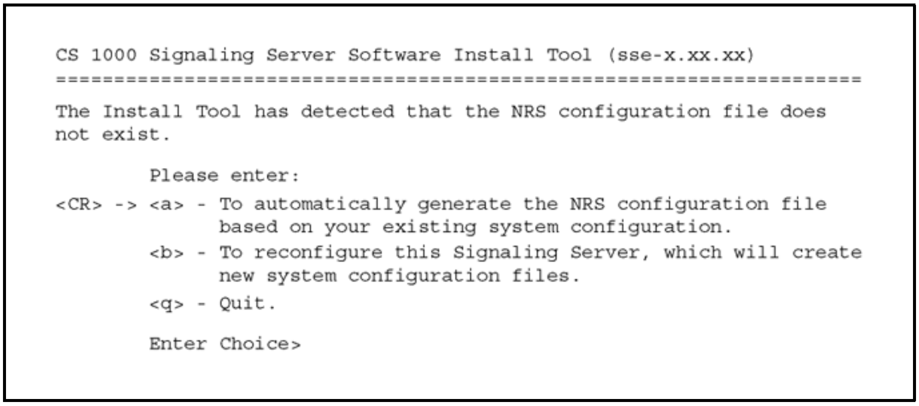


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====================================================================
Note: This step will over-write all existing configuration parameters
      on this Signaling Server.
Please select the role of this Signaling Server.

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>
```

Go to step 5.

- If the nrsconf.xml file does not exist (and the nrsdflt.xml file does exist), the NRS configuration screen appears.

Figure 128
NRS configuration file

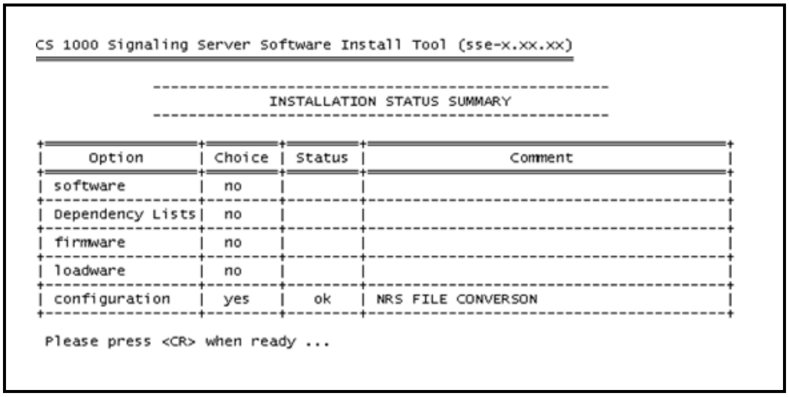


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====================================================================
The Install Tool has detected that the NRS configuration file does
not exist.

        Please enter:
<CR> -> <a> - To automatically generate the NRS configuration file
              based on your existing system configuration.
        <b> - To reconfigure this Signaling Server, which will create
              new system configuration files.
        <q> - Quit.

        Enter Choice>
```

4 Choose the appropriate NRS configuration option.

- select **a** to have the system automatically generate the NRS configuration file (nrsconf.xml) based on the existing configuration of the Signaling Server. The Installation Status Summary screen appears.

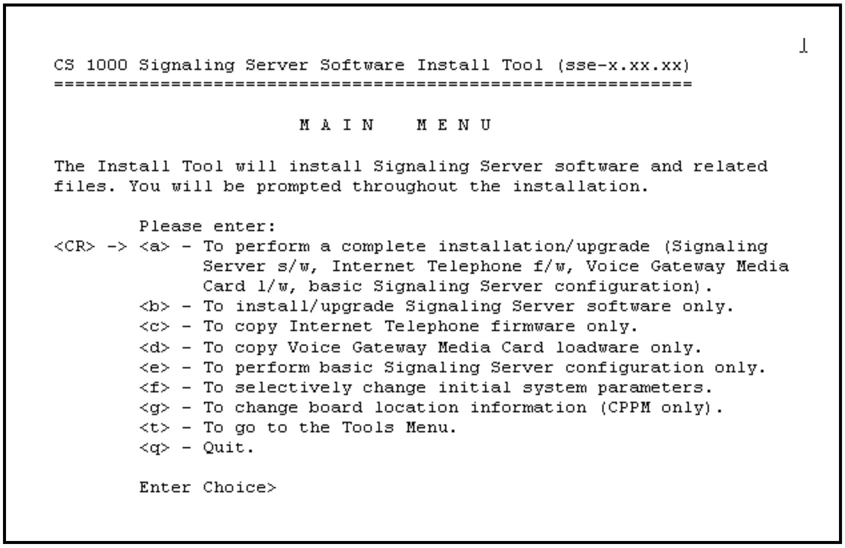
Figure 129
Installation status summary



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

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

+================+=======+=======+=====================================+
|     Option     | Choice| Status|               Comment               |
+================+=======+=======+=====================================+
| software       |  no   |       |                                     |
+----------------+-------+-------+-------------------------------------+
| Dependency Lists|  no  |       |                                     |
+----------------+-------+-------+-------------------------------------+
| firmware       |  no   |       |                                     |
+----------------+-------+-------+-------------------------------------+
| loadware       |  no   |       |                                     |
+----------------+-------+-------+-------------------------------------+
| configuration  |  yes  |  ok   | NRS FILE CONVERSON                  |
+----------------+-------+-------+-------------------------------------+

 Please press <CR> when ready ...
```

Press **<CR>**. The Installation Tool Main Menu appears.

Figure 130
Installation Tool Main Menu

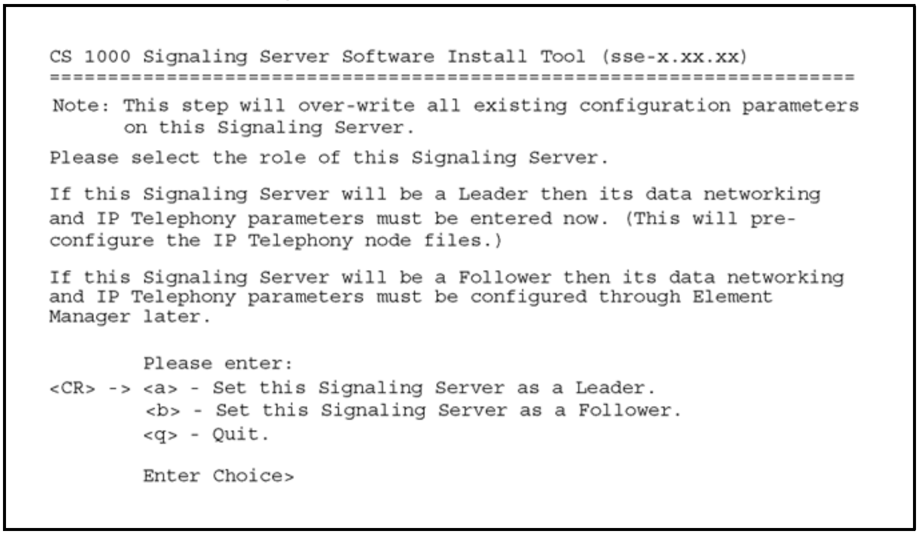


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

                       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, 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>
```

Go to step 13.

- Select **b** to create the new configuration file by re-configuring the Signaling Server. The Leader/Follower configuration screen appears.

Figure 131
Leader/Follower configuration

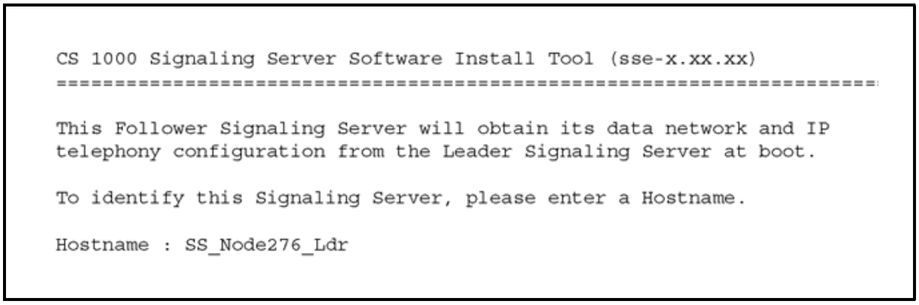


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====================================================================
Note: This step will over-write all existing configuration parameters
      on this Signaling Server.
Please select the role of this Signaling Server.

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>
```

5 Configure the Signaling Server as Leader or Follower.

- Enter **b** at the prompt to configure this Signaling Server as Follower. The Follower Signaling Server configuration screen appears.

Figure 132
Follower Signaling Server configuration

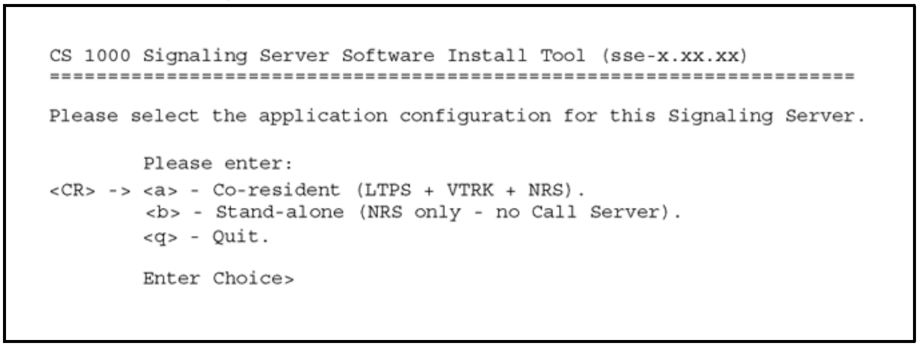


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
======================================================================

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
```

Go to step 9.

- Enter **a** at the prompt to configure this Signaling Server as Leader. The Application configuration screen appears.

Figure 133
Application configuration

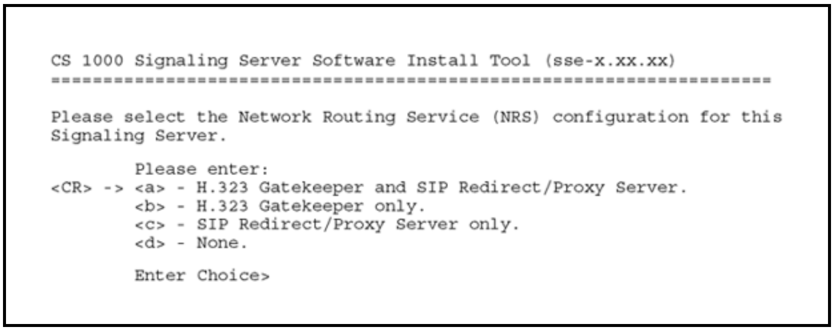


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
======================================================================

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>
```

6 Select the application configuration for this Signaling Server.

- If the IP Telephone TPS, Virtual Trunk TPS, and optional Network Routing Service (NRS) applications are required on this Signaling Server, enter **`a`** at the prompt to configure this Signaling Server as a Coresident Signaling Server. The NRS configuration: Coresident Signaling Server screen appears.

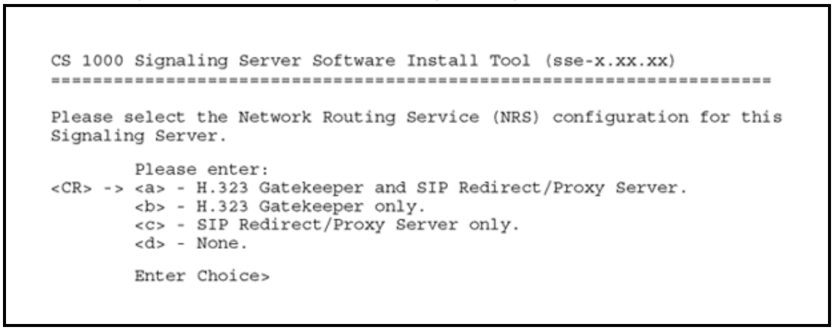
Figure 134
NRS configuration: Coresident Signaling Server



```
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>
```

- 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 Coresident Signaling Server. The NRS configuration: Coresident Signaling Server screen appears.

Figure 135
NRS configuration: Coresident Signaling Server

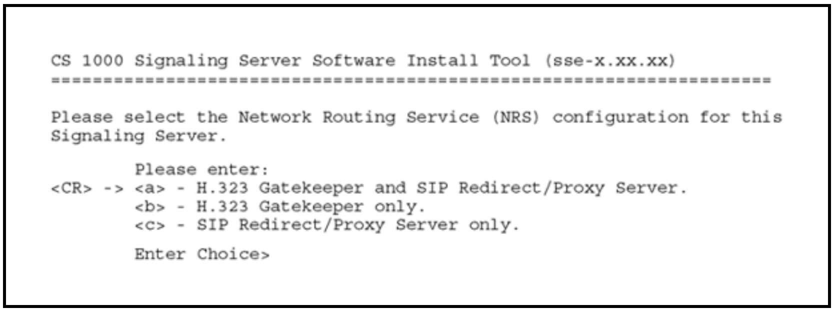


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====================================================================

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>
```

Note: After you finish installing the Signaling Server software, you can disable the Line TPS and Virtual Trunk TPS in Element Manager (refer to *Element Manager: System Administration (NN43001-632)* ()).

— If this Signaling Server is not to be associated with a Call Server, enter `b` at the prompt to configure this Signaling Server as a Standalone Signaling Server - NRS only. The NRS configuration: Standalone Signaling Server - NRS only screen appears.

Figure 136
NRS configuration: Standalone Signaling Server - NRS only



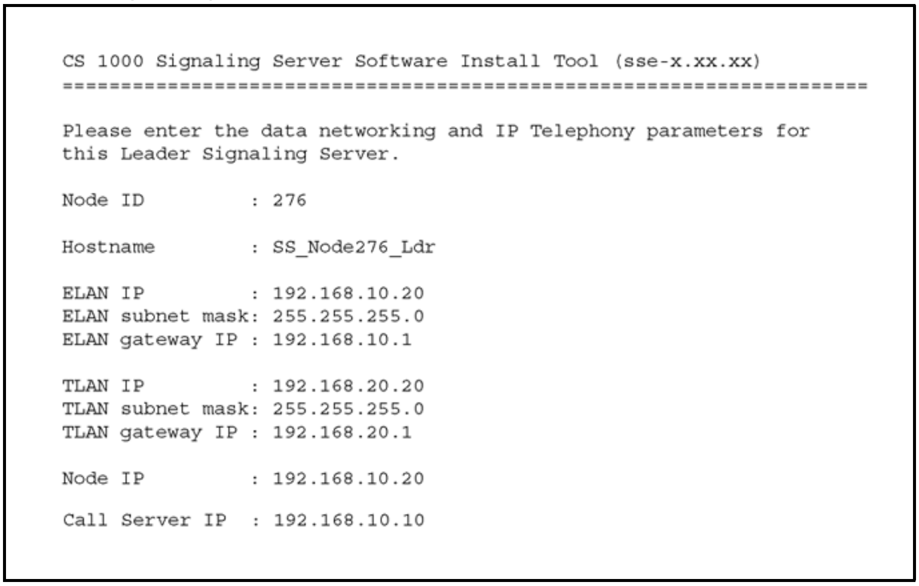
```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====================================================================

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>
```

7 Select the NRS configuration for the Signaling Server.

Refer to *Network Routing Service Installation and Commissioning (NN43001-564)* () for more information on the NRS.

- Enter `d` if this Signaling Server is configured as Leader, but is not providing an NRS. The Leader Signaling Server configuration screen appears.

Figure 137
Leader Signaling Server



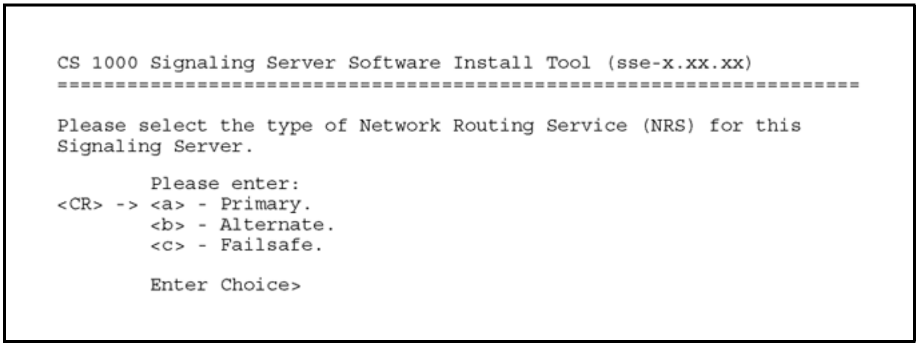
```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
======================================================================

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
```

Go to step 9.

- 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.

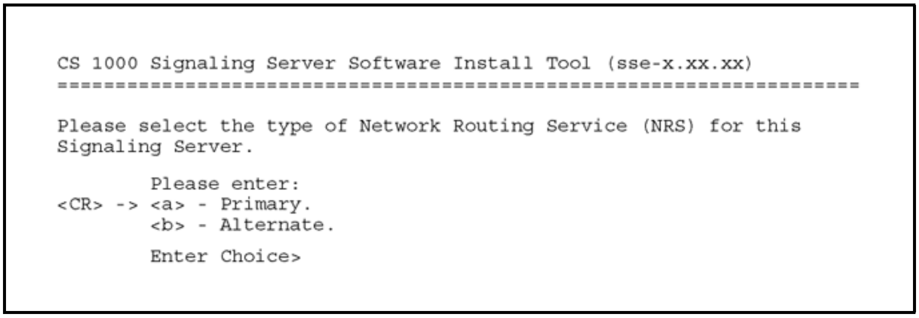
Depending on the option chosen in step 6, either the "NRS type - Coresident Signaling Server" screen or the "NRS type - Standalone Signaling Server" screen appear.

Figure 138
NRS type: Coresident 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 139
NRS type: Standalone 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.

        Enter Choice>
```

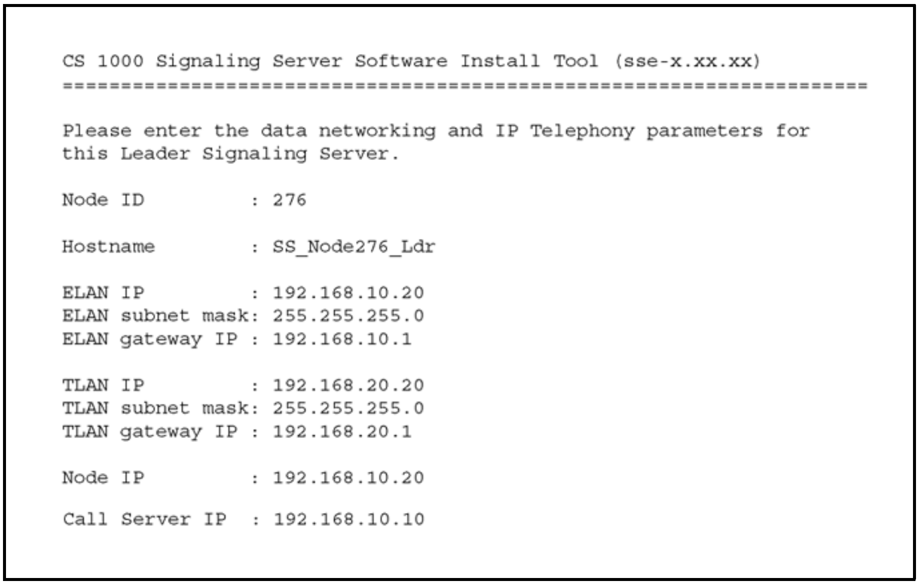
8 Select the type of NRS to be provided by this Signaling Server.

Refer to *Network Routing Service Installation and Commissioning (NN43001-564)* () for more information on the NRS.

- 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 Standalone Signaling Server - NRS only and is to be the Failsafe NRS, enter `c`.

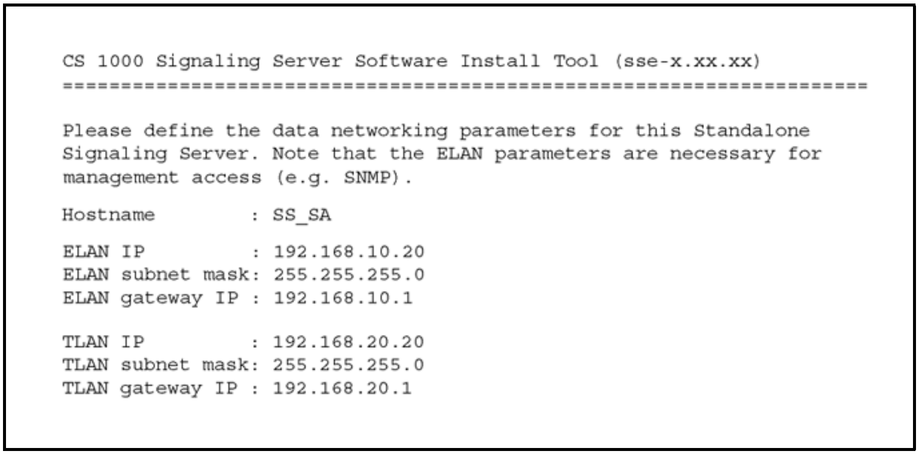
Depending on whether this Signaling Server is configured as Leader or Standalone, either the Leader Signaling Server IP telephony screen or the Standalone Signaling Server - NRS only IP telephony screen appears.

Figure 140
Leader Signaling Server - IP telephony parameters



```
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 141
Standalone Signaling Server - NRS only - IP telephony parameters

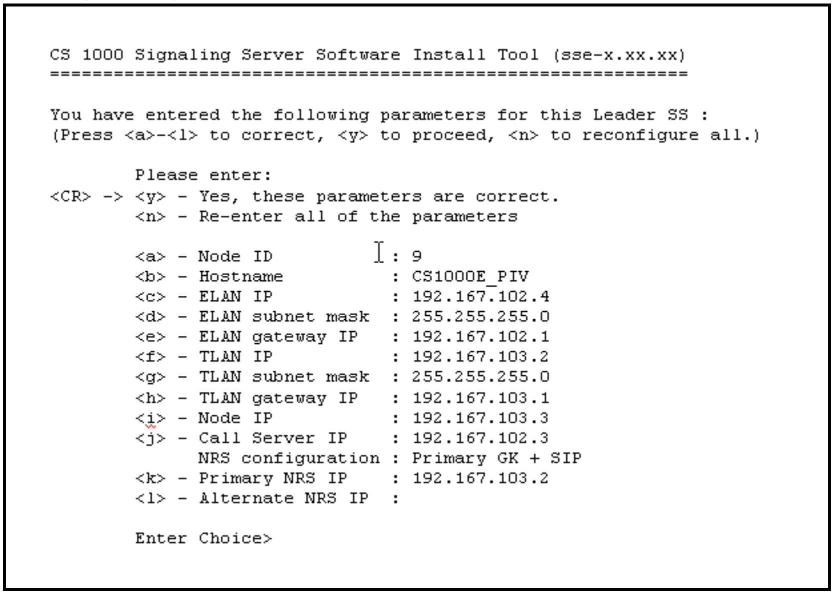


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
=====================================================================

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
```

9 Enter the data networking and IP telephony parameters for the Signaling Server.

- For a Follower Signaling Server, enter the host name of the Leader Signaling Server. The IP telephony parameter confirmation screen appears.

Figure 142
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           : 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>
```

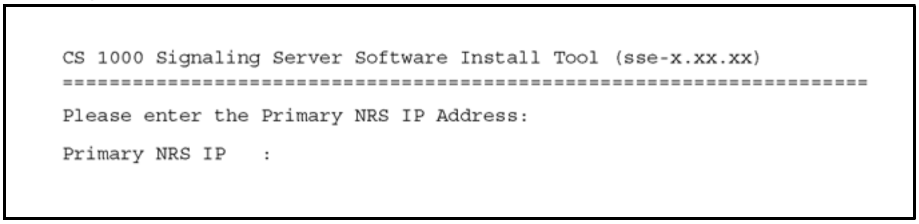
Go to step 11.

