Nortel Communication Server 1000

Linux Platform Base and Applications Installation and Commissioning

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New in this Release

The following sections detail what is new in the *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315) for Nortel Communication Server 1000 Release 7.0.

- "Features" (page 9)
- "Other changes" (page 10)

Features

See the following sections for information about feature changes.

Common Processor Media Gateway (CP MG) card

The Common Processor Media Gateway (CP MG) card is introduced. The hardware for the CP MG card consists of integrating a Common Processor, a Gateway Controller, and non-removable Digital Signal Processor (DSP) resources into a single card for use in a Communication Server 1000E system.

The CP MG card is available in two versions:

- NTDW56BAE6 - CP MG card with 32 DSP ports
- NTDW59BAE6 - CP MG card with 128 DSP

Common Processor Dual Core (CP DC) card

The Common Processor Dual Core (CP DC) card is introduced. The CP DC is a Server card for use in a Communication Server 1000E system. The CP DC card contains a dual core AMD processor and upgraded components which can provide improvements in processing power and speed over existing Server cards.

The CP DC card is available in two versions:

- NTDW53AAE6 - single slot metal faceplate CP DC card
- NTDW54AAE6 - double slot metal faceplate CP DC card

The CP DC card requires the Linux Base Operating System, and supports Co-resident Call Server and Signaling Server, or stand-alone Signaling Server configurations. The CP DC card does not support the standard or high availability Call Server configuration.

128-port DSP daughterboard

The 128-port Digital Signal Processor (DSP) daughterboard (DB-128) for the Media Gateway Controller (MGC) card is introduced. An MGC card populated with one NTDW78 DB-128 can provide 128 DSP ports.

The CS 1000E Peripheral Rate Interface (PRI) Media Gateway (PRI Gateway) can support a MGC card populated with two DB-128 for a maximum of 256 DSP ports. The Extended Media Gateway PRI (MGP) package 418 is required to support MGC cards populated with two DB-96 or two DB-128.

Deployment Manager

Deployment Manager has been enhanced for Release 7.0 to provide a simplified and unified solution that enables network installation of the Linux Base on target servers prior to joining the domain. Software packages do not need to be explicitly chosen. Your network configuration determines what is required for deployment to each target server.

After installation and configuration is complete:

- Linux Base is installed
- Base applications are installed during the first restart of the computer
- UCM is deployed and security configuration is complete
- The application combination is determined and deployed
- All applications are active

For more information about using Deployment Manager, see “Deployment Manager” (page 40).

Other changes

See the following section for information about changes that are not feature-related.

Revision history

June 2010	Standard 04.02. This document is up-issued to support Communication Server 1000 Release 7.0. Changes made to the media types for adding a software load and NFS prerequisites.
June 2010	Standard 04.01. This document is up-issued to support Communication Server 1000 Release 7.0.
July 2009	Standard 03.08. This document is up-issued to include revised information for "Disaster recovery" (page 187).
July 2009	Standard 03.07. This document is up-issued to support Communication Server 1000 Release 6.0.
June 2009	Standard 03.06. This document is up-issued to support Communication Server 1000 Release 6.0.
June 2009	Standard 03.05. This document is up-issued to support Communication Server 1000 Release 6.0.
May 2009	Standard 03.04. This document is up-issued to support Communication Server 1000 Release 6.0.
May 2009	Standard 03.03. This document is up-issued to support Communication Server 1000 Release 6.0.
May 2009	Standard 03.02. This document is up-issued to support Communication Server 1000 Release 6.0.
April 2009	Standard 03.01. This document is up-issued to support Communication Server 1000 Release 6.0.
May 2008	Standard 02.08. This document is up-issued to update information in the Upgrading Nortel Linux base procedures.
April 2008	Standard 02.07. This document is up-issued to add information to the procedure Installing the Primary Security Service and Network Routing Service and added UCM Upgrade Procedures 5.00 GA to 5.50.12 to Task Flow chapter.
April 2008	Standard 02.06. This document is up-issued to add lab trial information.
February 2008	Standard 02.05. This document is up-issued to include references to host configuration scripts found in *Unified Communications Management Common Services Fundamentals* (NN43001-116).
February 2008	Standard 02.04. This document is up-issued to support changes in technical content, including the addition of task flow diagrams for the installation and upgrade of the Linux base and applications.