- For a Leader Signaling Server, enter the parameters for the Node, ELAN network interface, TLAN network interface, and Call Server as required. 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.
- For a Standalone Signaling Server - NRS only, that is not associated with a Call Server (that is, **b** was selected in step 6, enter the TLAN network interface parameters as required. The Call Server IP address is automatically configured to 0.0.0.0.

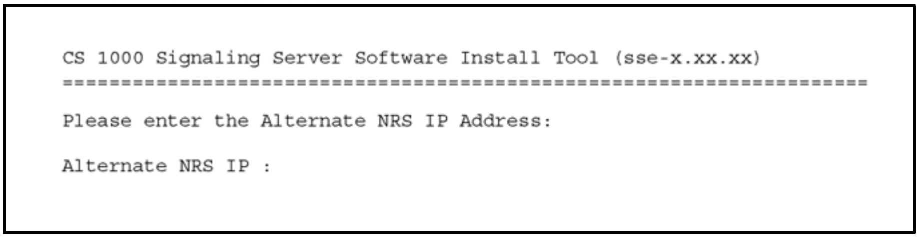
Depending on the option chosen in step 7: select NRS configuration or step 8: select NRS type, either the Primary NRS IP address screen or the Alternate NRS IP address screen, or both (in succession), appear.

Figure 143
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 144
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 :
```

10 Enter the Primary NRS IP address or the Alternate NRS IP address, depending on the option entered in step 7: select NRS configuration or step 8: select NRS type.

The Gatekeeper configuration can be updated later using Element Manager.

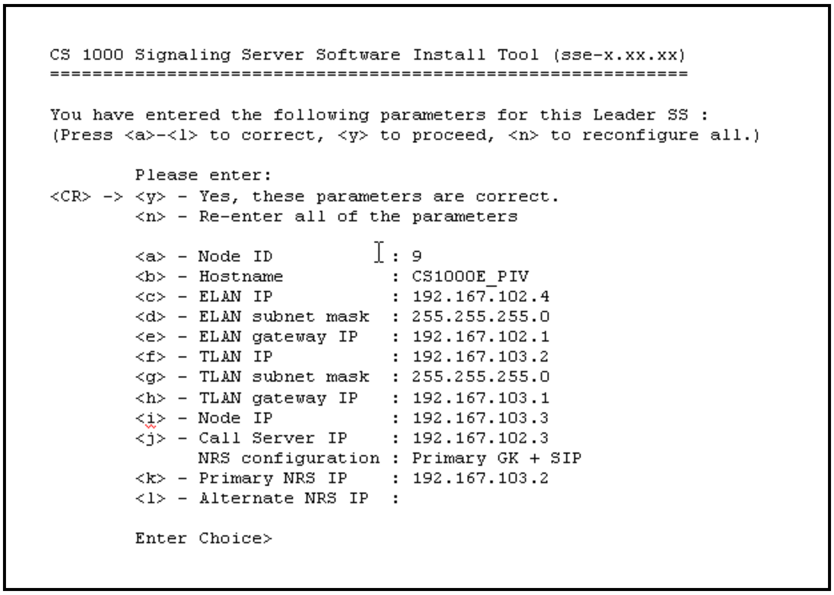
- If **a** was entered in step 8: select NRS type, you can enter the address of the Alternate NRS if you know it, but it is not required.
- If **b** was entered in step 8: select NRS type, enter the address of the Primary NRS.
- If **c** was entered in step 8: select NRS type:

- Enter the address of the Primary NRS.
- Enter the address of the Alternate NRS.

- If **d** was entered in step 7: select NRS configuration:
    - 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 IP telephony parameter confirmation screen appears.

Figure 145
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           : 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>
```

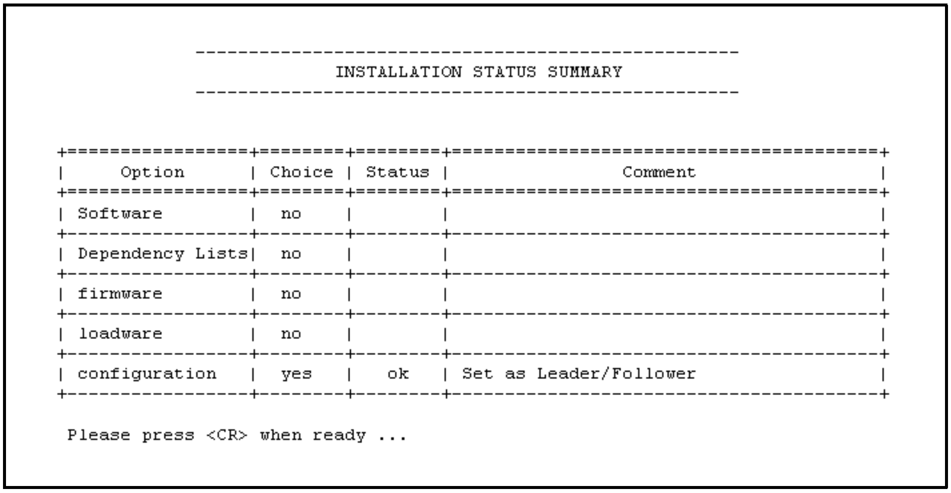
11 Press]**`<CR>`** or enter **`y`** to confirm all parameters entered, or enter the letter preceding any parameter to change its value.

The example in Figure 145 "IP telephony parameter confirmation" (page 152) is for a Leader Signaling Server configured with an Alternate H.323 and SIP NRS. The confirmation screens for a Follower and Standalone Signaling Server - NRS only are similar, showing the same list of parameters, specifically:

- The configuration screen for a Follower Signaling Server only contains a value for the host name parameter; all other values are blank.
- The configuration screen for a Standalone Signaling Server - NRS only contains values for the host name, ELAN network interface, TLAN network interface, and NRS parameters. The Node ID parameter is configured to 0. The Call Server IP parameter is configured to 0.0.0.0.

After the IP telephony parameters are confirmed, the Installation Status Summary screen appears.

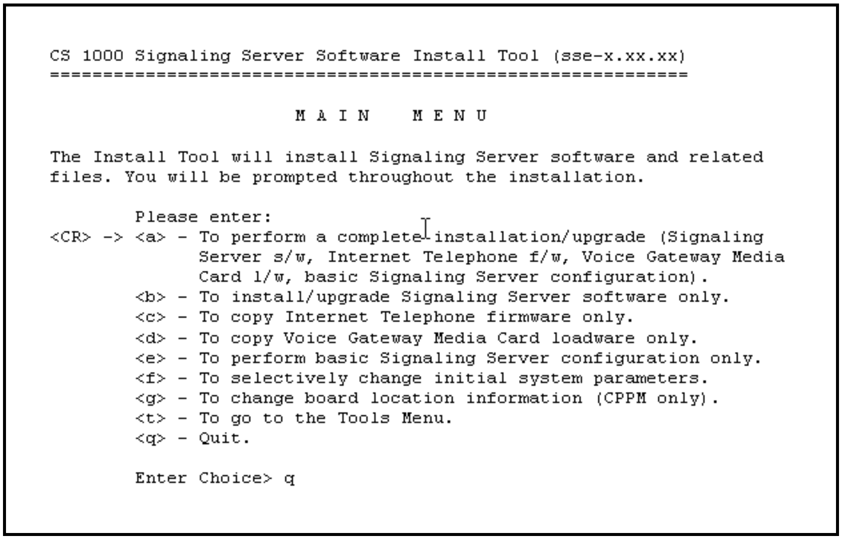
Figure 146
Installation Status Summary



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


 +=================+========+========+=======================================+
 |     Option      | Choice | Status |                Comment                |
 +=================+========+========+=======================================+
 | Software        |  no    |        |                                       |
 +-----------------+--------+--------+---------------------------------------+
 | Dependency Lists|  no    |        |                                       |
 +-----------------+--------+--------+---------------------------------------+
 | firmware        |  no    |        |                                       |
 +-----------------+--------+--------+---------------------------------------+
 | loadware        |  no    |        |                                       |
 +-----------------+--------+--------+---------------------------------------+
 | configuration   |  yes   |   ok   | Set as Leader/Follower                |
 +-----------------+--------+--------+---------------------------------------+

  Please press <CR> when ready ...
```

12 Press **`<CR>`** to return to the Installation Tool Main Menu.

Figure 147
Installation Tool Main Menu

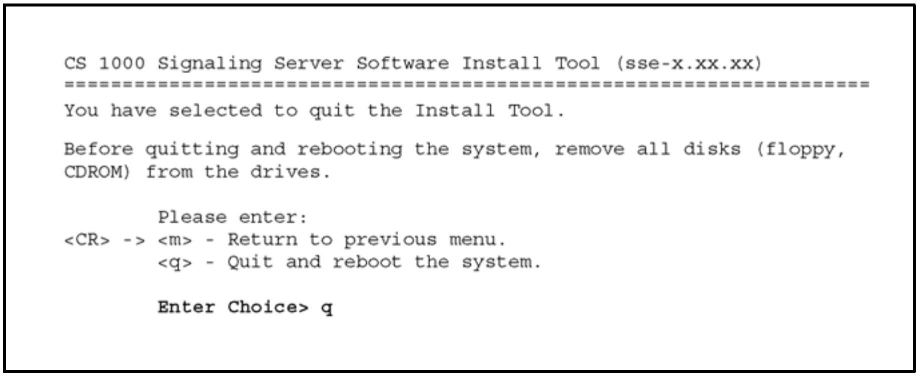


```
CS 1000 Signaling Server Software Install Tool (sse-x.xx.xx)
============================================================

                       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, 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 Installation Tool.

The Installation Tool quit confirmation screen appears.

Figure 148
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 Quit the Installation Tool and reboot the system.

> ***Note:*** Remove the Signaling Server Software media from the RMD before you quit the Installation Tool.

--End--

Signaling Server migration

Contents

This chapter contains information on the following topics:

- “Introduction” (page 155)
- “Overview” (page 155)
- “Migration task lists” (page 157)

Introduction

This chapter contains instructions for migrating existing Signaling Server functionality from your legacy Nortel ISP1100 hardware platform to one of the three newer and more robust Signaling Server hardware platforms introduced with Communication Server 1000 Release 5.0.

- Nortel CP PM server
- IBM X306m server
- HP DL320-G4 server

Overview

The migration process involves moving (migrating) Signaling Server functionality from an existing legacy Nortel ISP1100 Signaling Server (source) to one of three newer and more robust Signaling Servers (target) introduced with Communication Server 1000 Release 5.0. The objective is to have the target Signaling Server assume the role of the source Signaling Server in your existing CS 1000 system.

The process for migrating a source Signaling Server to a target Signaling Server is dependent on the version of software currently running on your legacy Nortel ISP1100 Signaling Server:

- Succession 1000 Release 3.0
- Communication Server 1000 Release 4.0
- Communication Server 1000 Release 4.5

- Communication Server 1000 Release 5.0
- Communication Server 1000 Release 5.5

Most of the steps required to migrate a legacy Nortel ISP1100 Signaling Server to one of the three newer servers running CS 1000 Release 5.5 are the same. However, there are some differences, most notably when migrating from a Signaling Server running Succession 1000 Release 3.0.

In Succession 3.0, only H.323 signaling was supported on the Signaling Server. CS 1000 Release 4.0introduced support for Session Initiation Protocol (SIP) signaling to the Signaling Server, and Network Routing Service (NRS) functionality. When migrating from a Succession 3.0Signaling Server to a CS 1000 Release 5.5 Signaling Server, conversion of the Succession 3.0H.323 signaling infrastructure to NRS infrastructure is a critical component of the migration process. When migrating from CS 1000 Release 4.0, CS 1000 Release 4.5, or CS 1000 Release 5.0 to CS 1000 Release 5.5, the NRS infrastructure already exists.

The migration process consists of the migration of the IP Phones Application database (if present), the conversion and migration of the H.323 Gatekeeper database (if applicable), and the migration of the Network Routing Service (NRS) database (if applicable) from the source Signaling Server to the target Signaling Server. It also includes the installation of CS 1000 Release 5.5 Signaling Server software on the target Signaling Server, configuring it with the appropriate IP telephony and data networking parameters, updating the Signaling Server properties in Element Manager (EM), and transferring the updated IP telephony node information to the Call Server.

The migration process does not include the mechanized migration of Signaling Server IP configuration data. You can not back up the IP configuration data from the source Nortel ISP1100 Signaling Server to the Removable Media Device (RMD) and restore it on the target Nortel CP PM, IBM X306m, or HP DL320-G4 Signaling Server from the RMD. You must take note of the IP telephony and data networking parameters for the source Signaling Server before it is physically removed from the CS 1000 system. You enter the IP configuration data associated with the source Signaling Server on the target Signaling Server during the migration process.

The primary purpose of the migration process is to have the target Signaling Server assume the role of the source Signaling Server in your CS 1000 system.

WARNING
Before starting the Signaling Server migration process, the IP telephony node database files on the source Signaling Server must be backed up (refer to "IP Telephony node management procedures" (page 178)).

ATTENTION
IMPORTANT!
The Signaling Server migration process assumes that the connected Call Server has already been upgraded to CS 1000 Release 5.5.

Migration task lists

The following sections contain task lists for migrating your legacy Nortel ISP1100 Signaling Server to one of the three new servers introduced with Communication Server 1000 Release 5.0.

- Nortel CP PM
- IBM X306m
- HP DL320-G4

Migration task lists depend on the version of Signaling Server software currently running on your legacy Nortel ISP1100 Signaling Server.

- Succession 1000 Release 3.0
- Communication Server 1000 Release 4.0
- Communication Server 1000 Release 4.5
- Communication Server 1000 Release 5.0
- Communication Server 1000 Release 5.5

Choose the task list appropriate to your situation.

- "Migrate a Succession 3.0Signaling Server" (page 157)
- "Migrate a CS 1000 Release 4.0Signaling Server" (page 160)
- "Migrate a CS 1000 Release 4.5Signaling Server" (page 162)
- "Migrate a CS 1000 Release 5.0Signaling Server" (page 164)
- "Migrate a CS 1000 Release 5.5Signaling Server" (page 166)

Migrate a Succession 3.0Signaling Server

The following task list contains all of the tasks necessary to migrate your legacy Nortel ISP1100 Signaling Server running Succession 1000 Release 3.0Signaling Server software, to one of the newer and more robust Signaling Servers introduced with Communication Server 1000 Release 5.0, running Communication Server 1000 Release 5.5 Signaling Server software. In effect, you are *replacing* a legacy Nortel ISP1100 Signaling Server in your system with a new Signaling Server, and upgrading the Signaling Server software and system components at the same time. The migration results in the new Signaling Server assuming the role of the legacy Signaling Server in your system.

1. Log on to Element Manager (EM) on your Nortel ISP1100 Signaling Server.

   For instructions, see Procedure 22 “Logging on to Element Manager” (page 173).

2. Back up the IP Phone Application Server database (if present).

   For instructions, see Procedure 16 “Backing up the IP Phone Application Server database” (page 131).

3. Back up the H.323 Gatekeeper database (if present).

   For instructions, see .

4. Take note of the following IP Telephony and data networking data:

   - node ID for the IP Telephony node
   - node IP address for the IP Telephony node
   - host name 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
   - H.323 Gatekeeper role, if there is an H.323 Gatekeeper database present (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())

5. Obtain the Primary and Alternate NRS IP addresses for your CS 1000 system from your Planning and Engineering group, if an H.323 Gatekeeper database is present (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())

6. Log off of EM on your Nortel ISP1100 Signaling Server.

7. Remove your Nortel ISP1100 Signaling Server from the system.

   - Turn off the power.
   - Disconnect all cables from the unit, including the power cord.
   - Loosen the screws through the faceplate of the Signaling Server to the rack-mount bracket and slide the unit out of the rack.

8. Install and connect the new Signaling Server hardware (see “Hardware installation and connection” (page 55) for instructions.

9. Install CS 1000 Release 5.5 software on the new Signaling Server, and configure it with the IP Telephony and data networking data that you collected from the old Signaling Server. If an H.323 Gatekeeper database is present, enter the NRS parameters (acquired from your Planning and Engineering group in step 4) during the configuration steps.

   For software installation and basic configuration instructions, see Procedure 14 “Installing Signaling Server software ” (page 109).

10. If your Nortel ISP1100 Signaling Server hosted an IP Phone Application database,

    — Log on to EM on the new Signaling Server.

    For instructions, see Procedure 22 “Logging on to Element Manager” (page 173).

    — Restore the IP Phone Application database.

    For instructions, see Procedure 19 “Restoring the IP Phone Application Server database” (page 135).

    — Log off of EM on the new Signaling Server.

11. If your Nortel ISP1100 Signaling Server hosted an H.323 Gatekeeper database,

    — Log on to the Network Routing Service (NRS) Manager on the new Signaling Server.

    For instructions, see .

    — Add an NRS Service Domain.

    For instructions, see .

    — Add an NRS Level 1 Domain.

    For instructions, see .

    — Convert the H.323 Gatekeeper database to an NRS database using the GK/NRS Conversion Tool.

    For instructions, see .

    — Activate the NRS database.

    For instructions, see .

    — Configure the NRS settings.

    For instructions, refer to *Network Routing Service Installation and Commissioning (NN43001-564)* ().

    — Log off of NRS Manager.

    For instructions, see .

12. If the new Signaling Server is configured as a Leader or Follower, update the associated IP Telephony node information.

For instructions, see Procedure 27 “Updating IP Telephony Node information for a migrated Signaling Server” (page 185).

13. Re-boot the new Signaling Server for the changes to take effect.
    - For a Nortel CP PM Signaling Server, press the **INI** button on the faceplate to warm-reboot the Signaling Server.
    - For an IBM X306m or HP DL320-G4 Signaling Server, press the **RST** button to cold-reboot the Signaling Server.

Migrate a CS 1000 Release 4.0Signaling Server

The following task list contains all of the tasks necessary to migrate your legacy Nortel ISP1100 Signaling Server running CS 1000 Release 4.0Signaling Server software, to one of the newer and more robust Signaling Servers introduced in Communication Server 1000 Release 5.0, running Communication Server 1000 Release 5.5 Signaling Server software. In effect, you are *replacing* a legacy Nortel ISP1100 Signaling Server in your system with a new Signaling Server, and upgrading the Signaling Server software and system components at the same time. The migration results in the new Signaling Server assuming the role of the legacy Signaling Server in your system.

1. Log on to Element Manager (EM) on your Nortel ISP1100 Signaling Server.

   For instructions, see Procedure 22 “Logging on to Element Manager” (page 173).

2. Back up the IP Phone Application database (if present).

   For instructions, see Procedure 16 “Backing up the IP Phone Application Server database” (page 131).

3. Take note of the following IP Telephony and data networking data:
   - node ID for the IP Telephony node
   - node IP address for the IP Telephony node
   - host name 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 (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())
   - NRS role, if applicable (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())

4. Determine if your Nortel ISP1100 Signaling Server hosts an NRS.

For instructions, see .

5. Log off of EM on your Nortel ISP1100 Signaling Server.
6. If your Nortel ISP1100 Signaling Server hosts an NRS database
   - Log on to the Network Routing Service (NRS) Manager on your Nortel ISP1100 Signaling Server.

     For instructions, see .
   - Back up the NRS database and download it to your local PC.

     For instructions, see .
   - Log off of NRS Manager.

     For instructions, see .
7. Remove your Nortel ISP1100 Signaling Server from the system.
   - Turn off the power.
   - Disconnect all cables from the unit, including the power cord.
   - Loosen the screws through the faceplate of the Signaling Server to the rack-mount bracket and slide the unit out of the rack.
8. Install and connect the new Signaling Server hardware.

   For instructions, see “Hardware installation and connection” (page 55).
9. Install CS 1000 Release 5.5 software on the new Signaling Server and configure it with the IP Telephony and data networking data that you noted in step 3.

   For software installation and basic configuration instructions, see Procedure 14 “Installing Signaling Server software ” (page 109).
10. If your Nortel ISP1100 Signaling Server hosted an IP Phone Application database
    - Log on to EM on the new Signaling Server.

      For instructions, see Procedure 22 “Logging on to Element Manager” (page 173).
    - Restore the IP Phone Application database.

      For instructions, see Procedure 19 “Restoring the IP Phone Application Server database” (page 135).
    - Log off of EM on the new Signaling Server.
11. If your Nortel ISP1100 Signaling Server hosted an NRS
    - Log on to NRS Manager on the new Signaling Server.

      For instructions, see .
    - Restore the NRS database.

      For instructions, see .

- Activate the NRS database.

  For instructions, see .
- Log off of NRS Manager.

  For instructions, see .

12. If the new Signaling Server is configured as a Leader or Follower, update the associated IP Telephony node information.

    For instructions, see Procedure 27 “Updating IP Telephony Node information for a migrated Signaling Server” (page 185).
13. Re-boot the new Signaling Server for the changes to take effect.
    - For a Nortel CP PM Signaling Server, press the **INI** button on the faceplate to warm-reboot the Signaling Server.
    - For an IBM X306m or HP DL320-G4 Signaling Server, press the **RST** button to cold-reboot the Signaling Server.

Migrate a CS 1000 Release 4.5Signaling Server

The following task list contains all of the tasks necessary to migrate your legacy Nortel ISP1100 Signaling Server running CS 1000 Release 4.5Signaling Server software, to one of the newer and more robust Signaling Servers introduced with Communication Server 1000 Release 5.0, running Communication Server 1000 Release 5.5 Signaling Server software. In effect, you are *replacing* a legacy Nortel ISP1100 Signaling Server in your system with a new Signaling Server, and upgrading the Signaling Server software and system components at the same time. The migration results in the new Signaling Server assuming the role of the legacy Signaling Server in your system.

1. Log on to Element Manager (EM) on your Nortel ISP1100 Signaling Server.

   For instructions, see Procedure 22 “Logging on to Element Manager” (page 173).
2. Back up the IP Phone Application database (if present).

   For instructions, see Procedure 16 “Backing up the IP Phone Application Server database” (page 131).
3. Take note of the following IP Telephony and data networking data:
   - node ID for the IP Telephony node
   - node IP address for the IP Telephony node
   - host name 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 (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())
- NRS role, if applicable (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())

4. Determine if your Nortel ISP1100 Signaling Server hosts an NRS.

   For instructions, see .

5. Log off of EM on your Nortel ISP1100 Signaling Server.
6. Remove your Nortel ISP1100 Signaling Server from the system.
   - Turn off the power.
   - Disconnect all cables from the unit, including the power cord.
   - Loosen the screws through the faceplate of the Signaling Server to the rack-mount bracket and slide the unit out of the rack.
7. Install and connect the new Signaling Server hardware.

   For instructions, see “Hardware installation and connection” (page 55).

8. Install CS 1000 Release 5.5 software on the new Signaling Server and configure it with the IP Telephony and data networking data that you noted in step 2.

   For software installation and basic configuration instructions, see Procedure 14 “Installing Signaling Server software ” (page 109).

9. If your Nortel ISP1100 Signaling Server hosted an IP Phone Application database
   - Log on to EM on the new Signaling Server.

     For instructions, see Procedure 22 “Logging on to Element Manager” (page 173).

   - Restore the IP Phone Application database.

     For instructions, see Procedure 19 “Restoring the IP Phone Application Server database” (page 135).