January 15, 2008	Standard 02.03. This document is up-issued for changes in technical content. New screen captures have been included and an installation and upgrade task flow section has been added.
December 2007	Standard 02.02. This document is up-issued for changes in technical content.
December 2007	Standard 02.01. This document is up-issued to support Nortel Communication Server 1000 Release 5.5. This document contains new information on CLI commands, an upgrade procedure, firewall ports, and alarms. Screen captures for the Linux base installation procedure are updated.
November 2007	Standard 01.04. This document is up-issued for changes in technical content.
September 2007	Standard 01.03. This document is up-issued to address changes in technical content for Release 5.0.
June 2007	Standard 01.02. This document is up-issued to remove the Nortel Networks Confidential statement.
May 2007	Standard 01.01. This document is issued to support Nortel Communication Server 1000 Release 5.0.

How to get help

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

Getting help from the Nortel Web site

The best way to get technical support for Nortel products is from the Nortel Technical Support Web site: www.nortel.com/support

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.

Introduction

This document is intended to guide you through the various stages of planning your network and upgrading your servers using Deployment Manager on the Primary security server (Deployment Server) for an end-to-end installation and configuration of Linux Base and applications to your target servers. The preconfiguration capability of Deployment Manager allows you to stage the deployment (or upgrade) of your telephony solution and perform the actual installation and deployment to the target servers on your own time line. Deployment Manager can also enable remote Linux Base installation and upgrades for Release 6.0 systems, thereby reducing the need for physical access to your target servers.

The following are the various stages.

- Planning process: identify the network configuration requirements of your target servers
- Identify your Primary security server: perform a fresh Linux Base installation or upgrade
- Preconfiguration process: stage your servers for a logical deployment or upgrade
- Identify non-Release 6.0 systems for a physical upgrade
- Committing your servers: your servers have now been upgraded with the latest Linux Base and applications are deployed.

Navigation

- “Fundamentals” (page 23)
- “New Linux Base installation” (page 49)
- “New CS 1000 system Linux installation and commissioning” (page 69)
- “Upgrade Linux Base” (page 85)
- “Upgrade CS 1000 system Linux installation ” (page 91)

- “Deployment Manager” (page 101)
- “Base Manager” (page 149)
- “Disaster recovery” (page 187)
- “Hardware platforms” (page 195)
- “Installation times” (page 259)
- “Media Application Server ” (page 261)
- “Nortel Linux Base CLI commands” (page 263)
- “Network configuration for Secure File Transfer Protocol (SFTP) data backup” (page 271)
- “Troubleshooting” (page 273)
- “Passthrough end user license agreement” (page 285)

Conventions

In this document, the term *system* refers generically to the following:

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

In this document, the term *Server* refers generically to the following hardware platforms:

- Call Processor Pentium IV (CP PIV) card
- Common Processor Pentium Mobile (CP PM) card
- Common Processor Media Gateway (CP MG) card
- Common Processor Dual Core (CP DC) card
- Commercial off-the-shelf (COTS) servers
  - IBM x360m server (COTS1)
  - HP DL320 G4 server (COTS1)
  - IBM x3350 server (COTS2)
  - Dell R300 server (COTS2)

  In this document, the term *COTS* refers generically to all COTS servers. The term COTS1 or COTS2 refers to the specific servers in the previous list.

In this document, the term *Media Controller* refers generically to the following cards:

- Media Gateway Controller (MGC) card (NTDW60 and NTDW98)
- Media Gateway Extended Peripheral Equipment Controller (MG XPEC) card (NTDW20)
- Common Processor Media Gateway (CP MG) card (NTDW56 and NTDW59)

In this document, the term *Media Gateway* refers generically to the following cards:

- Option 11C Mini Chassis (NTDK91) and Expander chassis (NTDK92) - legacy hardware
- Option 11C Cabinet (NTAK11) - legacy hardware
- MG 1000E Chassis (NTDU14) and Expander chassis (NTDU15)
- MG 1010 Chassis (NTC310)
- IPE module (NT8D37) with MG XPEC card (NTDW20)

Supported hardware platforms

The following table shows the supported roles for common hardware platforms.

Table 1
Hardware platform supported roles

Hardware Platform	VxWorks Server	Linux Server	Co-res CS and SS	Gateway Controller
CP PIV	yes (see Note 2.)	no	no	no
CP PM	yes	yes	yes	no
CP DC	no	yes	yes	no
CP MG	no	no (see Note 1.)	yes (see Note 1.)	yes (see Note 1.)
MGC	no	no	no	yes
MG XPEC	no	no	no	yes
COTS1	no	yes	no	no
COTS2	no	yes	yes	no

Note 1: The CP MG card functions as the Co-res CS and SS and the Gateway Controller while occupying slot 0 in a Media Gateway.

Note 2: HS supports the CP PIV for only the VxWorks Call Servers for HA groups.

Linux Platform Base and Applications can run on the following hardware platforms:

- CP PM card
- CP DC card
- CP MG card
- COTS Servers
  - IBM x306m
  - HP DL320 G4
  - IBM x3350
  - Dell R300

The Communication Server 1000 (CS 1000) Linux Base system provides a Linux server platform for applications on a Server. The platform supports Session Initiation Protocol Network Redirect Server (SIP NRS), Unified Communications Management (UCM), traditional Signaling Server applications, SIP Line Gateway Applications, and deployment of the Co-resident Call Server and Signaling Server applications.

Call Server hardware platforms that support the Communication Server 1000E High Availability configuration in Release 6.0 are supported in the Communication Server 1000 High Scalability configuration. This includes the CP PM for the Call Server software running under the VxWorks operating system and the CP PM and COTS servers that support the Signaling Server applications, including the NRS.

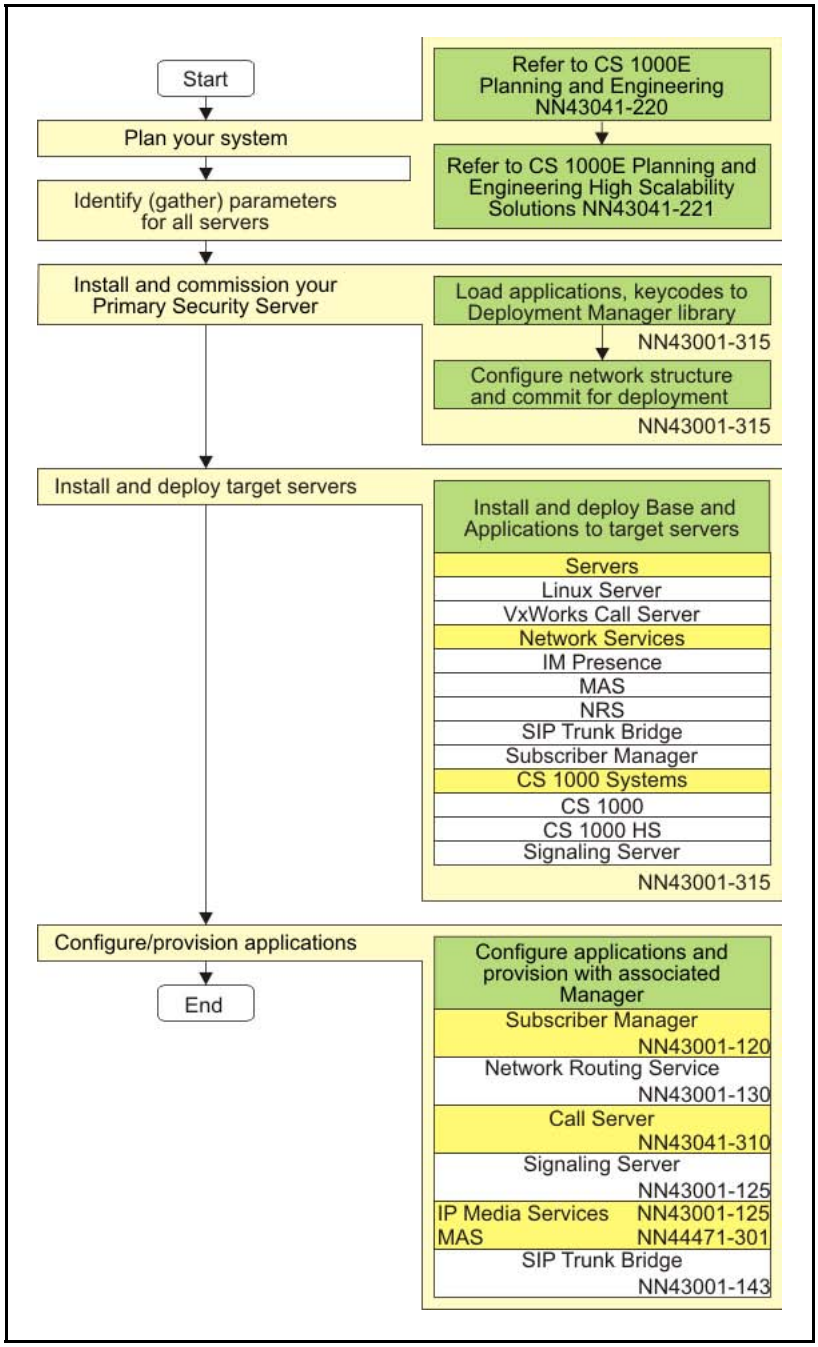
Linux Base applications installation and commissioning task flow