   - Log off of EM on the new Signaling Server.
10. If your Nortel ISP1100 Signaling Server hosted an NRS
    - Log on to NRS Manager on the new Signaling Server.

      For instructions, see .

    - Restore the NRS database.

      For instructions, see .

    - Activate the NRS database.

For instructions, see .

- — Log off of NRS Manager.

  For instructions, see .

11. If the new Signaling Server is configured as a Leader or Follower, update the associated IP Telephony node information.

    For instructions, see Procedure 27 “Updating IP Telephony Node information for a migrated Signaling Server” (page 185).

12. Re-boot the new Signaling Server for the changes to take effect.

    - — For a Nortel CP PM Signaling Server, press the **INI** button on the faceplate to warm-reboot the Signaling Server.
    - — For an IBM X306m or HP DL320-G4 Signaling Server, press the **RST** button to cold-reboot the Signaling Server.

Migrate a CS 1000 Release 5.0Signaling Server

The following task list contains all of the tasks necessary to migrate your legacy Nortel ISP1100 Signaling Server running CS 1000 Release 5.0Signaling Server software, to one of the newer and more robust Signaling Servers introduced in Communication Server 1000 Release 5.0, running Communication Server 1000 Release 5.5 Signaling Server software. The migration results in the new Signaling Server assuming the role of the legacy Signaling Server in your system.

1. Log on to Element Manager (EM) on your Nortel ISP1100 Signaling Server.

   For instructions, see Procedure 22 “Logging on to Element Manager” (page 173).

2. Back up the IP Phone Application database (if present).

   For instructions, see Procedure 16 “Backing up the IP Phone Application Server database” (page 131).

3. Take note of the following IP Telephony and data networking data:

   - — node ID for the IP Telephony node
   - — node IP address for the IP Telephony node
   - — host name 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 (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())
   - NRS role, if applicable (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())

4. Determine if your Nortel ISP1100 Signaling Server hosts an NRS.

   For instructions, see .

5. Log off of EM on your Nortel ISP1100 Signaling Server.

6. Remove your Nortel ISP1100 Signaling Server from the system.

   - Turn off the power.
   - Disconnect all cables from the unit, including the power cord.
   - Loosen the screws through the faceplate of the Signaling Server to the rack-mount bracket and slide the unit out of the rack.

7. Install and connect the new Signaling Server hardware.

   For instructions, see “Hardware installation and connection” (page 55).

8. Install CS 1000 Release 5.5 software on the new Signaling Server and configure it with the IP Telephony and data networking data that you noted in step 2.

   For software installation and basic configuration instructions, see Procedure 14 “Installing Signaling Server software ” (page 109).

9. If your Nortel ISP1100 Signaling Server hosted an IP Phone Application database

   - Log on to EM on the new Signaling Server.

     For instructions, see Procedure 22 “Logging on to Element Manager” (page 173).

   - Restore the IP Phone Application database.

     For instructions, see Procedure 19 “Restoring the IP Phone Application Server database” (page 135).

   - Log off of EM on the new Signaling Server.

10. If your Nortel ISP1100 Signaling Server hosted an NRS

    - Log on to NRS Manager on the new Signaling Server.

      For instructions, see .

    - Restore the NRS database.

      For instructions, see .

    - Activate the NRS database.

For instructions, see .

— Log off of NRS Manager.

For instructions, see .

11. If the new Signaling Server is configured as a Leader or Follower, update the associated IP Telephony node information.

    For instructions, see Procedure 27 “Updating IP Telephony Node information for a migrated Signaling Server” (page 185).

12. Re-boot the new Signaling Server for the changes to take effect.

    — For a Nortel CP PM Signaling Server, press the **INI** button on the faceplate to warm-reboot the Signaling Server.

    — For an IBM X306m or HP DL320-G4 Signaling Server, press the **RST** button to cold-reboot the Signaling Server.

Migrate a CS 1000 Release 5.5Signaling Server

The following task list contains all of the tasks necessary to migrate your legacy Nortel ISP1100 Signaling Server running Communication Server 1000 Release 5.5Signaling Server software, to one of the newer and more robust Signaling Servers introduced in Communication Server 1000 Release 5.0, running Communication Server 1000 Release 5.5Signaling Server software. The migration results in the new Signaling Server assuming the role of the legacy Signaling Server in your system.

1. Log on to Element Manager (EM) on your Nortel ISP1100 Signaling Server.

   For instructions, see Procedure 22 “Logging on to Element Manager” (page 173).

2. Back up the IP Phone Application database (if present).

   For instructions, see Procedure 16 “Backing up the IP Phone Application Server database” (page 131).

3. Take note of the following IP Telephony and data networking data:

   — node ID for the IP Telephony node

   — node IP address for the IP Telephony node

   — host name 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 (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())
- NRS role, if applicable (see *IP Peer Networking Installation and Commissioning (NN43001-313)* ())

4. Determine if your Nortel ISP1100 Signaling Server hosts an NRS.

   For instructions, see .

5. Log off of EM on your Nortel ISP1100 Signaling Server.
6. Remove your Nortel ISP1100 Signaling Server from the system.
   - Turn off the power.
   - Disconnect all cables from the unit, including the power cord.
   - Loosen the screws through the faceplate of the Signaling Server to the rack-mount bracket and slide the unit out of the rack.
7. Install and connect the new Signaling Server hardware.

   For instructions, see "Hardware installation and connection" (page 55).

8. Install CS 1000 Release 5.5software on the new Signaling Server and configure it with the IP Telephony and data networking data that you noted in step 2.

   For software installation and basic configuration instructions, see Procedure 14 "Installing Signaling Server software " (page 109).

9. If your Nortel ISP1100 Signaling Server hosted an IP Phone Application database
   - Log on to EM on the new Signaling Server.

     For instructions, see Procedure 22 "Logging on to Element Manager" (page 173).

   - Restore the IP Phone Application database.

     For instructions, see Procedure 19 "Restoring the IP Phone Application Server database" (page 135).

   - Log off of EM on the new Signaling Server.
10. If your Nortel ISP1100 Signaling Server hosted an NRS
    - Log on to NRS Manager on the new Signaling Server.

      For instructions, see .

    - Restore the NRS database.

      For instructions, see .

    - Activate the NRS database.

For instructions, see .

- Log off of NRS Manager.

  For instructions, see .

11. If the new Signaling Server is configured as a Leader or Follower, update the associated IP Telephony node information.

    For instructions, see Procedure 27 “Updating IP Telephony Node information for a migrated Signaling Server” (page 185).

12. Re-boot the new Signaling Server for the changes to take effect.
    - For a Nortel CP PM Signaling Server, press the **INI** button on the faceplate to warm-reboot the Signaling Server.
    - For an IBM X306m or HP DL320-G4 Signaling Server, press the **RST** button to cold-reboot the Signaling Server.

Element Manager configuration

Contents

This section contains information on the following topics:

- “Introduction” (page 169)
- “Configuring the Internet Explorer browser” (page 170)
  - “System requirements for Element Manager” (page 170)
  - “Configuring the browser” (page 170)
- “Log on to Element Manager” (page 173)
- “Restricting web access to the ELAN subnet” (page 175)

Introduction

Element Manager is a simple and user-friendly web-based interface that supports a broad range of system management tasks, including:

- configuration and maintenance of IP Peer and IP telephony features
- configuration and maintenance of traditional routes and trunks
- configuration and maintenance of numbering plans
- configuration of Call Server data blocks (such as configuration data, customer data, Common Equipment data, D-channels)
- maintenance commands, system status inquiries, backup and restore functions
- software download, patch download, patch activation

Element Manager has many features to help administrators manage systems with greater efficiency. Examples are as follows:

- Web pages provide a single point-of-access to parameters that were traditionally available through multiple overlays.
- Parameters are presented in logical groups to increase ease-of-use and speed-of-access.

- The "hide or show information" option enables administrators to see information that relates directly to the task at hand.
- Full-text descriptions of parameters and acronyms help administrators reduce configuration errors.
- Configuration screens offer pre-selected defaults, drop-down lists, checkboxes, and range values to simplify response selection.

The Element Manager web server resides on the Signaling Server and can be accessed directly through a web browser or Telephony Manager (TM). The TM navigator includes integrated links to each network system and their respective instances of Element Manager.

For more information about Element Manager, refer to *Element Manager: System Administration (NN43001-632)*.

Configuring the Internet Explorer browser

System requirements for Element Manager

Element Manager and NRS Manager requires Microsoft Internet Explorer 6.0.2600 or higher with Service Pack 1. Element Manager and NRS Manager are not supported on the Netscape browser.

The Element Manager Virtual Terminal Environment requires the Java Runtime Environment (JRE).

Configuring the browser

Before you can use Element Manager and NRS Manager, you must complete the following tasks:

- Enable pop-ups in the browsers search utility (mandatory)
- Configure the Internet Explorer browser settings (mandatory)
- Configure the Windows Display settings (highly recommended)

Note: The interface for the Internet Explorer browser settings and Windows Display settings can vary by browser version and by operating system.

Enabling pop-ups

If you use a browser search utility (such as the Google™ search engine or the Yahoo!™ search engine), ensure that pop-ups are enabled. Enabling pop-up windows is usually done at the toolbar of the search utility.

ATTENTION
Do not block pop-up windows if you are using a search utility (such as Google or Yahoo! search engines) in your browser.

Configuring the browser settings

Use the following procedure to configure the following Internet Explorer browser settings.

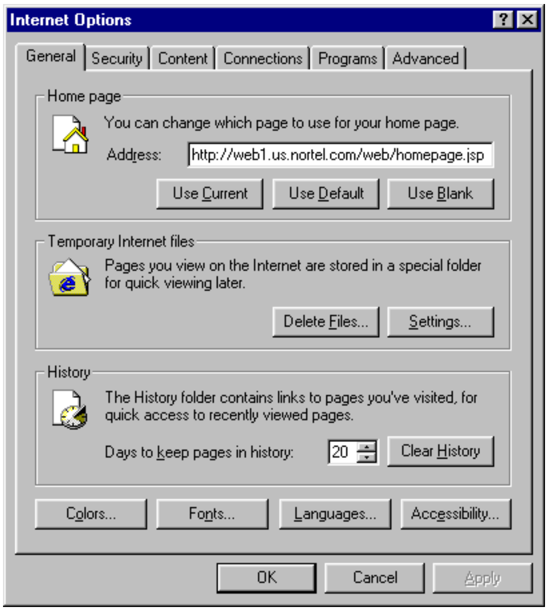
- Turn off Internet Explorer caching.

  Internet Explorer caching interferes with the Element Manager and NRS Manager applications, such that users cannot see real-time changes as they occur.
- Configure empty session information.
- Deselect the AutoComplete options.

Procedure 21
Configure the Internet Explorer browser settings

Step	Action
1	Select **View > Text Size > Medium** to configure the text size in the browser.
2	Select **Tools > Internet Options** In the Internet Explorer browser window. The **Internet Options** window appears, as shown in Figure 149 "Internet Options window" (page 172).

Figure 149
Internet Options window


Internet Options
General
Security
Content
Connections
Programs
Advanced
Home page
Use Current
Use Default
Use Blank
Temporary Internet files
Delete Files...
Settings...
History
Clear History
Colors...
Fonts...
Languages...
Accessibility...
OK
Cancel
Apply

You can change which page to use for your home page.

Address: http://web1.us.nortel.com/web/homepage.jsp

Pages you view on the Internet are stored in a special folder for quick viewing later.

The History folder contains links to pages you've visited, for quick access to recently viewed pages.

Days to keep pages in history: 20

3 Turn off Internet Explorer caching:

- a On the **General** tab under the **Temporary Internet files** section, click **Settings**.

  The **Settings** window appears.
- b Under the **Check for newer versions of stored pages** section, select the **Every visit to the page** option.
- c Click **OK**.

4 Configure empty session information:

- a Select the **Advanced** tab.

  The Advanced Settings window appears.
- b Under **Security**, select **Empty Temporary Internet Files folder when browser is closed**.

5 Deselect the AutoComplete options.

- a Select the **Content** tab.
- b Under **Personal Information**, click **AutoComplete**.

  The **AutoComplete Settings** window appears.
- c Under the **Use AutoComplete for** section, deselect **Forms** and **User names and passwords on forms**.

6 (Optional) Configure the Windows display settings.

- a Select **Start > Settings > Control Panel > Display**.

The **Display Settings** window appears.

b Select the **Settings** tab.

c Select **True Color (32 bit)** from the **Colors** drop-down list.

d Under **Screen area**, select **1280 by 1024 pixels**.

e Click **OK**.

--End--

Log on to Element Manager

Before logging on to Element Manager, obtain the IP address of:

- the Signaling Server
- the Call Server (or MG 1000B Core, if at a branch office)

Before beginning this procedure, be sure that you have configured the browsers properly, using Procedure 21 “Configure the Internet Explorer browser settings” (page 171).

Procedure 22
Logging on to Element Manager

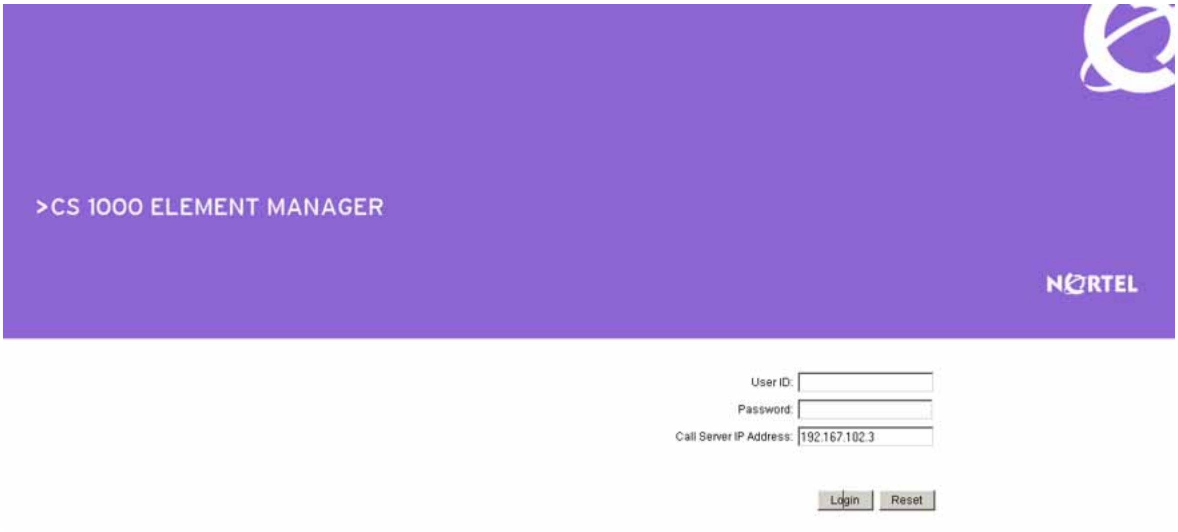
Step	Action
1	Open Internet Explorer.
2	Enter the ELAN or TLAN network interface IP Address of the primary Signaling Server as the URL.

Note: Do not assign the same IP address for the Node ID and the TLAN network interface IP address. This must be verified manually. The Node IP address must be on the same subnet as the TLAN network interface IP addresses of the Media Cards. In addition, the TLAN and ELAN network interfaces of the Media Card must reside on separate logical subnets.

If additional configuration parameters were entered during installation, the node IP address can also be used as the URL.

The Element Manager logon web page appears.

Figure 150
Element Manager logon page



Call Server IP Address: 192.167.102.3

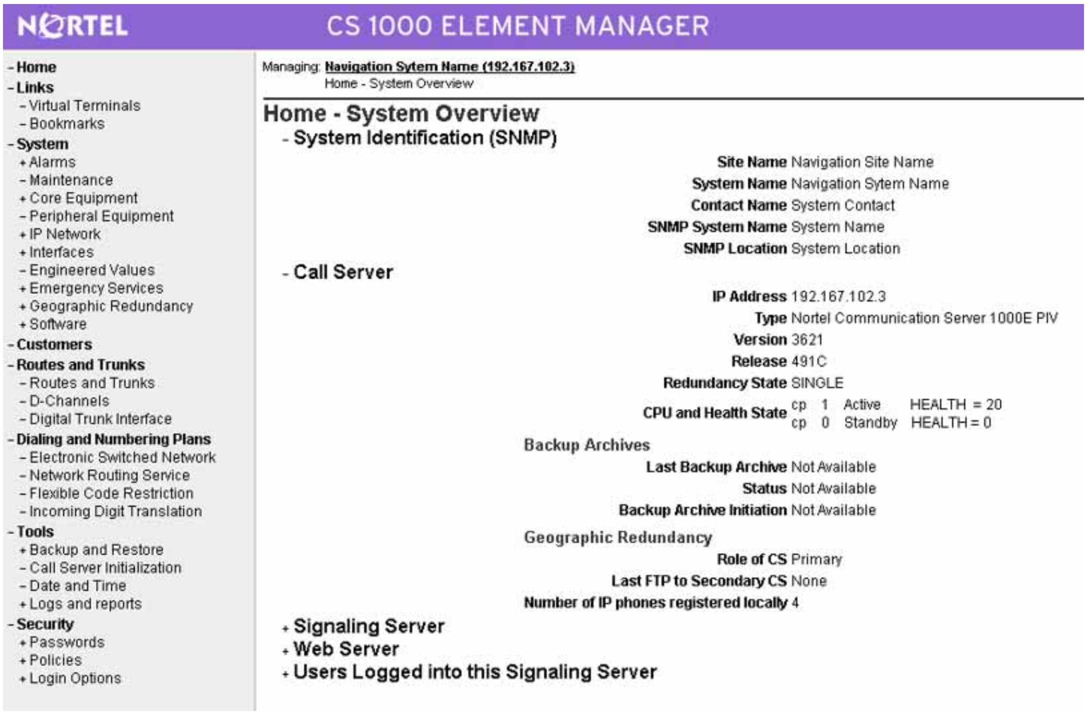
Initially, you can be prompted to enter the Call Server IP address, because the Call Server is used for web logon authorization. The Call Server IP address is a requirement, because unless you entered additional configuration parameters during the Signaling Server installation, the node configuration data file containing the Call Server IP address does not yet exist.

3 Enter a Level 1 or Level 2 user ID and password. If configured, you can also use a Limited Access Password (LAPW) user ID and password.

If this is the first time the Call Server is accessed, the default Level 1 or Level 2 user ID and password must be used.

If the logon is successful, the Element Manager System Overview web page (with the navigator) appears.

Figure 151
Element Manager: System Overview web page with navigator


NORTEL
CS 1000 ELEMENT MANAGER
- Home
- Links
- Virtual Terminals
- Bookmarks
- System
+ Alarms
- Maintenance
+ Core Equipment
- Peripheral Equipment
+ IP Network
+ Interfaces
- Engineered Values
+ Emergency Services
+ Geographic Redundancy
+ Software
- Customers
- Routes and Trunks
- Routes and Trunks
- D-Channels
- Digital Trunk Interface
- Dialing and Numbering Plans
- Electronic Switched Network
- Network Routing Service
- Flexible Code Restriction
- Incoming Digit Translation
- Tools
+ Backup and Restore
- Call Server Initialization
- Date and Time
+ Logs and reports
- Security
+ Passwords
+ Policies
+ Login Options

Managing: Navigation Sytem Name (192.167.102.3)
Home - System Overview

Home - System Overview

- System Identification (SNMP)

Site Name Navigation Site Name
System Name Navigation Sytem Name
Contact Name System Contact
SNMP System Name System Name
SNMP Location System Location

- Call Server

IP Address 192.167.102.3
Type Nortel Communication Server 1000E PIV
Version 3621
Release 491C
Redundancy State SINGLE
CPU and Health State cp 1 Active HEALTH = 20
cp 0 Standby HEALTH = 0

Backup Archives
Last Backup Archive Not Available
Status Not Available
Backup Archive Initiation Not Available

Geographic Redundancy
Role of CS Primary
Last FTP to Secondary CS None
Number of IP phones registered locally 4

+ Signaling Server
+ Web Server
+ Users Logged into this Signaling Server

Now you can begin to configure the Call Server or IP telephony node. For more information, see Initial configuration of IP Line data and *Element Manager: System Administration (NN43001-632)*.

--End--

ATTENTION
Nortel discourages the use of the browser's Back, Forward, and Refresh buttons.

Use of the Back button is not recommended while the Element Manager application is launched because Element Manager pages contain dynamic data content. The Element Manager provides a path for navigation purposes on top of every Element Manager page.

Nortel recommends that the user click the navigation path to go back to the previous page (instead of using the Back button).

Restricting web access to the ELAN subnet

By default, Element Manager can be accessed from management workstations (web browsers) on any subnet. A security flag can be enabled to restrict Element Manager access to hosts on the ELAN subnet.

If this Signaling Server's IP Telephony node is already managed using Element Manager, perform a node file transfer to ensure that the Signaling Server has the latest node files before performing this procedure.

Procedure 23
Changing the web server security flag

Step	Action
1	Open the Tools Menu in the Signaling Server Installation Tool.
2	Enter **`e`** to change the web server security flag. The following system message appears: `Currently, the flag is set to:  DISABLED`
3	Change the flag accordingly: **a** To disable the web server security flag, enter **`a`**. The new flag setting appears. **b** To enable the web server security flag, enter **`b`**. The new flag setting appears. **c** To exit this menu without changing the web server security flag, enter **`q`**.
4	Import the IP Telephony node files for the web security flag change to take effect. For a first-time Signaling Server or Node installation, the preconfigured IP Telephony node files are imported. For an upgrade of an existing Signaling Server, the web server security flag change is saved to the master copy of the node files on the Call Server.

--End--

IP Telephony node management

Contents

This section contains information on the following topics:

- “Introduction” (page 177)
- “Overview” (page 177)
- “IP Telephony node management procedures” (page 178)
  - Procedure 24 “Importing a temporary IP Telephony Node” (page 178)
  - Procedure 25 “Adding a Follower Signaling Server to an IP Telephony node” (page 180)
  - Procedure 26 “Updating a Signaling Server on an IP telephony node” (page 182)
  - Procedure 27 “Updating IP Telephony Node information for a migrated Signaling Server” (page 185)

Introduction

This chapter describes the configuration and management of IP Telephony nodes from the perspective of the Signaling Server. For details about the configuration and management of IP Telephony nodes from the perspective of Voice Media Gateway Cards, and a full description of IP Telephony nodes in general, see *IP Line Fundamentals (NN43001-500)* ().

Overview

An IP Telephony node is defined as a collection of Signaling Servers and Voice Gateway Media Cards. Each node on a CS 1000 network is identified by a unique Node ID, defined as an integer value. A node has only one Leader Signaling Server. All other Signaling Servers and Voice Gateway Media Cards are defined as Followers.

When a Leader Signaling Server is first installed, a temporary IP Telephony node is configured during software installation. After software installation, the temporary IP Telephony node is imported into Element Manager (EM) for further configuration of the Leader Signaling Server node component.

IP Telephony node information is maintained in two IP Telephony node files called BOOTP.TAB and CONFIG.INI. After the first Leader Signaling Server is fully configured, these IP Telephony node files are transferred to the following locations on the connected Call Server:

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

These files are the master copies of the IP Telephony node files. The Call Server ensures that each component of the identified node (Signaling Servers and Voice Gateway Media Cards) has a copy of these node files to support the operation of the IP Telephony node.

ATTENTION
Do not attempt to alter the IP Telephony node configuration files manually, or by importing to IP Trunk or IP Telephony Management in TM. Use Element Manager. For detailed information about Element manager, see *Element Manager: System Administration (NN43001-632)* ().