The following task flow provides a high-level task flow for the installation and commissioning of Linux Base and applications on a Server. The task flow depicts the recommended sequence of events and provides a reference to the relevant technical document for each event.

Each box in the task flow represents a stage in the Linux Base installation and commissioning process. The stages are as follows:

- Plan your system
- Identify (gather) parameters for all Servers
- Install and commission the Primary security server (Deployment Server)
- Install and deploy target servers
- Configure and provision applications (for example, Subscriber Manager and SIP Trunk Bridge Manager)

Figure 1
High-level task flow



The following technical documents are referenced in the preceding task flow diagram:

- *Communication Server 1000E Planning and Engineering* (NN43041-220)
- *Communication Server 1000E High Scalability Planning and Engineering* (NN43041-221)
- *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315)
- *Subscriber Manager Fundamentals* (NN43001-120)
- *Signaling Server IP Line Applications Fundamentals* (NN43001-125)
- *Network Routing Service Fundamentals* (NN43001-130)
- *Media Application Server Commissioning* (NN44471-301)
- *SIP Trunk Bridge Fundamentals* (NN43001-143)
- *Element Manager System Reference - Administration* (NN43001-632)
- *Security Management Fundamentals* (NN43001-604)
- *SIP Trunk Bridge Fundamentals* (NN43001-143)
- *Communication Server 1000E Installation and Commissioning* (NN43041-310)

MAS technical documentation

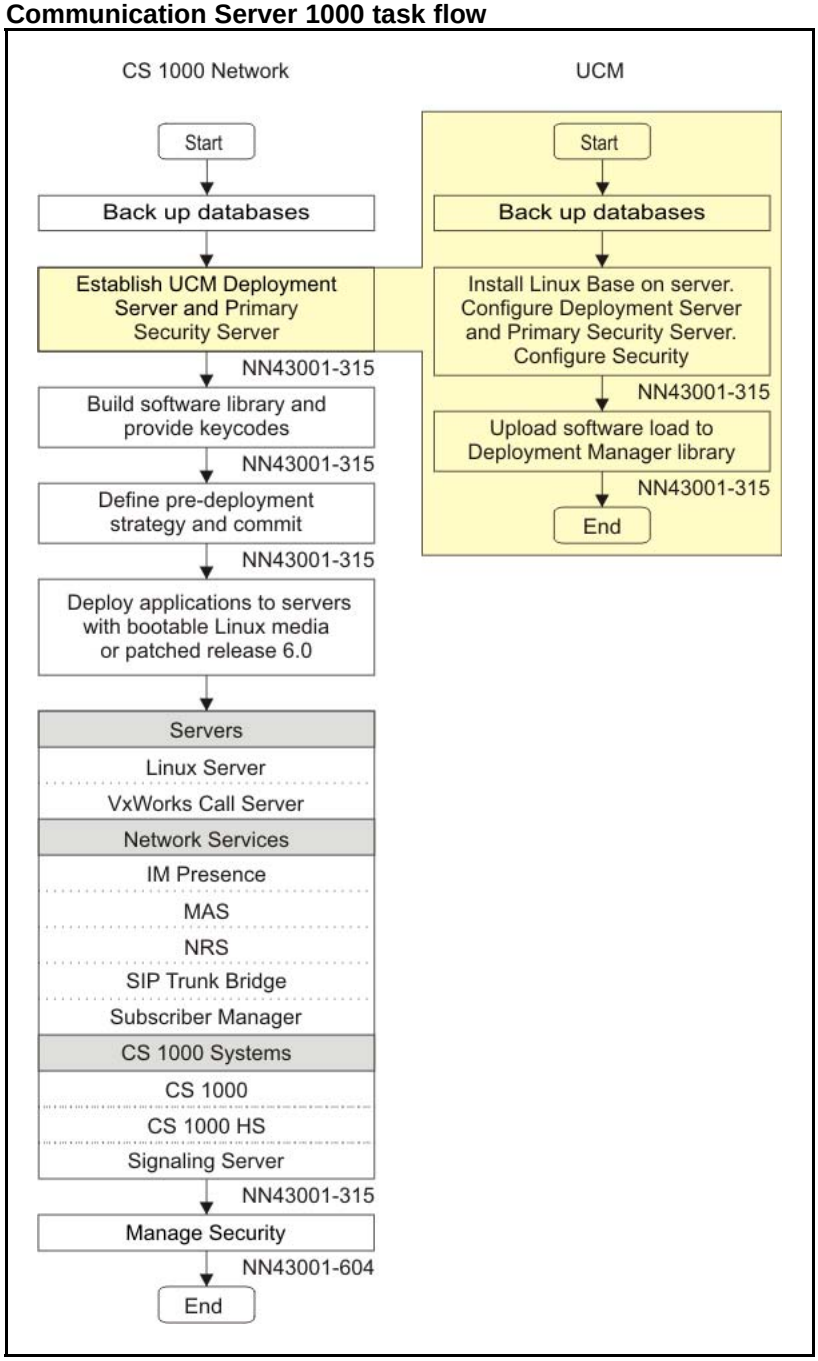
The following is a list of technical documents for Media Application Server (MAS):