> ***Note:*** At least one IP Telephony node must be configured to make a CS 1000 network operational.

IP Telephony node management procedures

This section contains instructions for managing IP Telephony nodes from the perspective of a Signaling Server.

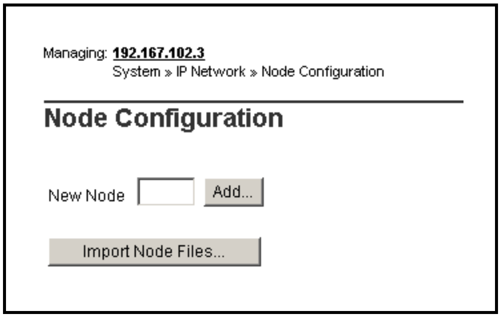
WARNING
Before and after you make a change to an IP Telephony node, perform a datadump (EDD command in LD 43 - see *Software Input/Output: Maintenance (NN43001-711)* ()). The datadump backs up the IP Telephony node files on the Call Server.

Use the following procedure to import a temporary IP Telephony node created during the installation and configuration of Signaling Server software on the first Leader Signaling Server in your CS 1000 network.

Procedure 24
Importing a temporary IP Telephony Node

Step	Action
1	Log on to EM on your new Leader Signaling Server.
2	Select **IP Network > Nodes: Servers, Media Cards** from the navigator. The **Node Configuration** web page appears.

Figure 152
Node configuration - import node

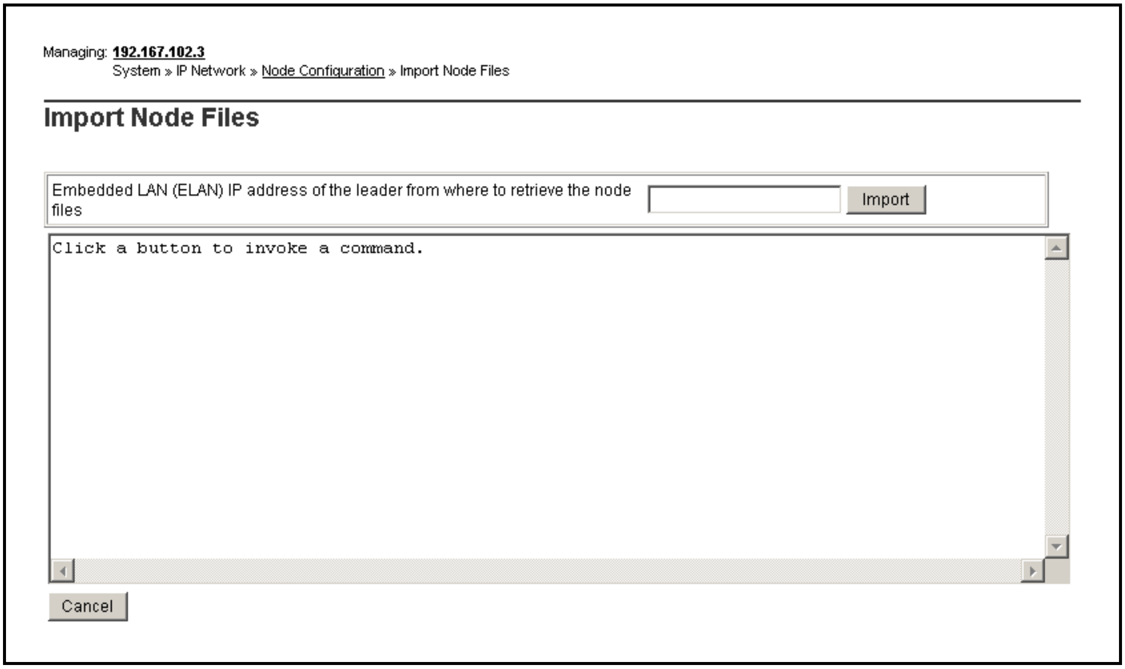


Managing: 192.167.102.3
System » IP Network » Node Configuration

Node Configuration

3	Click the **Import Node Files...** option. The Import Node Files web page appears.

Figure 153
Import Node Files



Managing: 192.167.102.3
System » IP Network » Node Configuration » Import Node Files

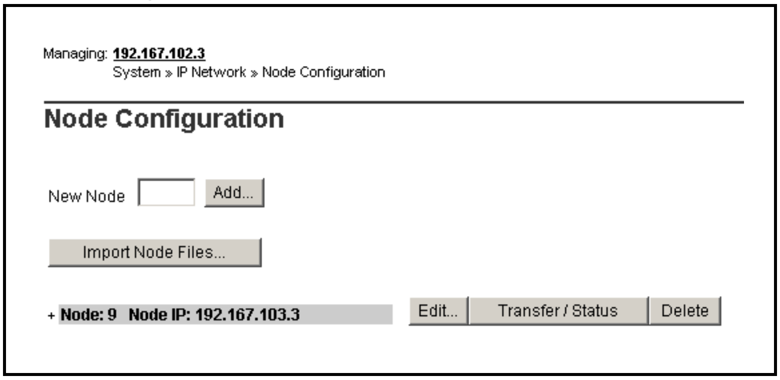
Import Node Files

Embedded LAN (ELAN) IP address of the leader from where to retrieve the node files

```
Click a button to invoke a command.
```

4	Enter the ELAN IP address of the new Leader Signaling Server. The system retrieves the configuration files for the temporary IP Telephony node from the new Leader Signaling server. The Node configuration web page reappears with the temporary node listed.

Figure 154
Node configuration - edit node



Managing: 192.167.102.3
System » IP Network » Node Configuration

Node Configuration

New Node

+ Node: 9 Node IP: 192.167.103.3

5 Log off of EM on your new Signaling Server.

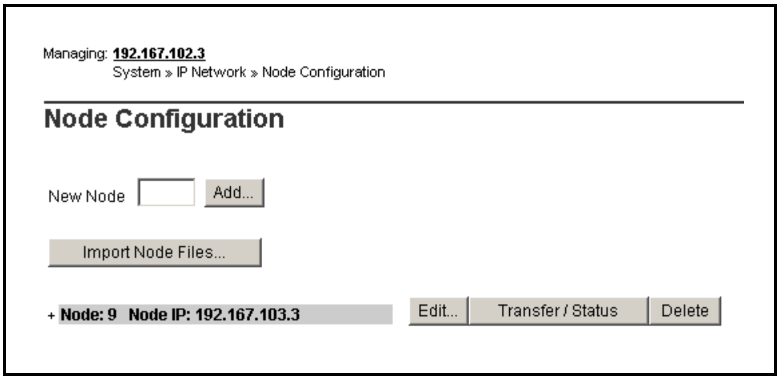
--End--

Use the following procedure to add a Follower Signaling Server to an IP Telephony node.

Procedure 25
Adding a Follower Signaling Server to an IP Telephony node

Step	Action
1	Log on to Element Manager on the Follower Signaling Server (see Procedure 22 “Logging on to Element Manager” (page 173).
2	From the navigation tree, select **IP Network > Nodes: Servers, Media Cards** . The **Node Configuration** web page appears.

Figure 155
Node configuration



Managing: 192.167.102.3
System » IP Network » Node Configuration

Node Configuration

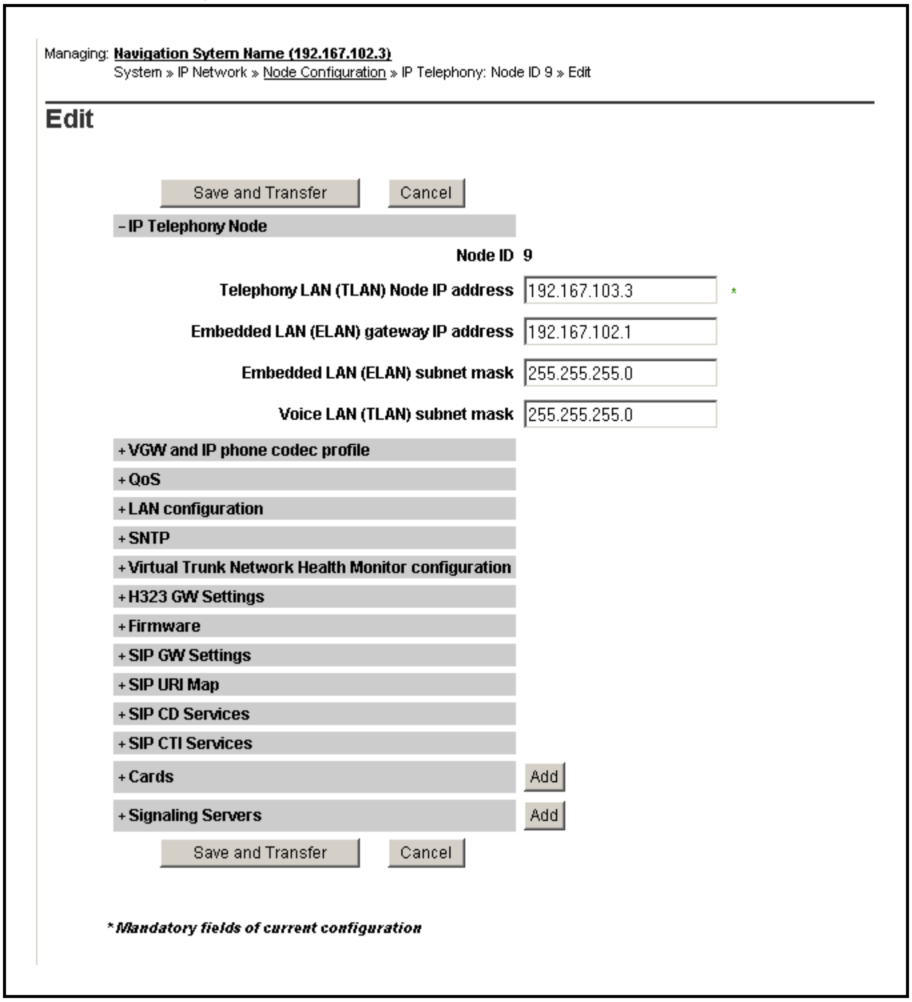
New Node

+ Node: 9 Node IP: 192.167.103.3

3 Click **Edit** next to the node where the Follower Signaling Server is to be added.

The Edit node web page appears.

Figure 156
Edit node configuration



Managing: **Navigation Sytem Name (192.167.102.3)**
System » IP Network » Node Configuration » IP Telephony: Node ID 9 » Edit

Edit

- IP Telephony Node

Node ID 9
Telephony LAN (TLAN) Node IP address: 192.167.103.3 *
Embedded LAN (ELAN) gateway IP address: 192.167.102.1
Embedded LAN (ELAN) subnet mask: 255.255.255.0
Voice LAN (TLAN) subnet mask: 255.255.255.0

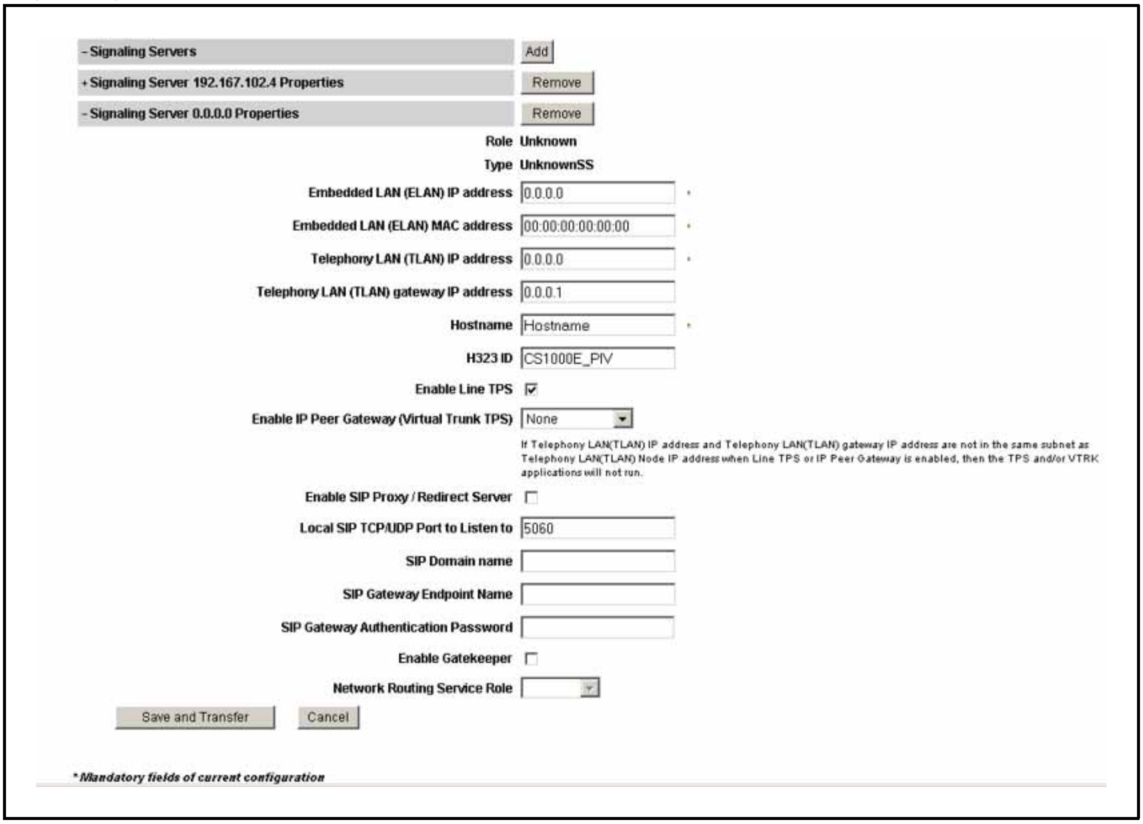
* *Mandatory fields of current configuration*

Save and Transfer
Cancel
+ 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
Add
+ Signaling Servers
Add
Save and Transfer
Cancel

4 Click **Add** next to the**Signaling Servers** option.

The section expands to show a list of Signaling Servers already existing on the node (Leader plus other Followers), and a **Signaling Server 0.0.0.0 properties** template.

Figure 157
Signaling Server properties template



- Signaling Servers
+ Signaling Server 192.167.102.4 Properties
- Signaling Server 0.0.0.0 Properties

Role	Unknown
Type	UnknownSS
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 *
Telephony LAN (TLAN) gateway IP address	0.0.0.1
Hostname	Hostname *
H323 ID	CS1000E_PIV
Enable Line TPS	☑
Enable IP Peer Gateway (Virtual Trunk TPS)	None
	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 or IP Peer Gateway is enabled, then the TPS and/or VTRK applications will not run.
Enable SIP Proxy / Redirect Server	☐
Local SIP TCP/UDP Port to Listen to	5060
SIP Domain name	
SIP Gateway Endpoint Name	
SIP Gateway Authentication Password	
Enable Gatekeeper	☐
Network Routing Service Role	

** Mandatory fields of current configuration*

5 Enter the information that corresponds to the new Follower Signaling Server.

The **Role** field automatically reverts to **Follower** after the new Signaling Server is added.

6 Click **Save and Transfer** to add the Follower Signaling Server to the IP Telephony node, and to transfer the updated IP Telephony node information to the other components in the node (Signaling Servers and Voice Gateway Media Cards).

--End--

Use the following procedure to update a Signaling Server on an IP Telephony node.

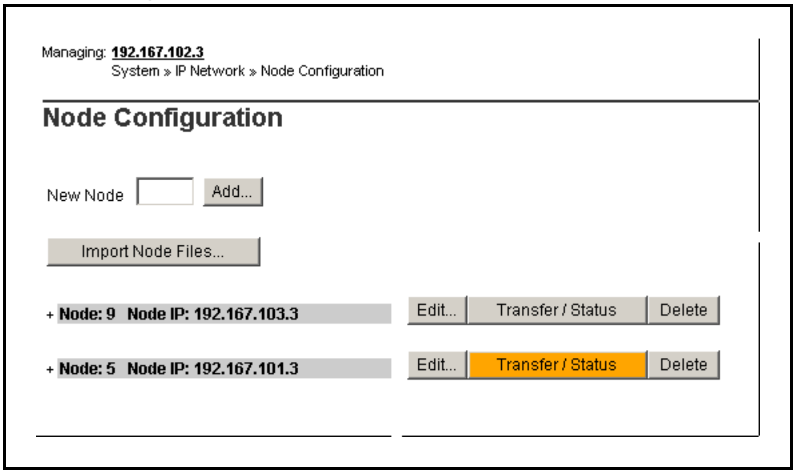
Procedure 26
Updating a Signaling Server on an IP telephony node

Step	Action
1	Log on to EM on your Signaling Server.

2 Select **IP Network > Nodes: Servers, Media Cards** from the navigator.

The **Node Configuration** web page appears.

Figure 158
Node configuration


Managing: 192.167.102.3
System » IP Network » Node Configuration

Node Configuration

New Node

+ Node: 9 Node IP: 192.167.103.3

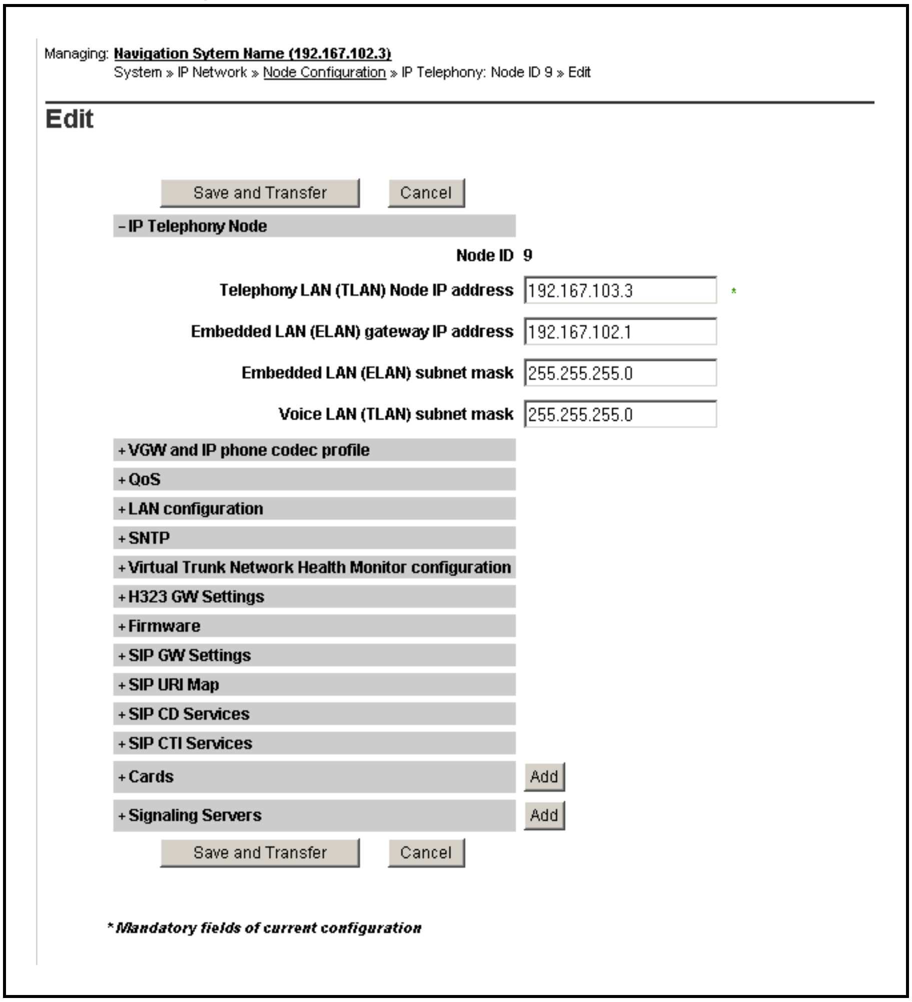
+ Node: 5 Node IP: 192.167.101.3

Add...
Import Node Files...
Edit...
Transfer / Status
Delete
Edit...
Transfer / Status
Delete

3 Click **Edit** next to the node hosting your Signaling Server.

The Edit node configuration web page appears.

Figure 159
Edit node configuration



Managing: **Navigation Sytem 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: 192.167.103.3 *
Embedded LAN (ELAN) gateway IP address: 192.167.102.1
Embedded LAN (ELAN) subnet mask: 255.255.255.0
Voice LAN (TLAN) subnet mask: 255.255.255.0

+ 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
Add
+ Signaling Servers
Add
Save and Transfer
Cancel

* *Mandatory fields of current configuration*

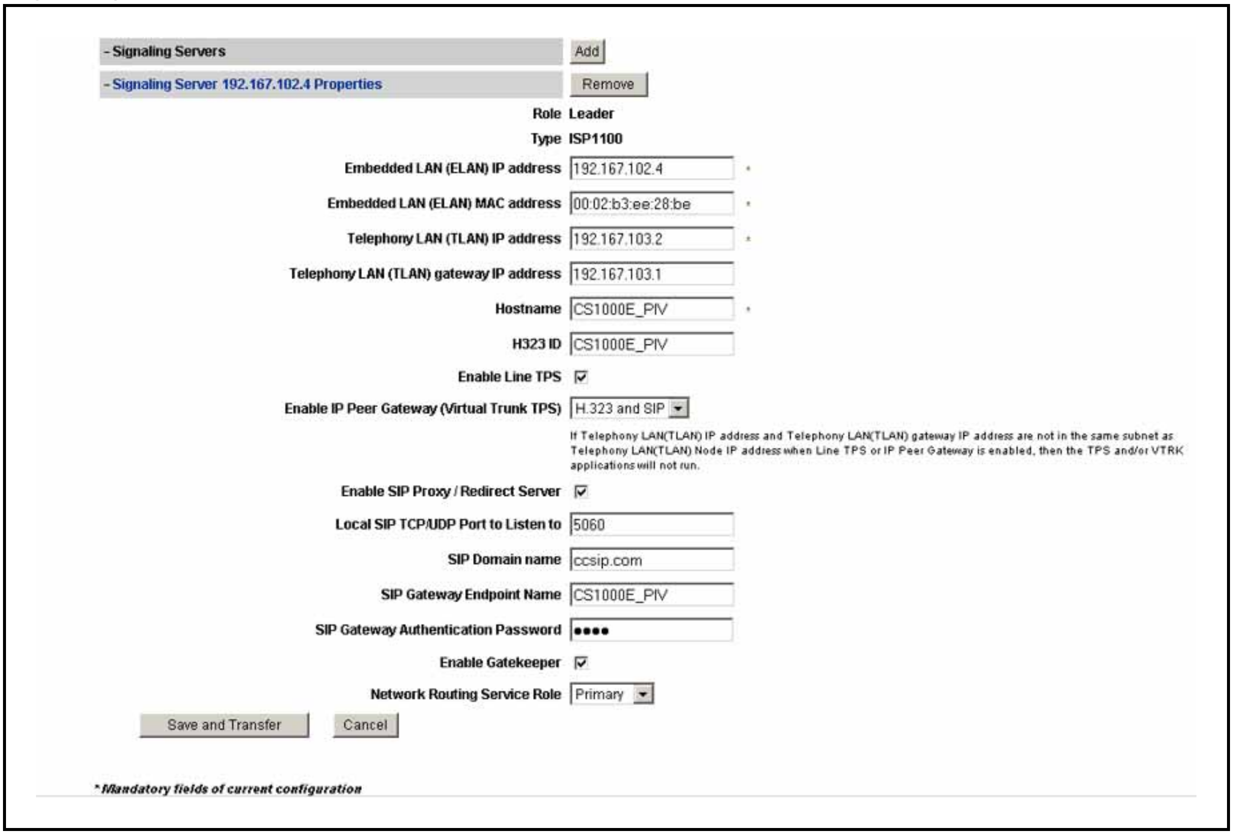
4 Click the **Signaling Servers** component.

The section expands to show you a list of Signaling Servers associated with this IP Telephony node.

5 Click on your Signaling Server (by IP address).

The **Signaling Server xxx.xxx.xxx.xxx properties** web page appears.

Figure 160
Signaling Server properties



Role Leader
Type ISP1100
Embedded LAN (ELAN) IP address 192.167.102.4 *
Embedded LAN (ELAN) MAC address 00:02:b3:ee:28:be *
Telephony LAN (TLAN) IP address 192.167.103.2 *
Telephony LAN (TLAN) gateway IP address 192.167.103.1
Hostname CS1000E_PIV *
H323 ID CS1000E_PIV
Enable Line TPS ☑
Enable IP Peer Gateway (Virtual Trunk TPS) H.323 and SIP

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 or IP Peer Gateway is enabled, then the TPS and/or VTRK applications will not run.

Enable SIP Proxy / Redirect Server ☑
Local SIP TCP/UDP Port to Listen to 5060
SIP Domain name ccsip.com
SIP Gateway Endpoint Name CS1000E_PIV
SIP Gateway Authentication Password ●●●●
Enable Gatekeeper ☑
Network Routing Service Role Primary

* *Mandatory fields of current configuration*

Note: Data in the above sample is for illustrative purposes only.

6 Update the properties for your Signaling Server as appropriate.

7 Click **Save and Transfer** to update the corresponding Signaling Server node component on the connected Call Server, and to transfer a copy of the updated IP Telephony node configuration to all node components.

8 Log off of EM on your Signaling Server.

--End--

Use the following procedure to update IP Telephony node information for a migrated Signaling Server.

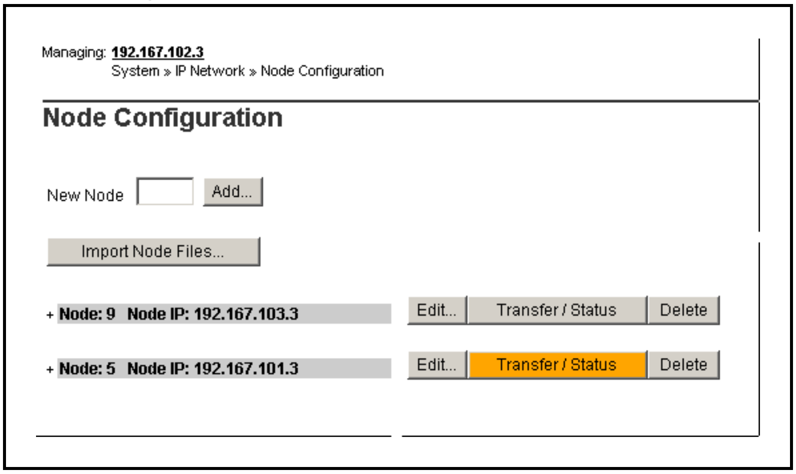
Procedure 27
Updating IP Telephony Node information for a migrated Signaling Server

Step	Action
1	Log on to EM on your new Signaling Server.

2 Select **IP Network > Nodes: Servers, Media Cards** from the navigator.

The **Node Configuration** web page appears.

Figure 161
Node configuration



Managing: 192.167.102.3
System » IP Network » Node Configuration

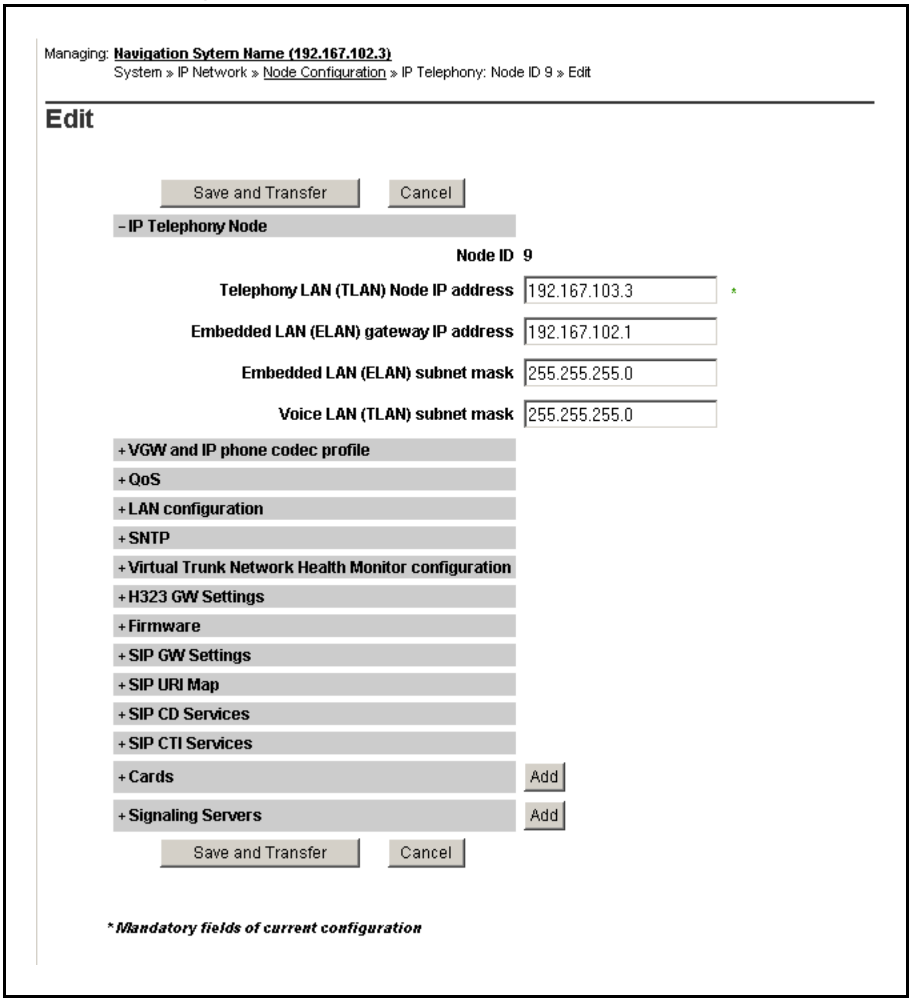
Node Configuration

New Node
Add...
Import Node Files...
+ Node: 9 Node IP: 192.167.103.3
Edit...
Transfer / Status
Delete
+ Node: 5 Node IP: 192.167.101.3
Edit...
Transfer / Status
Delete

3 Click **Edit** next to the node hosting your new Signaling Server.

The Edit node configuration web page appears.

Figure 162
Edit node configuration



Managing: **Navigation Sytem Name (192.167.102.3)**
System » IP Network » Node Configuration » IP Telephony: Node ID 9 » Edit

Edit

Node ID 9
Telephony LAN (TLAN) Node IP address 192.167.103.3 *
Embedded LAN (ELAN) gateway IP address 192.167.102.1
Embedded LAN (ELAN) subnet mask 255.255.255.0
Voice LAN (TLAN) subnet mask 255.255.255.0

Mandatory fields of current configuration

Save and Transfer
Cancel
- IP Telephony Node
+ 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
Add
+ Signaling Servers
Add
Save and Transfer
Cancel

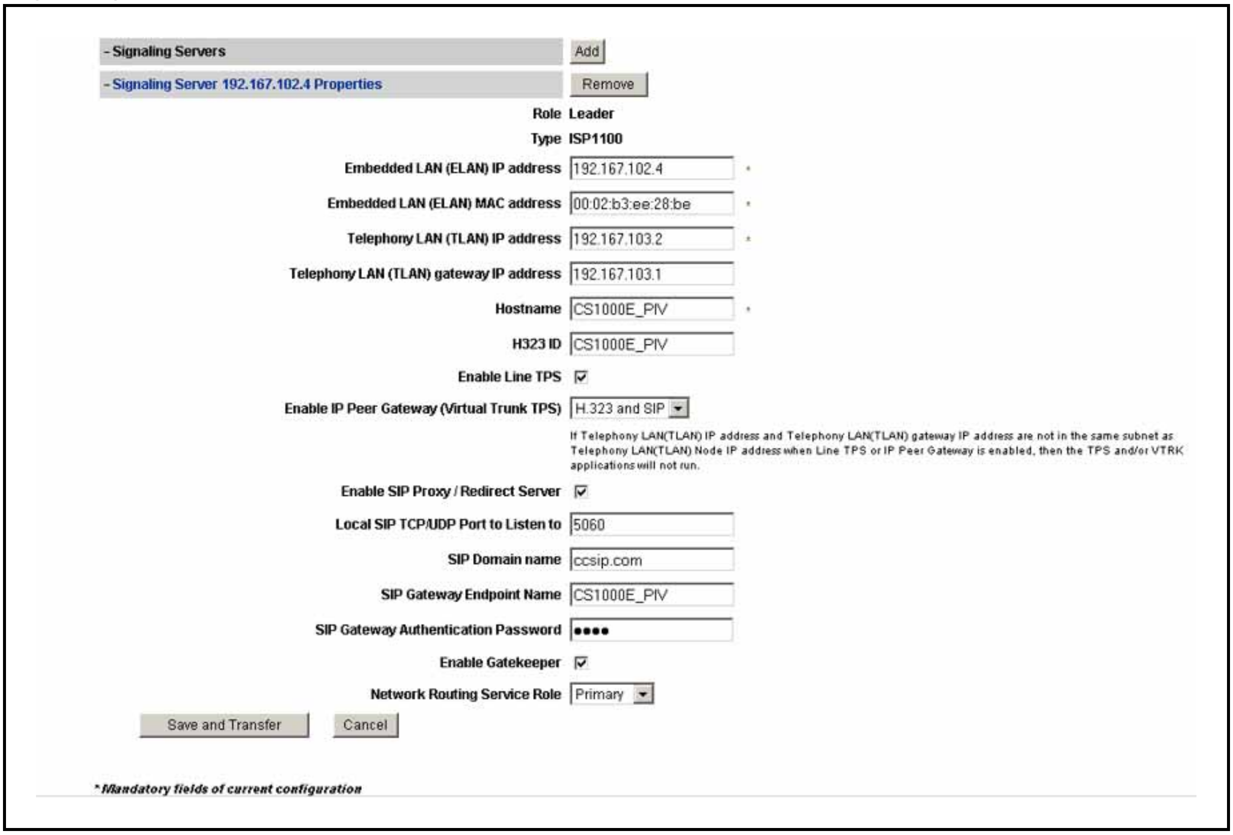
4 Click the **Signaling Servers** component.

The section expands to show you a list of Signaling Servers associated with this IP Telephony node.

5 Click on your new Signaling Server (by IP address).

The **Signaling Server xxx.xxx.xxx.xxx properties** web page appears.

Figure 163
Signaling Server properties



Role Leader
Type ISP1100
Embedded LAN (ELAN) IP address 192.167.102.4 *
Embedded LAN (ELAN) MAC address 00:02:b3:ee:28:be *
Telephony LAN (TLAN) IP address 192.167.103.2 *
Telephony LAN (TLAN) gateway IP address 192.167.103.1
Hostname CS1000E_PIV *
H323 ID CS1000E_PIV
Enable Line TPS ☑
Enable IP Peer Gateway (Virtual Trunk TPS) H.323 and SIP

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 or IP Peer Gateway is enabled, then the TPS and/or VTRK applications will not run.

Enable SIP Proxy / Redirect Server ☑
Local SIP TCP/UDP Port to Listen to 5060
SIP Domain name ccsip.com
SIP Gateway Endpoint Name CS1000E_PIV
SIP Gateway Authentication Password ●●●●
Enable Gatekeeper ☑
Network Routing Service Role Primary

Mandatory fields of current configuration

Note: Data in the above sample is for illustrative purposes only.

6 Enter the MAC address of your new Signaling Server in the **Embedded LAN (ELAN) MAC address** entry field.

7 Click **Save and Transfer** to update the corresponding Signaling Server node component on the connected Call Server with the new MAC address, and to obtain a copy of the updated IP Telephony node configuration files on your new Signaling Server.

8 Log off of EM on your new Signaling Server.

--End--

Changing the Node ID on existing CS 1000 system

Background

The IP Telephony nodes are pre-configured during software installation. The node configuration files - `BOOTP.TAB` and `CONFIG.INI`, are then imported into Element Manager for further configuration of the nodes.

The configuration files are copied on the Call Server in **`/u/db/node`** directory when the node configuration is saved. The **`BOOTP.TAB`** file is saved as **`/u/db/node/nodexxxx.btp`** and the **`CONFIG.INI`** file is saved as **`/u/db/node/nodexxxx.cfg`**, where xxxx is the node ID:

- **`nodexxxx.btp`** is the **`BOOTP.TAB`** file
- **`nodexxxx.cfg`** is the **`CONFIG.INI`**

If a node is removed, the associated files are also removed. For every node that is created, a **`nodeyyyy.btp`** and **`nodeyyyy.cfg`** file are created in the **`/u/db/node`** directory.

The other node files are:

- **`/u/db/node/node.pch`**. **`Node.pch`** is read on click at the Node Summary link in Element Manager.
- **`/u/db/node/nodexxxx.xml`**. **`Nodexxxx.xml`** is used to display the config in Element Manager. **`Nodexxxx.btp`** is converted into **`Nodexxxx.xml`** when editing a Node.

In order to change the Node ID on the system, changes need to be made in the bootp.tab configuration file. Follow the steps below.

Do not manually edit the node files. Manually editing these files can cause corruption of Element Manager.

Procedure 28
Changing the Node ID on existing CS 1000 system

Step	Action
1	FTP to the Signaling Server using pdt2 level user and go to directory /u/config by entering: **`cd /u/config`**
2	Switch to binary mode and get the bootp.tab file via FTP: **`ftp> bin`** **`ftp>get bootp.tab`**
3	Open the file with a text editor (e.g.Notepad) and change the node ID which is the number after ":to=" E.g. where the Node ID is 1: CS1K_SIPSS:tc=.subnet1:ha="00:1e:ca:f8:93:5c":ip=47.135.223.245:lp=47.135.93.114 255.255.255.224 47.135.93.97:dn=:to=1:hd="/u/config":lg=0.0.0.0:

4 FTP the new file back to the Signaling Server:
`ftp> put bootp.tab`

> ***Note:*** This will overwrite your old `bootp.tab` file. It is highly recommended to keep a copy of it on your PC.

5 Quit the ftp session to the Signaling Server.

6 FTP to the Call Server and navigate to the directory
`/u/db/node cd /u/db/node`

7 Switch to binary mode and get all node files located there. Keep a copy of these files on your PC if needed for a backup.

8 8. Delete the `node.pch` file and the `nodexxxx.btp`, `nodexxxx.cfg` and `nodexxxx.xml` files for the node ID you want to change (where xxxx is the Node ID). For example:
`ftp>delete node.pch`

Example. For Node ID 1 we need to delete the first 4 files:
`node1.btp`
`node1.cfg`
`node1.xml`
`node.pch`
`node2.btp`
`node2.cfg`
`node2.xml`
etc.

9 Reboot the Signaling Server. It reboots with the new Node ID. .

10 Launch Element Manager - there are no nodes listed.

11 In Element Manager, import Node files from the Signaling Server ELAN.

> ***Note:*** At this point we should have the node files re-created with the new Node ID.

12 Click on Save/Transfer for all elements

13 Reboot Media cards as required.

14 Change Node ID on the VTRK (SIP & H.323) routes:
`LD 16 CHG RDB`.

> ***Note:*** Need to disable the routes first:
> `LD 32 DIS VTRM<cust><rout>`
> To enable:
> `ENL VTRM<cust><rout>`

15 Change Node ID on the sets after they register.

--End--

Command Line Interface (CLI) commands

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This section contains information on the following topics:

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    - “DLOG commands: Firmware download log file” (page 197)
    - “GK commands: Gatekeeper” (page 197)
    - “ISEC commands: Intrasystem Signaling Security” (page 198)
    - “Network commands: remote access” (page 199)
    - “Patcher commands: patching” (page 200)
    - “RID commands: remote iset diagnostics” (page 200)
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  - “pbxlink commands: PBX link” (page 211)
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  - “ums commands: UMS module” (page 218)
  - “usi commands: RUDP timeout and retry commands” (page 218)
  - “vte commands: Virtual Terminal Emulator” (page 219)
  - “vtrk commands: Virtual Trunk module” (page 219)
- “Level Two (PDT) CLI commands” (page 220)
  - “Command groups” (page 220)
  - “Accounts commands: user account administration commands” (page 221)
  - “disk commands: file system maintenance and diagnostics” (page 221)
  - “rdtools commands: rd tools” (page 222)
  - “nrsDB commands: Network Routing Service” (page 223)
  - “sipnpm commands: SIP Network Protocol Module” (page 224)
  - “system commands: System administration” (page 225)
  - “ums commands : UMS module” (page 228)

Introduction

The Signaling Server provides a Command Line Interface (CLI) through a serial port or a telnet session. This section contains the CLI commands available for use through that interface.

Signaling Server CLI commands are available at three levels:

- Level One — Operations, Administration, and Maintenance (OAM) shell for basic technician support and general status system checking (`oam>` prompt)
- Level Two — Problem Determination Tool (PDT) shell for expert support; also includes all Level One (OAM) commands (`pdt>` prompt)
- Level Three — Nortel proprietary VxWorks™ shell for advanced debugging and design support (>prompt)

> ***Note:*** This section describes the Level One (OAM) and Level Two (PDT) CLI commands. Level Three commands are considered expert support and design level commands, and are not documented here.

You must log on to the Signaling Server to use the CLI. See Procedure 31 "Logging on to the Signaling Server" (page 236).

Platform-specific commands are fully described in this section. Application-specific commands are fully described in the documentation for the particular application. Therefore, they are only briefly described in this section, and a reference is given to the NTP containing the full description.

The information in this chapter is presented in tables, with the commands organized by command groups. Each table gives the command name and a description of the command.

Element Manager

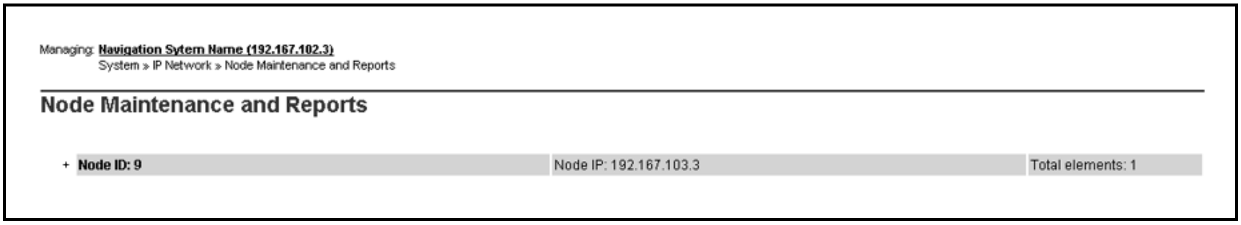
The "Element Manager" column gives the Element Manager command group name if the command is available in Element Manager. If the command is not available in Element Manager, the column entry reads "N/A" for "Not Available".

Use the following procedure to access the CLI commands in Element Manager.

Procedure 29
Accessing CLI commands in Element Manager

Step	Action
1	Log on to Element Manager (see Procedure 22 "Logging on to Element Manager" (page 173).
2	Select **IP Network > Maintenance and Reports** from the navigator. The **Node Maintenance and Reports** web page appears.

Figure 164
Node Maintenance and Reports



Managing: Navigation Sytem Name (192.167.102.3)
System » IP Network » Node Maintenance and Reports

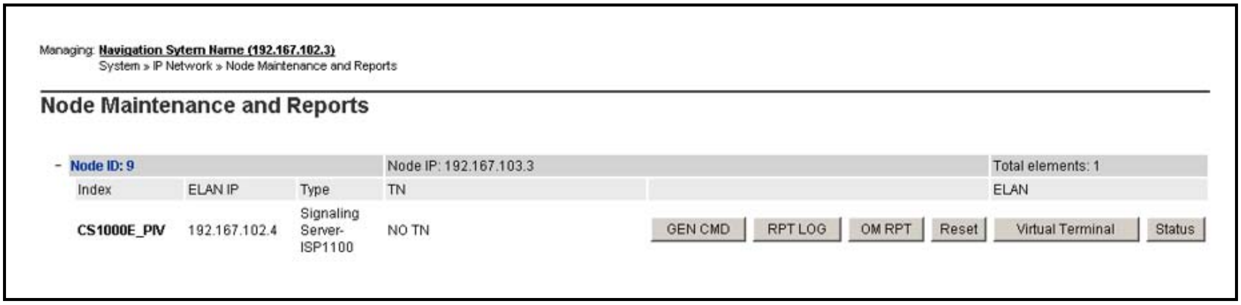
Node Maintenance and Reports

+ Node ID: 9	Node IP: 192.167.103.3	Total elements: 1

3 Click on the node with the Signaling Server you want to use.

The node listing expands to show the elements associated with the selected node, including the Signaling Server.

Figure 165
Expanded IP Telephony node



Managing: Navigation Sytem Name (192.167.102.3)
System » IP Network » Node Maintenance and Reports

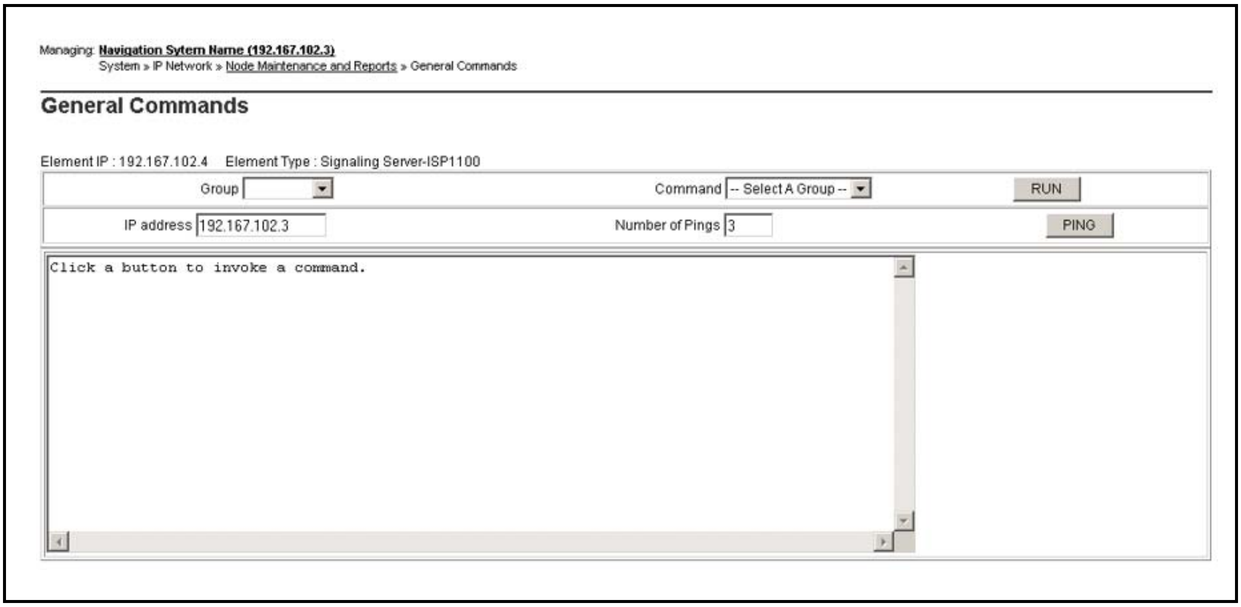
Node Maintenance and Reports

- Node ID: 9			Node IP: 192.167.103.3		Total elements: 1
Index	ELAN IP	Type	TN		ELAN
CS1000E_PIV	192.167.102.4	Signaling Server-ISP1100	NO TN	GEN CMD, RPT LOG, OM RPT, Reset	Virtual Terminal, Status

4 Click **GEN CMD** for the Signaling Server element.

The **General Commands** web page appears.