- *Media Application Server Commissioning* (NN44471-301)
- *Media Application Server Upgrades and Patches* (NN44471-400)
- *Media Application Server Administration and Security* (NN44471-600)
- *Media Application Server Administration Application Management* (NN44471-601)
- *Media Application Server Fault Management* (NN44471-700)
- *Media Application Server VoiceXML and CCXML Application Programming* (NN44471-501)

Communication Server 1000 task flow

The following figure provides a high-level task flow for the installation or upgrade of a Communication Server 1000 system. The task flow indicates the recommended sequence of events to follow when configuring a system and provides the technical document number that contains the detailed procedures required for the task.

Figure 2
Communication Server 1000 task flow



Note: For the purposes of this diagram, Linux patching is considered to be part of the Configure Call Server box in the CS 1000 task flow. For more information about Linux patching, see *Patching Fundamentals* (NN43001-407)

Migration path

There are two supported migration paths.

- Release 5.0 or 5.5 to Release 7.0
- Release 6.0 to Release 7.0

Release 5.0 or 5.5 to Release 7.0

The flow to migrate from Release 5.0 or 5.5 to Release 7.0 requires the following high level steps:

- Backup existing customer data, for example, NRS
- Perform a new CS 1000 system Linux installation
- Restore the customer data for the corresponding Management systems, for example, NRSM for NRS

There is no change for the VxWorks Call Servers.

Release 6.0 to Release 7.0

The flow to migrate from Release 6.0 to Release 7.0 requires the following high level steps:

1. Patch all Release 6.0 targets to the latest Release 6.0 SP (the latest patch contains the Linux Base Release 6.0 to Release 7.0 migration patch.
2. Backup the Release 6.0 data, for example, NRS
3. Upgrade the Primary Security server to Release 7.0
4. Patch the Release 7.0 Primary Security server to the latest Release 7.0 SP
5. Populate the Release 7.0 Deployment View. For more information, see “Deployment View” (page 41).
6. Run **System Upgrade** from Deployment Manager to automatically upgrade Release 6.0 Linux Servers (Primary Server is not included as it is already upgraded).

Fundamentals

This chapter provides an overview about basic information and concepts necessary to successfully install and configure the Linux Base.

Navigation

- “Linux platform overview” (page 23)
- “UCM overview” (page 34)
- “Deployment Manager” (page 40)
- “Software Loads” (page 43)
- “Supported configurations ” (page 43)
- “Backup and restore application data” (page 45)
- “6.0 Deployment Targets” (page 47)
- “System Upgrade” (page 47)
- “NFS/system upgrade versus a local installation” (page 47)
- “Element Manager” (page 47)

Linux platform overview

This section provides an overview about basic information and concepts necessary to successfully install and configure the Linux Base.