Figure 166
General Commands



Managing: Navigation Sytem Name (192.167.102.3)
System » IP Network » Node Maintenance and Reports » General Commands

General Commands

Element IP : 192.167.102.4 Element Type : Signaling Server-ISP1100

Group
Command -- Select A Group --
IP address 192.167.102.3
Number of Pings 3

```
Click a button to invoke a command.
```

5 To run a command:

a Select a command group from the **Group** drop-down list.

b Select a command from the **Command** drop-down list.

c Click **Run**.

If the selected command has parameters, enter them in the additional text boxes that appear. Command output appears in the text area below the commands.

--End--

For more information on Element Manager, refer to “Element Manager configuration” (page 169) and *Element Manager: System Administration (NN43001-632)* ().

General help commands

To display a list of command groups, type `help` at the prompt.

To display a list of commands in a specific group, and a brief description of each command, type help `<command group name>`.

Level One (OAM) CLI commands

This section lists the Level One Signaling Server CLI commands available at the OAM shell.

The prompt for each command is `’oam>`’.

Command groups

The following table lists the OAM CLI command groups. The commands in each group are described in the following sections.

Table 5
OAM CLI command groups

Command group	Description	Commands
DLOG	Firmware download log file commands	Table 6 "OAM DLOG commands" (page 197)
GK	Gatekeeper module commands	Table 7 "OAM GK commands" (page 198)
ISEC	Intrasystem signaling security commands.	Table 8 "OAM ISEC commands" (page 198)
Network	Remote access commands	Table 9 "OAM Network commands" (page 199)
Patcher	Patching commands.	Table 10 "OAM Patcher commands" (page 200)
RID	Remote iset diagnostics commands	Table 11 "OAM RID commands" (page 200)

Table 5
OAM CLI command groups (cont'd.)

Command group	Description	Commands
SSH	SSH commands.	Table 12 "OAM SSH commands" (page 201)
UFTP	UFTP IP Phone firmware download commands.	Table 13 "OAM UFTP commands" (page 202)
cds	Converged Desktop Service module commands	Table 14 "OAM cds commands" (page 202)
election	Election module commands	Table 15 "OAM election commands" (page 203)
elm	ELM module commands	Table 16 "OAM elm commands" (page 203)
emhelp	Element Manager help file related commands.	Table 17 "OAM emhelp commands" (page 203)
iset	iset module commands	Table 18 "OAM iset commands" (page 203)
mam	MAM module commands	Table 19 "OAM mam commands" (page 205)
ncs	Network Connection Service module commands	Table 20 "OAM ncs commands" (page 208)
npm	Network Protocol Module commands	Table 21 "OAM npm commands" (page 208)
nrsDB	Network Routing Service commands	Table 22 "OAM nrsDB commands" (page 209)
nrsomm	Network Routing Service operational measurement commands	Table 23 "OAM nrsomm commands" (page 211)
pbxlink	PBX link commands	Table 24 "OAM pbxlink commands" (page 211)
securityShell	Security shell commands	Table 25 "OAM securityShell commands" (page 211)
sipcti	SIP CTI module commands.	Table 26 "OAM sipcti commands" (page 212)
sipctiomm	SIP CTI OMM commands.	Table 27 "OAM sipctiomm commands" (page 213)
sipnpm	SIP Network Protocol Module commands	Table 28 "OAM sipnpm commands" (page 213)
system	System administration commands	Table 29 "OAM system commands" (page 214)

Table 5
OAM CLI command groups (cont'd.)

Command group	Description	Commands
tps	TPS module commands	Table 30 "OAM tps commands" (page 215)
trace	General trace tools	Table 31 "OAM trace commands" (page 216)
uipc	Universal ISDN module commands	Table 32 "OAM uipc commands" (page 217)
ums	UMS module commands	Table 33 "OAM ums commands" (page 218)
usi	RUDP timeout and retry commands	Table 34 "OAM usi commands" (page 218)
vte	Virtual Terminal Emulator commands	Table 35 "OAM vte commands" (page 219)
vtrk	Virtual Trunk module commands	Table 36 "OAM vtrk commands" (page 219)

DLOG commands: Firmware download log file

The following table lists the OAM firmware download log file commands in the DLOG command group.

Table 6
OAM DLOG commands

Command	Description	Element Manager
`activeDlogShow`	Displays the current used firmware download file. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`inactiveDlogShow`	Displays the inactive firmware download log file. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`dnldFailShow`	Displays failed results in the active firmware download log file. See *IP Line Fundamentals (NN43001-500)* ().	N/A

GK commands: Gatekeeper

The following table lists the OAM Gatekeeper commands in the GK command group.

Table 7
OAM GK commands

Command	Description	Element Manager
`gkDiscoveryTrace`	Traces Gatekeeper discovery messages for a specified endpoint. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`gkRegTrace`	Traces endpoint registration messages and unregistration messages for a specified endpoint. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`gkCallTrace`	Traces endpoint call-associated messages (admission, bandwidth, disengage, and location messages). See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`gkProtocolTrace`	Traces any message for any message type. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`gkTraceOff`	Turns off the trace for the specified endpoint for all protocol types. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`gkTraceOutput`	Sets the output destination for all Gatekeeper protocol traces. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`gkTraceSettings`	Displays the trace output destination as well as the endpoint types being traced. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`gkTraceTblClear`	Clears the calling/called number table associated with the NUM trace filter(s). See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`gkTraceTblShow`	Displays the calling/called number table associated with the NUM trace filter(s). See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A

ISEC commands: Intrasystem Signaling Security

The following table lists the OAM intrasystem Signaling Security commands in the OAM ISEC command group.

Table 8
OAM ISEC commands

Command	Description	Element Manager
`isecChgPSK`	Change ISEC PSK locally.	N/A
`isecChgLevel`	Change ISEC security level locally.	N/A

Table 8
OAM ISEC commands (cont'd.)

Command	Description	Element Manager
`isecNewTarget`	Add a new target to the ISEC target list.	N/A
`isecOutTarget`	Delete a target from the ISEC target list.	N/A
`isecEnlTarget`	Enable the target ISEC.	N/A
`isecDisTarget`	Disable the target ISEC.	N/A
`isecprofileShow`	Show all ISEC profiles.	N/A
`isecConfirm`	Used to confirm PSK between Active Call Server and other elements.	N/A
`isecDecom`	Removes all ISEC related files, memory allocations, and tasks.	N/A
`isecIkeShowPall`	Show all protection suites (inbound and outbound IPsec Security Association pairs)	N/A
`isecIpsecShowIf`	Show all of the network interfaces on which IPsec is enabled.	N/A

Network commands: remote access

The following table lists the OAM remote access commands in the Network command group.

Table 9
OAM Network commands

Command	Description	Element Manager
`telnet [server] [-l username]`		N/A
	Telnets to a server. The address can be either in IP address format or host name. Where: • server = IP • addressusername = host name	
`rlogin [server] [-l username]`		N/A

Table 9
OAM Network commands (cont'd.)

Command	Description	Element Manager
	Remotely logs in to a server. The address can be either an IP address or host name. Where: • server = IP • addressusername = host name	
`cslogin`	Logs in to the Call Server overlays.	N/A

Patcher commands: patching

The following table lists the OAM patching commands in the OAM Patcher command group.

Table 10
OAM Patcher commands

Command	Description	Element Manager (see Note)
`mdp`	DEPLIST manipulation command	N/A

> ***Note:*** The Patcher command is not available in Element Manager from the **Node Maintenance** web page. It is available from **IP Telephony > Software > Patching**

RID commands: remote iset diagnostics

The following table lists the OAM remote iset diagnostic commands in the RID command group.

Table 11
OAM RID commands

Command	Description	Element Manager
`rPing`	Pings an IP address. See *Converging the Data Network with VoIP (NN43001-260)* ().	QoS
`rPingStop`	Stops pinging an IP address. See *Converging the Data Network with VoIP (NN43001-260)* ().	N/A
`rTraceRoute`	Traces the route of an IP address. See *Converging the Data Network with VoIP (NN43001-260)* ().	QoS

Table 11
OAM RID commands (cont'd.)

Command	Description	Element Manager
`rTraceRouteStop`	Stops tracing the route of an IP address. See *Converging the Data Network with VoIP (NN43001-260)* ().	N/A
`RUDPStatShow`	Displays RUDP/UNIStim statistics for an IP Phone. See *Converging the Data Network with VoIP (NN43001-260)* ().	N/A
`eStatShow`	Displays Ethernet statistics for an IP Phone. See *Converging the Data Network with VoIP (NN43001-260)* ().	N/A
`isetInfoShow`	Displays DHCP configurations and iset information for an IP Phone. See *Converging the Data Network with VoIP (NN43001-260)* ().	QoS

SSH commands: SSH commands

The following table lists the OAM SSH commands in the OAM SSH command group.

Table 12
OAM SSH commands

Command	Description	Element Manager
`sshKeyActivate`	Activates the SSH key.	N/A
`sshKeyClear`	Clears the SSH key.	N/A
`sshKeyGenerate`	Generates the SSH key.	N/A
`sshKeyShow`	Displays the SSH key.	N/A

UFTP commands: UFTP IP Phone firmware download

The following table lists the OAM UFTP IP Phone firmware download commands in the UFTP command group.

These OAM UFTP commands are used with a Signaling Server in maintenance mode. When the Signaling Server is in maintenance mode, the maximum number of simultaneous firmware downloads is increased, thereby allowing the UNIStim Firmware Transfer Protocol (UFTP) server to use most of its processing resources. For more information on maintenance mode and the UFTP server, refer to *IP Line Fundamentals (NN43001-500)* ().

Table 13
OAM UFTP commands

Command	Description	Element Manager
`uftpShow`	Displays IP Phone firmware download information. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`uftpNodeShow`	Displays IP Phone firmware download summary for the node. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`uftpRunTimeDataReset`	Resets the run time data field in the UFTP data block. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`uftpTurboMode`	Configures maintenance mode. See *IP Line Fundamentals (NN43001-500)* ().	Uftp
`uftpTurboModeShow`	Displays current status of maintenance mode. See *IP Line Fundamentals (NN43001-500)* ().	Uftp
`uftpSpeedLimitShow`	Display UFTP bandwidth parameters.	N/A
`uftpSpeedLimitSet`	Configure UFTP bandwidth parameters.	N/A
`uftpTurboModeTimeoutSet`	Configures the idle timeout timer for maintenance mode. See *IP Line Fundamentals (NN43001-500)* ().	Uftp
`uftpAutoUpgradeTimeoutSet`	Configures the length of time the IP Phone waits for a user response after "Upgrade F/W?" prompt before automatically beginning the firmware upgrade. See *IP Line Fundamentals (NN43001-500)* ().	Uftp

cds commands: Converged Desktop Service Module

The following table lists the OAM Converged Desktop Service (CDS) commands in the cds command group.

Table 14
OAM cds commands

Command	Description	Element Manager
`cdsShow`	Displays the current Converged Desktop configuration. See *CS 1000 to MCS 5100 Converged Desktop Type 2: Configuration Guide (NN43001-321)* ().	N/A
`cdsAgentShow`	Displays the Personal Call Assistance (PCA) agents information and status. See *CS 1000 to MCS 5100 Converged Desktop Type 2: Configuration Guide (NN43001-321)* ().	N/A

election commands: election module

The following table lists the OAM election module commands in the election command group.

Table 15
OAM election commands

Command	Description	Element Manager
`electShow`	Displays the card TPS state, current master, and a list of online TPS. See *IP Line Fundamentals (NN43001-500)* ().	Election

elm commands: ELM module

The following table lists the OAM ELM module command in the elm command group.

Table 16
OAM elm commands

Command	Description	Element Manager
`elmShow`	Displays a list of supported languages. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`elmRefresh`	Re-reads language list and locale files. See *IP Line Fundamentals (NN43001-500)* ()	N/A

emhelp commands: Element Manager help file related commands

The following table lists the OAM emhelp module command in the OAM emhelp command group.

Table 17
OAM emhelp commands

Command	Description	Element Manager
`unpackEmHelp`	Unpack Element manager help files	N/A

iset commands: iset module

The following table lists the OAM iset module commands in the iset command group.

Table 18
OAM iset commands

Command	Description	Element Manager
`isetShow`	Displays general information for all registered IP Phones. See *IP Line Fundamentals (NN43001-500)* ().	Iset

Table 18
OAM iset commands (cont'd.)

Command	Description	Element Manager
`isetFWShow`	Displays the status of the firmware for IP Phones. See *IP Line Fundamentals (NN43001-500)* ().	Iset
`isetNATShow`	Displays information about registered telephones behind a NAT router. See *IP Line Fundamentals (NN43001-500)* ().	Iset
`isetShowByTN`	Displays general information for all registered IP Phones, sorted by TN. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`isetShowByIP`	Displays general information for all registered IP Phones, sorted by IP. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`isetLocShow`	Show location information for all connected IP Phones or a specified IP Phone.	N/A
`isetLocNeedUpdateShow`	Show location information for all connected IP Phones that need a location update.	N/A
`isetLocNeedUpdateShow_DM`	Show location information for all connected IP Phones than need a location update.	N/A
`isetLocUpdate`	Update location information for a specified IP Phone.	N/A
`isetReset`	Resets the registered IP Phone. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`isetResetAll`	Resets all registered IP Phones. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`isetCount`	Displays total number of registered IP Phones. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`isetGet`	Displays a list of IP Phones based on a specified query. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`isetFWGet`	Filters the output of the isetFWShow command by one of that command's output field names. See *IP Line Fundamentals (NN43001-500)* ().	Iset
`itgPLThreshold`	Sets the IP Phone 2004 telephone and gateway alarm packet threshold (in units of 0.1%). See *IP Line Fundamentals (NN43001-500).* ()	N/A
`nodePwdSet`	Sets the password for the current node. See *IP Line Fundamentals (NN43001-500)* ().	NodePwd
`nodePwdShow`	Displays the settings for the node password. See *IP Line Fundamentals (NN43001-500)* ().	NodePwd
`nodePwdEnable`	Enables the node password setting. See *IP Line Fundamentals (NN43001-500)* ().	NodePwd

Table 18
OAM iset commands (cont'd.)

Command	Description	Element Manager
`nodePwdDisable`	Disables the node password settings. See *IP Line Fundamentals (NN43001-500)* ().	NodePwd
`nodeTempPwdSet`	Sets the temporary password for the current node. See *IP Line Fundamentals (NN43001-500)* ().	NodePwd
`nodeTempPwdClear`	Clears the temporary password for the current node. See *IP Line Fundamentals (NN43001-500)* ().	NodePwd
`clearLockout`	Clears the Branch User Config lockout. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`dsetDelayHookswitchSet`	Configure maximum time period in milliseconds that IP Phones wait for a hookswitch request.	N/A
`cookieShowByTN`	Print the cookie list for an IP Phone specified by TN.	N/A
`cookieShowByName`	Print the list of IP Phones with a particular cookie set.	N/A
`cookieRegShow`	Print the cookie registry.	N/A

mam commands: MAM module

The following table lists the OAM MAM module commands in the mam command group.

Table 19
OAM mam commands

Command	Description	Element Manager
`firmwareVersionShow`	Displays firmware version number. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`IPInfoShow`	Displays IP address information. See *IP Trunk Installation and Commissioning (NN43001-563)* () and *IP Line Fundamentals (NN43001-500)* ().	Mam
`itgCardShow`	Displays Voice Gateway Media Card information. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	Mam
`itgMemShow`	Displays memory usage. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`resetOM`	Resets the operational measurement file timer. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A

Table 19
OAM mam commands (cont’d.)

Command	Description	Element Manager
`bootPFileGet`	Sends an updated bootptab file from the MAT to the ITG. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`bootPFilePut`	Sends the bootptab file to the specified host. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`configFileGet`	Sends an undated config.ini file from the MAT to the ITG. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`omFilePut`	Sends the current OM file to the specified host. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`currOMFilePut`	Sends the current OM file to the specified host. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`prevOMFilePut`	Sends the previous OM file to the specified host. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`hostFileGet`	Transfers any file from the MAT to the ITG. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`hostFilePut`	Transfers any file from the ITG to the specified host. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`swDownload`	Loads new version of software from the FTP host to the ITG card. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`itgAlarmTest`	Generates **ITGxxxx** test alarms. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`itgPLThreshold`	Sets the IP Phone 2004 telephone and gateway alarm packet threshold (in units of 0.1%). See *IP Line Fundamentals (NN43001-500)* ().	N/A

Table 19
OAM mam commands (cont'd.)

Command	Description	Element Manager
`disiAll`	Gracefully disables the LTPS and voice gateway. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`enaAll`	Enables the LTPS and voice gateway. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`disServices`	Gracefully switches the registered resources to the other services. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	Mam
`forcedisServices`	Forces the server to switch the registered resources to the other services in the same node. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	Mam
`enlServices`	Enables all services to accept registration of resources. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	Mam
`servicesStatusShow`	Displays the status of services. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	Mam
`soCmdStatusShow`	Displays the status of Service Switch-Over commands.	N/A
`soHelpMenu`	Displays all the commands that can be used for Services Switch-Over. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`lossPlanPrt`	Displays the offsets and current values for the handset, headset, and handsfree RLR and SLR. See *IP Line Fundamentals (NN43001-500)* ().	N/A

ncs commands: Network Connection Service module

The following table lists the OAM Network Connection Service (NCS) module commands in the ncs command group.

Table 20
OAM ncs commands

Command	Description	Element Manager
`tpsARTrace`	Enables tracing for the Network Connection Server (NCS). See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`tpsARTraceOff`	Disables tracing for the Network Connection Server (NCS). See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`tpsARTraceAllOff`	Turns off the trace for all tpsAR trace identifiers. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`tpsAROutput`	Modifies the destination for the traced output of the NCS. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`tpsARTraceSettings`	Displays the trace settings and items being traced for the NCS trace. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`tpsARTraceHelp`	Displays help on the tpsARTrace commands. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A

npm commands: Network Protocol Module

The following table lists the OAM Network Protocol Module (NPM) commands in the npm command group.

Table 21
OAM npm commands

Command	Description	Element Manager
`H323GwRegTrace`	Turns on or off the traces for H.323 Registration at the gateway. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ()	N/A
`H323CallTrace`	Traces H.323 incoming and outgoing call setup messages for selected channels. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A

Table 21
OAM npm commands (cont'd.)

Command	Description	Element Manager
`H323TraceShow`	Displays input and output display settings for `H323CallTrace` and `H323Output` commands. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`H323Output`	Directs H323Trace output to TTY or syslog file. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`H323GwShow`	Displays information about the H.323 Network Protocol Module. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A

nrsDB commands: Network Routing Service

The following table lists the OAM Network Routing Service (NRS) commands in the nrsDB command group.

Table 22
OAM nrsDB commands

Command	Description	Element Manager
`nrsGWEndpointShow`	Lists all the endpoints in the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsUserEPShow`	Lists all the NRS users with corresponding IP addresses. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsCollaboratingServerShow`	Lists all the Collaborating Servers in the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsL0DomainShow`	Lists all the Level 0 domains in the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsL1DomainShow`	Lists all the Level 1 domains in the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsRoutingEntryShow`	Lists all the Routing Entries in the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A

Table 22
OAM nrsDB commands (cont'd.)

Command	Description	Element Manager
`nrsServiceDomainShow`	Lists all the Service Domains in the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsCollaboratingServerQuery`	Queries one Collaborating Server from the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsGWEndpointQuery`	Queries one Endpoint from the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsUserEPQuery`	Queries an NRS endpoint with IP and protocol information. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsL0DomainQuery`	Queries one L 0 Domain from the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsL1DomainQuery`	Queries one L 1 Domain from the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsServiceDomainQuery`	Queries one Service Domain from the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsDefaultRouteQuery`	Displays all the default routes which belong to an endpoint in the database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsDBShow`	Displays the state of the Primary and Alternate NRS database, and the local NRS database. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsDBSyncForce`	Force synchronization of the active NRS database with the Alternate or Failsafe NRS database.	N/A

nrsomm commands: NRS operational measurements

The following table lists the OAM NRS operational measurements commands in the nrsomm command group.

Table 23
OAM nrsomm commands

Command	Description	Element Manager
`NrsOmmShow`	Displays the SIP and H.323 NRS statistics for the current hour. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`NrsOmmAvShow`	Displays the SIP and H.323 NRS total and average statistics for the last seven days. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`nrsDBStateShow`	Show the internal state of the NRS database.	N/A

pbxlink commands: PBX link

The following table lists the OAM PBX link commands in the pbxlink command group.

Table 24
OAM pbxlink commands

Command	Description	Element Manager
`pbxLinkShow`	Displays PBX link status. See *IP Line Fundamentals (NN43001-500)* ().	pbxLink

securityShell commands: Security shell

The following table lists the OAM Security shell commands in the securityShell command group.

Table 25
OAM securityShell commands

Command	Description	Element Manager
`disInsecureShells`	Disables all insecure shells in the system, including TELNET and RLOGIN sessions. See *Security Management (NN43001-604)* ().	See Note.
`enlInsecureShells`	Enables all insecure shells in the system, including TELNET and RLOGIN sessions. See *Security Management (NN43001-604)* ().	See Note.
`statInsecureShells`	Displays whether insecure shell access is enabled or disabled. See *Security Management (NN43001-604)* ().	See Note.
`disSecureShells`	Disables all secure shells in the system, including SSH, SFTP, and SCP sessions.	N/A

Table 25
OAM securityShell commands (cont'd.)

Command	Description	Element Manager
`enlSecureShells`	Enables all secure shells, including SSH, SFTP, and SCP sessions.	N/A
`statSecureShells`	Shows whether secure shell access is enabled or disabled.	N/A

> ***Note:*** These commands are not accessible from Element Manager as described in "Element Manager" (page 193). They are available in Element Manager at **Security > Login Options > Shell Login**. Refer to *Security Management (NN43001-604)* () for more information.

sipcti commands: SIP CTI module commands

The following table lists the OAM sipcti commands in the OAM sipcti command group.

Table 26
OAM sipcti commands

Command	Description	Element Manager
`SIPCTISessionShow`	Shows the total number of TR87 SIP sessions.	N/A
`SIPCTIClientShow`	Shows information about all the associated soft clients.	N/A
`SIPCTIShow`	Shows SIP CTI application status and configuration.	N/A
`SIPCTIStop`	Deacquire one or all AST DN(s) and remove associated SIP CTI sessions.	N/A
`SIPCTITraceLevel`	Sets the MessageTrace Level output to TR87 body only or Detailed format.	N/A
`SIPCTITraceShow`	Prints SIPCTI trace settings.	N/A
`SIPCTIOutput`	Redirect the SIP CTI trace to a specific output destination.	N/A
`SIPCTITrace`	Trace incoming and outgoing TR87 SIP messages.	N/A
`SIPCTILdapForceUpdate`	Update LDAP cache from LDAP server.	N/A
`SIPCTILdapSetPageSize`	Set LDAP page size for LDAP caching.	N/A

sipctiomm commands: SIP CTI OMM commands

The following table lists the OAM sipctiomm commands in the OAM sipctiomm command group.

Table 27
OAM sipctiomm commands

Command	Description	Element Manager
`SipCtiOmmShow`	Show the current hour count statistics for SIP CTI.	N/A

sipnpm commands: SIP Network Protocol Module

The following table lists the OAM SIP Network Protocol Module commands in the sipnpm command group.

Table 28
OAM sipnpm commands

Command	Description	Element Manager
`SIPGwShow`	Displays SIP Virtual Trunk settings. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	Sip
`SIPCallTrace`	Traces messages sent through SIP channels. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`SIPTraceShow`	Displays the SIP trace settings and all active traces for the SIP call trace tool. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`SIPOutput`	Specifies where the output for the trace tool is to be directed. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`SIPTraceLevel`	Sets the SIPCallTrace output to Summary or Detailed format. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`SIPGwRegTrace`	Turns on or off the traces for SIP Registration at the signaling gateway. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ()	N/A

system commands: system administration commands

The following table lists the OAM system administration commands in the system command group.

Table 29
OAM system commands

Command	Description	Element Manager
`routeShow`	Displays host and network routing tables. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	System
`routeAdd`	Adds a route to the routing tables. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`routeDelete`	Deletes a route from the routing tables. See *IP Trunk Installation and Commissioning (NN43001-563)* ().	N/A
`ping`	Tests that a remote site is reachable. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`who`	Displays all active User IDs and ports.	N/A
`arpShow`	Displays entries in the system ARP table.	N/A
`arpFlush`	Flushes all the entries in the system ARP table.	N/A
`diskSizeShow`	Displays the total physical size of the hard disk.	N/A
`memSizeShow`	Displays the total physical size of the memory.	N/A
`swVersionShow`	Displays software version. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`date`	Displays the system date and time, and prompts to configure new system date and time.	N/A
`uptime`	Displays the amount of time lapsed since the last system reboot.	N/A
`stty [speed]`	Sets console speed. Available speeds are 9600, 19200, 38400, and 115200.	N/A
`consoleShow`	Displays console speed.	N/A

Table 29
OAM system commands (cont'd.)

Command	Description	Element Manager
`ppp [-l localAdd -r remoteAdd -o optionsFile -f]`	Initiates a PPP connection with options. Where: • localAdd is the local IP address. Default is 137.135.x.1. • remoteAdd is the remote IP address. Default is 137.135.x.2. • optionsFile is the full path to the options file. • -f signifies no hardware flow control signals during PPP connection.	N/A
`sysResShow`	Displays the current usage of File Descriptors (FD) on the system.	N/A
`cppmLoopChange`	Changes the IPMG loop number location (Nortel CP PM Signaling Server only).	N/A
`cppmShelfChange`	Changes the IPMG shelf number location (Nortel CP PM Signaling Server only).	N/A
`cppmLocationShow`	Displays the loop and shelf location (Nortel CP PM Signaling Server only).	N/A

tps commands: TPS module

The following table lists the OAM TPS module commands in the tps command group.

Table 30
OAM tps commands

Command	Description	Element Manager
`disiTPS`	Disables TPS service when idle. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`enaTPS`	Enables TPS service. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`tpsShow`	Displays TPS information.	N/A
`disTPS`	Causes the Line TPS to gracefully switch the registered telephones to the other cards located in the same node. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	Tps

Table 30
OAM tps commands (cont'd.)

Command	Description	Element Manager
`forcedisTPS`	Forces all registered Line TPS to unregister from the local server. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	Tps
`enlTPS`	Causes Line TPS application to be enabled and to accept IP Telephone registrations. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	Tps
`loadBalance`	Causes Line TPS application to attempt to balance the registration load of sets between this card and the rest of the node components. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	Tps
`UKLossPlanSet`	Sets IP Phone's loss plan to UK-specific values. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`lossPlanSet`	Adjusts the levels of a given transducer by the entered RLR and SLR offsets. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`UKLossPlanClr`	Sets IP Phone's loss plan to default values. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`lossPlanClr`	Sets IP Phone's loss plan to default values. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`echoServerShow`	Displays information about the Echo Servers used by this system. See *IP Line Fundamentals (NN43001-500)* ().	Tps

trace commands: General trace tools

The following table lists the OAM General trace tools in the trace command group.

Table 31
OAM trace commands

Command	Description	Element Manager
`traceAllOff`	Disables the trace facilities from writing to the TTY, SYSLOG, and specified files. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A

Table 31
OAM trace commands (cont'd.)

Command	Description	Element Manager
`traceAllOn`	Enables the trace facilities to resume writing to the TTY, SYSLOG, and/or specified files. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`tracePrintOff`	Disables the trace facilities from writing to the TTY. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`tracePrintOn`	Enables the trace facilities to resume writing to the TTY. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`traceFileOff`	Disables the trace facilities from writing to the SYSLOG and specified files. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`traceFileOn`	Enables the trace facilities to resume writing to the SYSLOG and/or specified files. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A
`traceShow`	Displays the names of active traces in the system. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Line Fundamentals (NN43001-500)* ().	N/A

uipc commands: Universal ISDN Protocol module

The following table lists the OAM Universal ISDN Protocol module commands in the uipc command group.

Table 32
OAM uipc commands

Command	Description	Element Manager
`DCHmenu`	Displays a menu of DCH diagnostic tools. See *IP Peer Networking Installation and Commissioning (NN43001-313)* () or *IP Trunk Installation and Commissioning (NN43001-563)* ().	N/A

ums commands: UMS module

The following table lists the OAM UMS module commands in the ums command group.

Table 33
OAM ums commands

Command	Description	Element Manager
`firmwareFileGet`	Initiates a firmware download from a specified FTP server. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`firmwareFileGetI2004`	Initiates a firmware download for an IP Phone 2004 from a specified FTP server. Replaced by `firmwareFileGet`. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`firmwareFileGetI2002`	Initiates a firmware download for an IP Phone 2002 from a specified FTP server. Replaced by `firmwareFileGet`. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`umsPolicyShow`	Displays the current upgrade policy. See *IP Line Fundamentals (NN43001-500)* ().	Ums
`umsUpgradeAll`	Upgrades all registered sets according to policy and firmware file. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`umsUpgradeTimerShow`	Displays the upgrade schedule. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`umsUpgradeTimerCancel`	Cancels the scheduled upgrade. See *IP Line Fundamentals (NN43001-500)* ().	N/A

usi commands: RUDP timeout and retry commands

The following table lists the OAM RUDP timeout and retry commands in the usi command group.

Table 34
OAM usi commands

Command	Description	Element Manager
`usiSetPhoneRudpRetries`	Sets the RUDP Max Retries count for IP Phones. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`usiGetPhoneRudpRetries`	Displays the RUDP Max Retries count for IP Phones. See *IP Line Fundamentals (NN43001-500)* ().	N/A

Table 34
OAM usi commands (cont'd.)

Command	Description	Element Manager
`usiSetPhoneRudpTimeout`	Sets the RUDP Timeout value (in ms) for IP Phones. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`usiGetPhoneRudpTimeout`	Displays the RUDP Timeout value (in ms) for IP Phones. See *IP Line Fundamentals (NN43001-500)* ().	N/A

vte commands: Virtual Terminal Emulator

The following table lists the OAM Virtual Terminal Emulator commands in the vte command group.

Table 35
OAM vte commands

Command	Description	Element Manager
`unpackVTHelp`	Unpacks Virtual Terminal Emulator help files. See "Unpack the Virtual Terminal Emulator help files" (page 237).	N/A

vtrk commands: Virtual Trunk module

The following table lists the OAM Virtual Trunk module commands in the vtrk command group.

Table 36
OAM vtrk commands

Command	Description	Element Manager
`vtrkShow`	Displays information about the Virtual Trunk channels. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	Vtrk
`disVTRK`	Gracefully switches the registered Virtual Trunks to another Signaling Server in the same node. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	Vtrk
`forcedisVTRK`	Forces all registered Virtual Trunks to unregister from the local server. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	Vtrk

Table 36
OAM vtrk commands (cont'd.)

Command	Description	Element Manager
`enlVTRK`	Enables the Virtual Trunk application to accept Virtual Trunk registrations. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	Vtrk
`vtrkNetMonShow`	Print out the current list of monitored IP addresses and their status. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ()	N/A

Level Two (PDT) CLI commands

All Level One Signaling Server CLI commands are also available at the PDT shell. This section lists additional CLI commands and command groups that are available at the PDT Shell. These additional CLI commands are Level Two Signaling Server CLI commands, or expert-level commands. The prompt for each command is `pdt>`.

To access the PDT shell from the OAM Shell, hold down CTRL and type PDT at the `oam>` prompt. The PDT shell can only be accessed if your password is configured for PDT access.

Command groups

Table 37 "PDT CLI command groups" (page 220) lists the CLI command groups that contain Level Two CLI Commands. Command groups available only in PDT are shown in *italics*. The PDT commands in each group are described in the following sections.

Table 37
PDT CLI command groups

Command group	Description	PDT Commands
Accounts	Standalone NRS commands	Table 38 "PDT Accounts commands" (page 221)
disk	File system maintenance and diagnostics.	Table 39 "PDT disk commands" (page 222)
rdtools	rd tools commands	Table 40 "PDT rdtools commands" (page 222)
nrsDB	Network Routing Service commands	Table 41 "PDT nrsDB commands" (page 224)

Table 37
PDT CLI command groups (cont'd.)

Command group	Description	PDT Commands
sipnpm	SIP Network Control Module commands	Table 42 "PDT sipnpm commands" (page 224)
system	System administration commands	Table 43 "PDT system commands" (page 225)
ums	UMS module commands.	Table 44 "PDT ums commands" (page 228)

Accounts commands: user account administration commands

The following table lists the commands for an NRS running on a Standalone Signaling Server in the PDT Accounts command group.

Table 38
PDT Accounts commands

Command	Description	Element Manager
`adminUserPasswordChange`	Changes administrator-level user password for an NRS running on a Standalone Signaling Server. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`adminUserCreate`	Creates an administrator-level user of an NRS running on a Standalone Signaling Server. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`adminUserDelete`	Deletes an administrator-level user of an NRS running on a Standalone Signaling Server. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`adminAccountShow`	Displays User ID and access privileges for all users of an NRS running on a Standalone Signaling Server. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A

disk commands: file system maintenance and diagnostics

The following table lists the PDT file system maintenance and diagnostic command in the disk command group.

Table 39
PDT disk commands

Command	Description	Element Manager
`fsck [m] [devname]`	Checks the integrity of the file system on the specified device. Errors are repaired unless the mount flag is specified. Where: • m is the mount flag. • devname is the device to check.	N/A

rdtools commands: rd tools

The following table lists the PDT rd tools commands in the rdtools command group.

Table 40
PDT rdtools commands

Command	Description	Element Manager
`rdopen [filename]`	Opens a report log file. Where [filename] is the name of the report file to be opened.	N/A
`rdgo [N]`	Goes to a specific record. Where [N] is the absolute record number.	N/A
`rd [S] [R]`	Displays a specified number of records starting at a specified point. Where: • [S] is the number of steps to traverse to the starting point. • [R] is the number of records to display. Both [S] and [R] can be negative.	N/A

Table 40
PDT rdtools commands (cont'd.)

Command	Description	Element Manager
`rds [S] [R]`	Displays a specified number of records, with a symbolic dump, starting at a specified point. Where: • [S] is the number of steps to traverse to the starting point. • [R] is the number of records to display. Both [S] and [R] can be negative.	N/A
`rdshow`	Displays general information about the current log file and the current rd settings.	N/A
`rdall`	Displays all records.	N/A
`rdtail [N]`	Displays the specified number of newest records. Where [N] is the number of records to display.	N/A
`rdhead [N]`	Displays the specified number of oldest records. Where [N] is the number of records to display.	N/A
`rdnext`	Opens the next log file.	N/A
`rdprev`	Opens the previous log file.	N/A
`rdsconvert [filename]`	Converts a log file to text. Where [filename] is the name of the log file to be converted.	N/A

nrsDB commands: Network Routing Service

The following table lists the PDT Network Routing Service (NRS) commands in the nrsDB command group. These commands are in addition to the OAM commands listed in Table 22 "OAM nrsDB commands" (page 209).

Table 41
PDT nrsDB commands

Command	Description	Element Manager
`nrsDBStateShow`	Show the internal state of the NRS database.	N/A

> ***Note:*** The database cutover, revert, commit, and rollback commands are not available in Element Manager as described in "Element Manager" (page 193). The same functionality is available in NRS Manager at **Tools > Database Actions**. See *Network Routing Service Installation and Commissioning (NN43001-564)* () for details.

sipnpm commands: SIP Network Protocol Module

The following table lists the PDT SIP Network Protocol Module commands in the sipnpm command group. These commands are in addition to the OAM commands listed in Table 28 "OAM sipnpm commands" (page 213).

Table 42
PDT sipnpm commands

Command	Description	Element Manager
`SIPTLSConfigShow`	Show the TLS parameter details.	N/A
`SIPTLSSessionShow`	Show the TLS session details.	N/A
`SIPMessageTrace`	Set filters to turn the message trace ON or OFF.	N/A
`sip2IsdnSet`	Changes the SIP status code to the ISDN cause code mapping. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`sip2IsdnReset`	Resets a single SIP status code to the default ISDN cause code mapping. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`sip2IsdnResetAll`	Resets all SIP status codes to the default ISDN cause code mappings. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`sip2IsdnShow`	Shows one specific SIP status code to ISDN cause code mapping. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`sip2IsdnShowAll`	Shows all mappings from SIP status code to ISDN cause code. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A

Table 42
PDT sipnpm commands (cont'd.)

Command	Description	Element Manager
`isdn2SipSet`	Changes the ISDN cause code to the SIP status code mapping. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`isdn2SipReset`	Resets a single ISDN cause code to the default SIP status code mapping. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`isdn2SipResetAll`	Resets all the ISDN cause codes to the default SIP status code mappings. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`isdn2SipShow`	Shows one specific ISDN cause code to SIP status code mapping. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A
`isdn2SipShowAll`	Shows all mappings from ISDN cause codes to SIP status codes. See *IP Peer Networking Installation and Commissioning (NN43001-313)* ().	N/A

system commands: System administration

The following table lists the PDT system administration commands in the system command group. These commands are in addition to the OAM commands listed in Table 29 "OAM system commands" (page 214).

Table 43
PDT system commands

Command	Description	Element Manager
`lkup`	Look up a symbol.	N/A
`devs`	Displays list of the devices.	N/A
`echo`	Echoes the input.	N/A
`hosts`	Displays list of hosts.	N/A
`memShow`	Displays memory usage.	N/A

Table 43
PDT system commands (cont'd.)

Command	Description	Element Manager
`ti [name │ taskID]`	Displays task information for task specified by name or task ID. Where: • name is the task name. • taskID is the task ID.	N/A
`i`	Displays task information. See *IP Line Fundamentals (NN43001-500)* ().	System
`version`	Displays vxWorks™ version, date of build, and other information.	N/A
`x [name]`	Executes a function. Where name is the name of the function.	N/A
`ifShow`	Displays the attached network interfaces. See *IP Trunk Installation and Commissioning (NN43001-563)* () or *IP Line Fundamentals (NN43001-500)* ().	System
`reboot [-1]`	Warm restarts the system. If -1 specified, cold restarts the system.	N/A
`ls [path]`	Displays the contents of a directory. Where path is the path name of the directory. If path is not specified, the contents of the current directory are specified.	N/A
`ll [path]`	Displays a long list of the contents of a directory. Where path is the path name of the directory. If path is not specified, the contents of the current directory are specified.	N/A

Table 43
PDT system commands (cont'd.)

Command	Description	Element Manager
`cd [path]`	Changes the default directory. Where path is the path and name of the new directory. The path of the new directory can be specified as a relative path.	N/A
`pwd`	Displays the current default directory.	N/A
`copy [input output]`	Copies from one file to another file until an end-of-file (CTRL+d) is reached. Where: • input is the name of the file to be copied from. If NULL, stdin is used. • output is the name of the new or destination file to be copied to. If NULL, stdout is used.	N/A
`rename [file1 file2]`	Renames one file or moves one file to another. Where: • file1 is the file to be renamed or moved. • file2 is the new or destination filename.	N/A
`remove [file]`	Removes a file. Where file is the name of the file to be removed.	N/A
`moduleShow`	Displays the list of all loaded modules.	N/A
`inetstatShow`	Displays all the active connections for the IP sockets.	N/A
`tcpstatShow`	Displays statistics for the TCP protocol.	N/A
`udpstatShow`	Displays statistics for the UDP protocol.	N/A
`syslogShow`	Displays the log level for all tasks.	N/A

Table 43
PDT system commands (cont'd.)

Command	Description	Element Manager
`syslogLevelSet [tid | name level]`	Sets the log level for a task, given by task ID or task name. Where: • tid is the task ID. • name is the task name. • level is the log level in the range 0-7.	N/A
`hwdShow`	Displays the status of the system hardware watchdog timer.	N/A
`uudecode`	Decode data that were encoded with `uuencode`	N/A
`arpPrivLogDisable`	Disable the Arp Warning messages report (when ELAN and TLAN are not isolated).	N/A
`arpPrivLogEnable`	Enable the Arp Warning messages report.	N/A

ums commands : UMS module

The following table lists the UMS module commands in the ums command group that are available only at the PDT access level. These commands are in addition to the OAM access level ums commands listed in Table 33 "OAM ums commands" (page 218)

Table 44
PDT ums commands

Command	Description	Element Manager
`umsSetPolicy`	Assigns the policy for the particular firmware. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`umsSetPolicyUpgradeType`	Set upgrade type for policy.	N/A
`umsSetPolicyRetries`	Sets the number of retries for the policy. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`umsSetPolicyProtocol`	Sets the protocol for the policy. See *IP Line Fundamentals (NN43001-500)* ().	N/A

Table 44
PDT ums commands (cont’d.)

Command	Description	Element Manager
`umsCreatePolicy`	Creates a firmware policy. See *IP Line Fundamentals (NN43001-500)* ().	N/A
`umsDeletePolicy`	Deletes a firmware policy. See *IP Line Fundamentals (NN43001-500)* ().	N/A

Signaling Server Operation, Administration and Maintenance

Contents

This chapter contains information on the following topics:

- “Introduction” (page 231)
- “Configure a maintenance terminal” (page 232)
- “Log on to the Signaling Server” (page 236)
- “Set the Signaling Server maintenance port speed” (page 238)
- “Back up and restore IP configuration” (page 238)
- “Install a hard drive on a Nortel CP PM Signaling Server” (page 240)

Introduction

This section describes various topics related to the operational maintenance of a Signaling Server. These topics include:

- connect and configure a maintenance terminal
- logging on to the Signaling Server from the maintenance terminal
- using the Tools Menu of the Signaling Server Install Tool
- backing up and restoring IP configuration data
- setting the Signaling Server maintenance port speed
- installing a hard drive on a Nortel CP PM Signaling Server

Configure a maintenance terminal

This section contains detailed instructions for configuring the following types of maintenance terminals:

- HP700/32
- VT420
- VT220

A maintenance terminal is required for the installation, configuration and maintenance of a Signaling Server. To connect a maintenance terminal to your Signaling Server, refer to the appropriate section of "Hardware connection" (page 67).

After the maintenance terminal is connected to the Signaling Server, it must be properly configured.

ATTENTION
To avoid data loss, do not configure a maintenance terminal during data transmission.

Use the following procedure to configure a maintenance terminal.

Procedure 30
Configuring a maintenance terminal

Step	Action
1	Turn on the power for the maintenance terminal.
2	Enter setup mode by pressing the `SETUP` key on the top row of the special function keys. A maintenance terminal setup parameters screen appears that contains the existing setup values. The terminal setup parameters screen is specific to the type of maintenance terminal you are using.
3	Change maintenance terminal setup parameters as necessary. Refer to "Maintenance terminal setup parameters" (page 233) for the setup parameters and instructions.
4	To save changes, return to the **General setup** screen, move the cursor to the **Saved** field, and press **Enter**.

--End--

Maintenance terminal setup parameters

This section contains all of the setup parameters necessary to configure each of the supported types of maintenance terminals supported on a Signaling Server.

- HP700/32: see Figure 167 "HP700/32 setup values" (page 234)
- VT420: see Figure 168 "VT420 setup values" (page 235)
- VT220: see Figure 169 "VT220 setup values" (page 236)

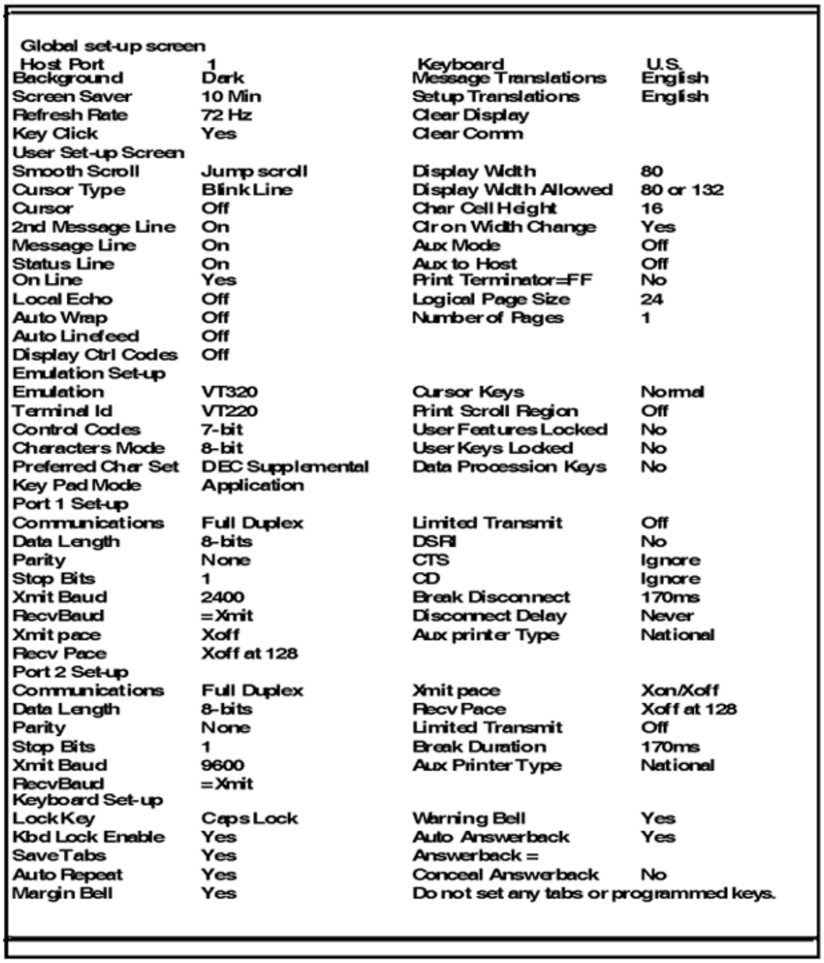
Use the keys in the following table to view and change setup values.

Table 45
SDI key function

Key	Function
Arrow	Move from field to field
Enter	Scroll through possible values or invoke an action (action depends on type of field)
Next Screen	Move to the next setup screen
Prev Screen	Move to the previous setup screen

The following table identifies all set-up values for an HP700/32 maintenance terminal.

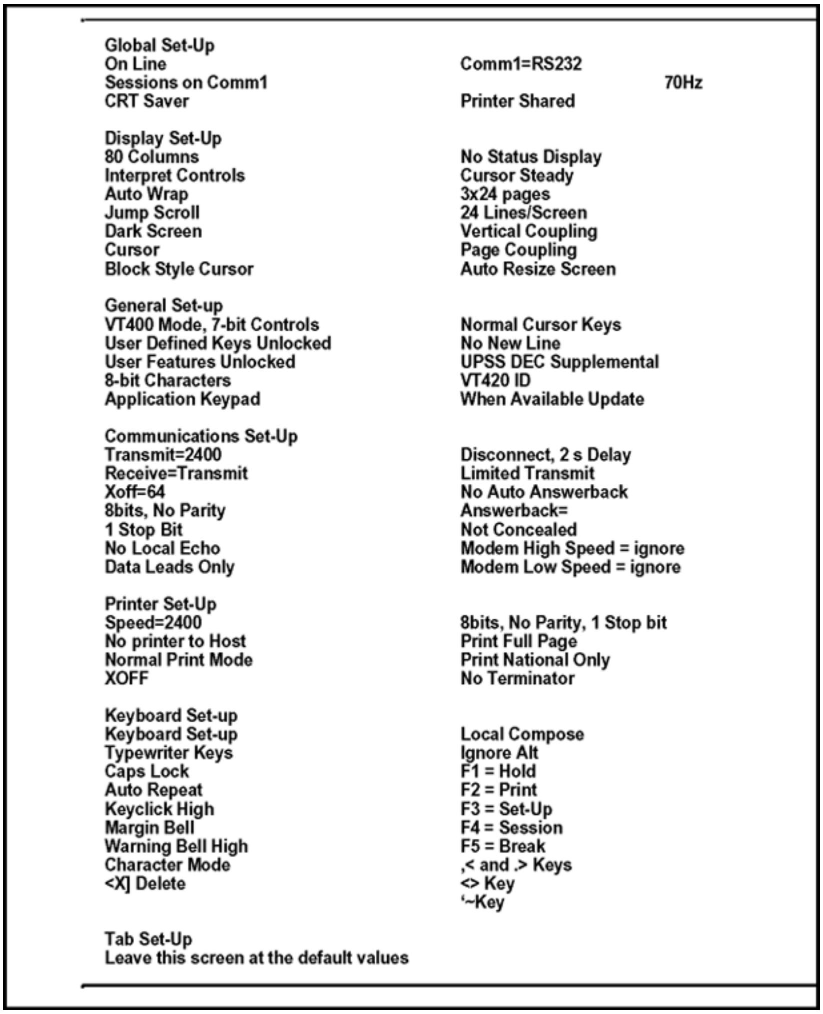
Figure 167
HP700/32 setup values



Global set-up screen			
Host Port	1	Keyboard	U.S.
Background	Dark	Message Translations	English
Screen Saver	10 Min	Setup Translations	English
Refresh Rate	72 Hz	Clear Display	
Key Click	Yes	Clear Comm	
User Set-up Screen			
Smooth Scroll	Jump scroll	Display Width	80
Cursor Type	Blink Line	Display Width Allowed	80 or 132
Cursor	Off	Char Cell Height	16
2nd Message Line	On	Clr on Width Change	Yes
Message Line	On	Aux Mode	Off
Status Line	On	Aux to Host	Off
On Line	Yes	Print Terminator=FF	No
Local Echo	Off	Logical Page Size	24
Auto Wrap	Off	Number of Pages	1
Auto Linefeed	Off		
Display Ctrl Codes	Off		
Emulation Set-up			
Emulation	VT320	Cursor Keys	Normal
Terminal Id	VT220	Print Scroll Region	Off
Control Codes	7-bit	User Features Locked	No
Characters Mode	8-bit	User Keys Locked	No
Preferred Char Set	DEC Supplemental	Data Procession Keys	No
Key Pad Mode	Application		
Port 1 Set-up			
Communications	Full Duplex	Limited Transmit	Off
Data Length	8-bits	DSRI	No
Parity	None	CTS	Ignore
Stop Bits	1	CD	Ignore
Xmit Baud	2400	Break Disconnect	170ms
RecvBaud	=Xmit	Disconnect Delay	Never
Xmit pace	Xoff	Aux printer Type	National
Recv Pace	Xoff at 128		
Port 2 Set-up			
Communications	Full Duplex	Xmit pace	Xon/Xoff
Data Length	8-bits	Recv Pace	Xoff at 128
Parity	None	Limited Transmit	Off
Stop Bits	1	Break Duration	170ms
Xmit Baud	9600	Aux Printer Type	National
RecvBaud	=Xmit		
Keyboard Set-up			
Lock Key	Caps Lock	Warning Bell	Yes
Kbd Lock Enable	Yes	Auto Answerback	Yes
Save Tabs	Yes	Answerback =	
Auto Repeat	Yes	Conceal Answerback	No
Margin Bell	Yes	Do not set any tabs or programmed keys.	

The following table identifies all set-up values for a VT420 maintenance terminal.

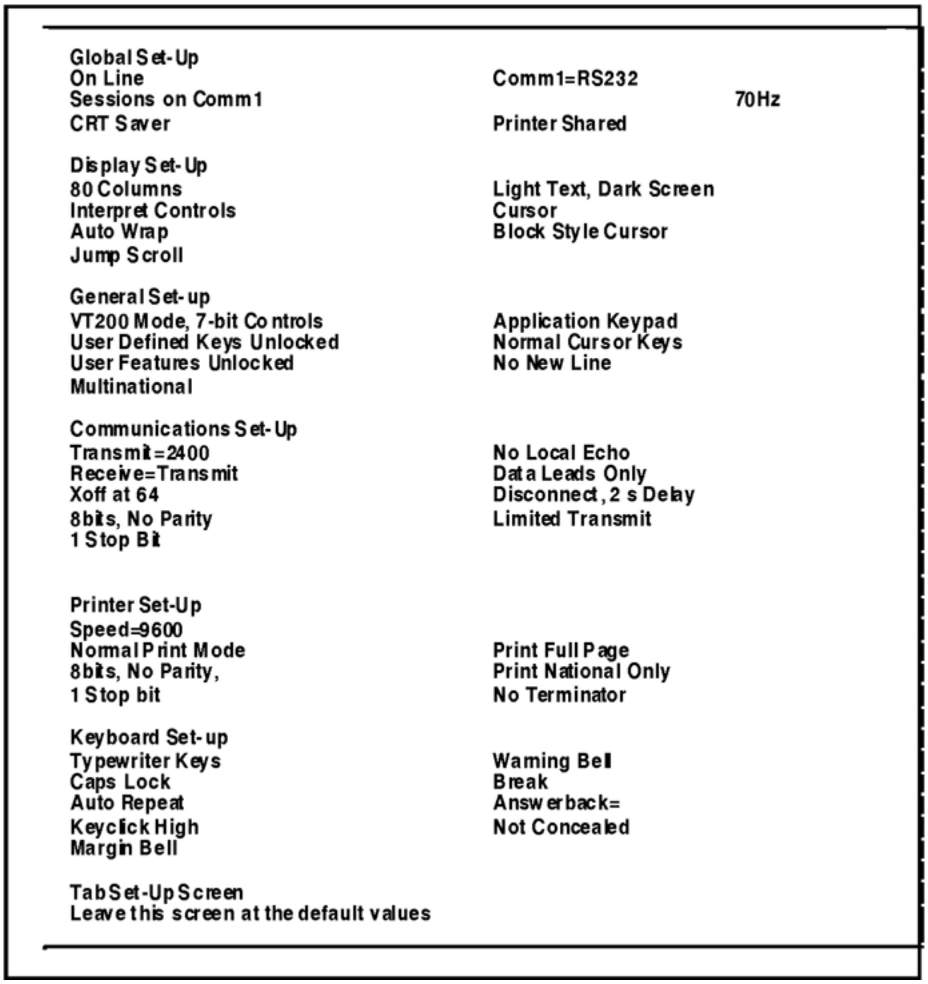
Figure 168
VT420 setup values



```
Global Set-Up
On Line                           Comm1=RS232
Sessions on Comm1                                         70Hz
CRT Saver                         Printer Shared

Display Set-Up
80 Columns                        No Status Display
Interpret Controls                Cursor Steady
Auto Wrap                         3x24 pages
Jump Scroll                       24 Lines/Screen
Dark Screen                       Vertical Coupling
Cursor                            Page Coupling
Block Style Cursor                Auto Resize Screen

General Set-up
VT400 Mode, 7-bit Controls        Normal Cursor Keys
User Defined Keys Unlocked        No New Line
User Features Unlocked            UPSS DEC Supplemental
8-bit Characters                  VT420 ID
Application Keypad                When Available Update

Communications Set-Up
Transmit=2400                     Disconnect, 2 s Delay
Receive=Transmit                  Limited Transmit
Xoff=64                           No Auto Answerback
8bits, No Parity                  Answerback=
1 Stop Bit                        Not Concealed
No Local Echo                     Modem High Speed = ignore
Data Leads Only                   Modem Low Speed = ignore

Printer Set-Up
Speed=2400                        8bits, No Parity, 1 Stop bit
No printer to Host                Print Full Page
Normal Print Mode                 Print National Only
XOFF                              No Terminator

Keyboard Set-up
Keyboard Set-up                   Local Compose
Typewriter Keys                   Ignore Alt
Caps Lock                         F1 = Hold
Auto Repeat                       F2 = Print
Keyclick High                     F3 = Set-Up
Margin Bell                       F4 = Session
Warning Bell High                 F5 = Break
Character Mode                    ,< and .> Keys
<X] Delete                        <> Key
                                  '~Key

Tab Set-Up
Leave this screen at the default values
```

The following table identifies all set-up values for a VT220 maintenance terminal.

Figure 169
VT220 setup values



```
Global Set-Up
On Line                                  Comm1=RS232
Sessions on Comm1                                            70Hz
CRT Saver                                Printer Shared

Display Set-Up
80 Columns                               Light Text, Dark Screen
Interpret Controls                       Cursor
Auto Wrap                                Block Style Cursor
Jump Scroll

General Set-up
VT200 Mode, 7-bit Controls               Application Keypad
User Defined Keys Unlocked               Normal Cursor Keys
User Features Unlocked                   No New Line
Multinational

Communications Set-Up
Transmit=2400                            No Local Echo
Receive=Transmit                         Data Leads Only
Xoff at 64                               Disconnect, 2 s Delay
8 bits, No Parity                        Limited Transmit
1 Stop Bit


Printer Set-Up
Speed=9600
Normal Print Mode                        Print Full Page
8 bits, No Parity,                       Print National Only
1 Stop bit                               No Terminator

Keyboard Set-up
Typewriter Keys                          Warning Bell
Caps Lock                                Break
Auto Repeat                              Answerback=
Keyclick High                            Not Concealed
Margin Bell

Tab Set-Up Screen
Leave this screen at the default values
```

Log on to the Signaling Server

To access the Signaling Server from a maintenance terminal, you must log on to the VxWorksTM shell.

Before you begin, make sure the Signaling Server is properly connected to the maintenance terminal. See “Hardware connection” (page 67) for instructions to connect a maintenance terminal to each type of Signaling Server.

Procedure 31
Logging on to the Signaling Server

Step	Action
1	Make sure the Signaling Server is powered up and connected to the maintenance terminal. The Signaling Server must boot successfully before you can log on.
2	Press `<CR>` to invoke the logon prompt.
3	Enter the logon credentials by performing one of the following tasks:

- If the Signaling Server has connected to the Call Server (the startup messages indicate if the PBX link is up), use the PWD1 logon to access the Signaling Server.
- If the Signaling Server is not connected to the Call Server:
  a. Enter the default Signaling Server CLI logon **`admin`** . The system immediately prompts you to change the default password.
  b. Enter the Signaling Server CLI password.
    - If this Signaling Server is newly installed and you are logging on for the first time, enter the default password **`cseadmin`**.
    - If this is not the first logon to the Signaling Server, enter the appropriate password.

To log off of the Signaling Server, enter exit at the command line.

--End--

Unpack the Virtual Terminal Emulator help files

Help files for the Virtual Terminal Emulator (VTE) are copied to the Signaling Server as compressed files during installation of Signaling Server software. Unpacking the help files is optional. They can be unpacked any time after the Signaling Server software is installed.

ATTENTION
IMPORTANT!
Unpacking the VTE help files takes approximately 20 to 30 minutes. Nortel recommends that you unpack the VTE help files during a service outage.

Refer to *Element Manager: System Administration (NN43001-632)* for more information on Element Manager and the Virtual Terminal Emulator.

Use the following procedure to unpack the Virtual Terminal Emulator help files.

Procedure 32
Unpacking the Virtual Terminal Emulator help files

Step	Action
1	Reboot the Signaling Server.
2	Log on to the Signaling Server CLI. Use Procedure 31 “Logging on to the Signaling Server” (page 236).
3	Enter the following command at the prompt: `unpackVTHelp`

--End--

Set the Signaling Server maintenance port speed

Administrators can change the port speed of the Signaling Server for a maintenance terminal connection.

Procedure 33
Setting the Signaling Server maintenance port speed

Step	Action
1	Log on to the Signaling Server. See Procedure 31 “Logging on to the Signaling Server” (page 236).
2	Enter `stty 9600` to change the port speed to 9600 baud. ***Note:*** Acceptable values for the maintenance port speed are 9600, 19200, 38400 and 115200.
3	Change the port speed on the terminal, terminal emulator, or PC (can require a terminal emulator reset).
4	Press `<CR>` several times until the command line prompt is visible at the new speed.
5	Enter the `exit` command to log off of the CLI.

--End--

Back up and restore IP configuration

This section contains information and procedures for backing up and restoring the IP configuration data of a Signaling Server. The IP configuration data is backed up to, and restored from, the UCM Deployment Manager.

When you migrate from one Signaling Server (source) to another Signaling Server (target), backing up your IP configuration data from the source Signaling Server before you start, saves you the time and effort of having to manually re-enter them during the migration.

Back up the IP configuration

Use the following procedure to back up IP configuration from your Signaling Server to the selected target server from the Deployment Manager.

Procedure 34
Backing up the IP configuration

Step	Action
1	Log on to the UCM Deployment Manager.
2	Select the **Software Deployment** link.
3	On the Deployment Targets window, select the Signaling Server then click the **Backup** button.
4	On the Backup window, select the location where the backup file will be saved: Deployment Server or SFTP Backup Server.
5	Click the **Start Backup** button.
6	After the backup is complete, the following system message appears. `Done copying IP configuration to selected server`

--End--

Restore the IP configuration

Use the following procedure to restore IP configuration from the storage server to the Signaling Server.

Procedure 35
Restoring the IP configuration

Step	Action
1	Log on to the UCM Deployment Manager.
2	Select the **Software Deployment** link.
3	On the Deployment Targets window, select the Signaling Server where you want to restore IP configuration, then click the **Restore** button.
4	On the Restore window, select the location where the backup IP configuration file resides then click the **Start Restore** button.

After the restore is complete, the following system message appears.

```
Done copying IP configuration to disk
```

--End--

Install a hard drive on a Nortel CP PM Signaling Server

This section describes the procedure for installing a hard drive on both models of the Nortel CP PM Signaling Server (NTDW61BAE5 and NTDW66AAE5). A Nortel CP PM Signaling Server Hard Drive kit (NTDW6102E5) ships with the servers, and if required, can also be ordered from Nortel.

The hard drive kit contains a hard drive with a jumper, 4 screws, and installation instructions (document N0120776). You need only a small Phillips screw driver to install the hard drive.

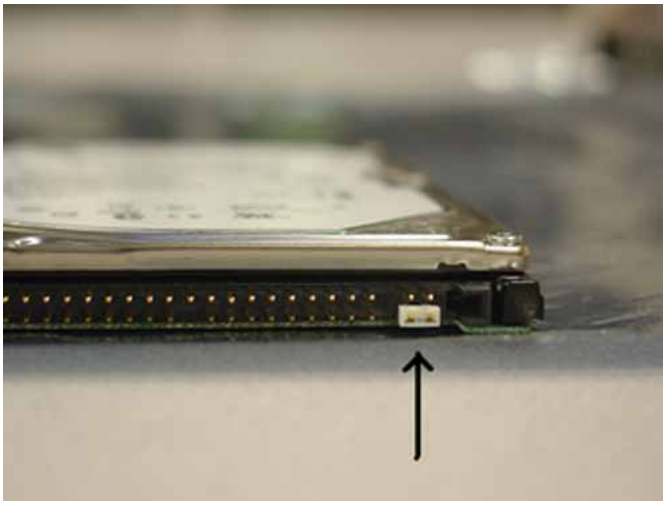
ATTENTION
Observe proper ESD precautions while handling the hard drive and Nortel CP PM server.

Use the following procedure to replace the hard drive on a Nortel CP PM server.

Procedure 36
Replacing the hard drive on a Nortel CP PM Signaling Server

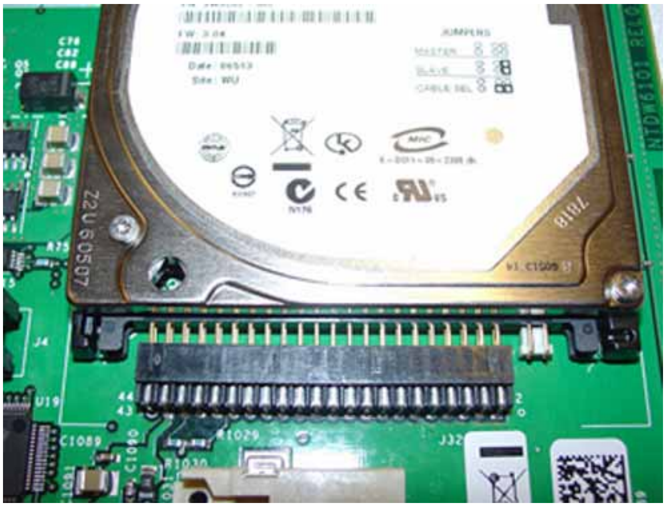
Step	Action
1	Ensure jumper is located in the cable select (CS) position according to the labeling on the hard drive.

Figure 170
CP PM hard drive jumper



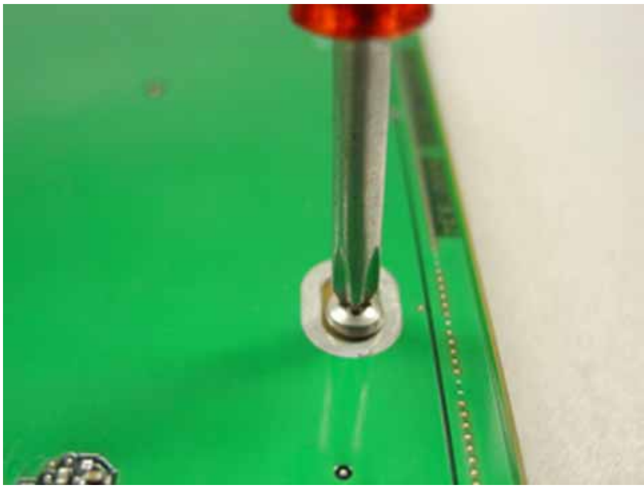
2 Place hard drive on printed circuit board and slide to mate with connector J32.

Figure 171
CP PM hard drive and connector J32



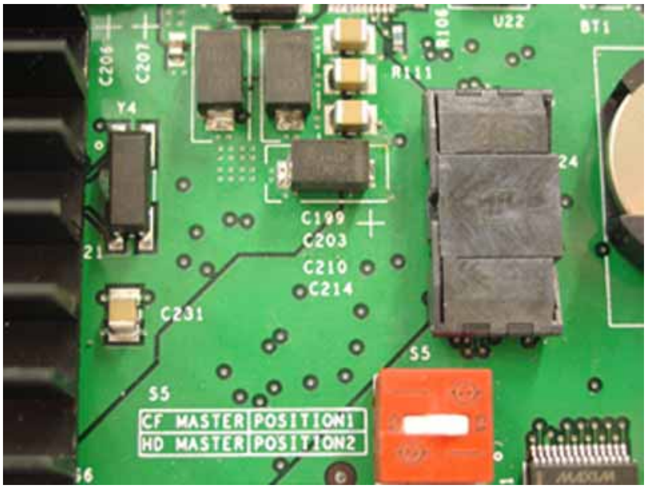
3 Secure hard drive from the bottom side with the included screws.

Figure 172
Securing CP PM hard drive to circuit board



4 Place Dip Switch S5 in position 2 to select HD Master option.

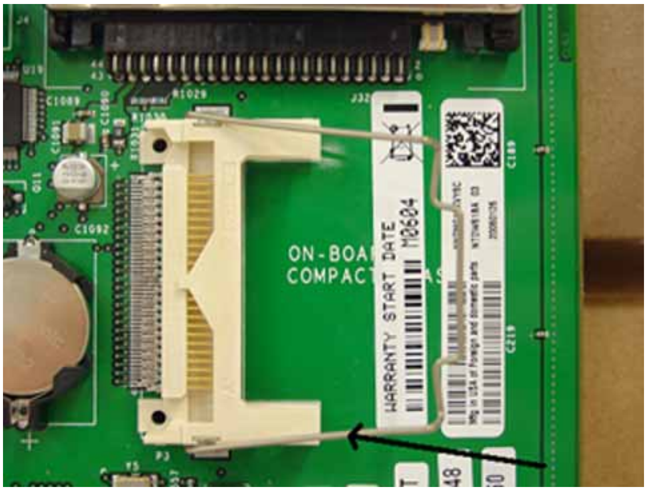
Figure 173
CP PM Signaling Server FMD dip switch


C206
C207
Y4
R106
U22
BT1
R111
24
C199
C203
C210
C214
C231
21
S5
S5
CF MASTER POSITION1
HD MASTER POSITION2

> **ATTENTION**
> A Nortel CP PM circuit card has an on-board switch (S5) for designating the internal hard drive (HD) or internal Compact Flash (CF) drive as the Fixed Media Device (FMD) for the Signaling Server. You must configure the on-board FMD switch (S5) to position 2 to designate the HD as the FMD for the Signaling Server.

5 Remove on-board compact flash retainer clip if populated.

Figure 174
CP PM Signaling Server internal CF card retainer clip


ON-BOARD
COMPACT
WARRANTY START DATE
M0604

--End--

List of terms

ELAN sub-net	Embedded Local Area Network (ELAN) sub-net. This isolated sub-net connects the Signaling Server to other system components for system communication purposes.
H.323	A standard approved by the International Telecommunication Union (ITU) that defines how audiovisual conferencing data is transmitted across networks. In theory, H.323 enables users to participate in the same conference even though they are using different video-conferencing applications. Although most video-conferencing vendors have announced that their products conform to H.323, it is too early to say whether such adherence actually results in inter-operability.
IP	Abbreviation of **Internet Protocol**, pronounced as two separate letters. IP specifies the format of packets, also called datagrams, and the addressing scheme. Most networks combine IP with a higher-level protocol called Transport Control Protocol (TCP), which establishes a virtual connection between a destination and a source. IP by itself is something like the postal system. It enables you to address a package and drop it in the system, but there's no direct link between you and the recipient. TCP/IP, on the other hand, establishes a connection between two hosts so that they can send messages back and forth for a period of time.
SIP	Short for Session Initiation Protocol. SIP is a protocol standard used for establishing, modifying, and terminating conference and telephony sessions in IP networks. A session can be a simple two-way telephone call or it can be a collaborative multi-media conference session. SIP initiates real-time, multimedia sessions

that can integrate voice, data, and video. The protocol’s text-based architecture speeds access to new services with greater flexibility and more scalability.

TLAN subnet	Telephony Local Area Network subnet. This subnet is separated from the rest of the network and connects the Voice Gateway Media Cards, the Signaling Server, and the IP Phones for telephony communication purposes.
TPS	IP Phone Terminal Proxy Server. This server controls the connection of IP Phones. It resides on the Signaling Server with an emergency backup on the Voice Gateway Media Card.

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Nortel Communication Server 1000

Signaling Server Installation and Commissioning

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