Linux Base key features

The following are the Linux Base features:

- Linux operating system and distribution
- Firewall
- Software reliability
- Linux security hardening
- Patching
- User accounts and access control

- Software installation and delivery
- System upgrades
- Debugging
- Logging
- Disaster recovery
- Network Time Protocol (NTP)

Linux Operating System and Distribution

The selected distribution is Red Hat Linux 5. This distribution is built on a 2.6.18 kernel, and supports many Open Source Development Lab (OSDL) Carrier Grade Linux (CGL) features.

Red Hat Linux 5 (update 1) supports Linux kernel version 2.6.18 and the following applications:

- Unified Communications Management (UCM)
- Nortel Simple Network Management Protocol (SNMP)
- Deployment Manager (DM)
- Signaling Server (SS)
- Network Routing Service (NRS)
- Call Server (CS)
- Session Initiation Protocol Line (SIPL)
- Element Manager (EM)
- Subscriber Manager (SubM)

Co-resident Call Server and Signaling Server

The Nortel Communication Server 1000 (CS 1000) Linux Base Co-resident Call Server and Signaling Server (Co-res CS and SS) can run the Call Server software, the Signaling Server software, and the System Management software on the same hardware platform. The Co-res CS and SS can run on various hardware platforms. For more information, see “Supported hardware platforms” (page 17).

The Signaling Server software on the Co-res CS and SS refers to a suite of CS 1000 software applications which includes:

- Line Telephony Proxy Server (LTPS)
- Virtual Trunk (VTRK) includes H.323 Gateway or SIP Gateway

- NRS includes SIP Proxy Server (SPS), SIP Redirect Server (SRS), H.323 Gatekeeper, Network Connect Server (NCS), Network Routing Service Manager
- Personal Directory (PD) includes RL, CL, and Unicode Name Directory
- UCM Common Services
  - Security Server
  - Element Manager (EM), including Cluster Manager/IP Telephony node
  - Deployment Manager
  - Base Manager
  - Patching Manager
  - Subscriber Manager
  - SIP Line

You need not deploy all the preceding software applications on the Server. For example, you can install and configure a Co-res CS and SS to run only the Call Server, LTPS, VTRK, UCM Security Server, and EM software. However, the Co-res CS and SS must have the Call Server and at least one Signaling Server application installed. A stand alone Call Server is not supported on the Linux based Servers.

Note: A Server running Signaling Server and/or UCM applications without a Call Server is not referred to as a Co-res CS and SS.

Upgrade paths

The following upgrade paths are supported for Communication Server 1000 systems:

- CS 1000 Release 6.0 or earlier CP PM based Communication Server 1000E with Standard Availability (SA) to a Communication Server 1000 Release 7.0 Co-resident Call Server and Signaling Server
- CS 1000 Release 6.0 or earlier Communication Server 1000E Signaling Server to Communication Server 1000 Release 7.0 Co-resident Call Server and Signaling Server
- Option 11C, CS 1000M, or CS 1000S Call Server to Communication Server 1000 Release 7.0 Co-resident Call Server and Signaling Server
- Option 11C, CS 1000M, or CS 1000S Call Server to Communication Server 1000 Release 7.0 Co-resident Call Server and Signaling Server
- Option 11C Call Server to Communication Server 1000 Release 7.0 CS 1000E TDM system.

Note 1: The minimum CS 1000 Release for Small System migration to a Coresident Call Server and Signaling Server is Release 23.10

Note 2: If you upgrade from a non-CP PM based Communication Server 1000E Call Server, you must replace your old Call Server hardware with a supported Server and upgrade the software.

For more information about the Nortel CS 1000 Co-res CS and SS, see *Co-resident Call Server and Signaling Server Fundamentals* (NN43001-509).

Security server configuration

A Linux Base server can be assigned one of three security roles: Primary, Backup, or Member.

A network requires one primary security server. The backup security service is optional. One backup security server and one or more member servers can exist for each UCM security domain.

The primary security server must be configured; it provides basic security features such as user administration including password changes, the ability to configure different authorization levels, and the enforcement of security policies.

The backup security server is an optional server that you can configure to perform authentication and authorization when the primary security server is unavailable.

For a more details about UCM configuration of primary, backup, and member servers, see *Unified Communications Management Common Services Fundamentals* (NN43001-116). For more information about security management, see *Security Management Fundamentals* (NN43001-604).

Network and firewall

All applications operate behind a network firewall. The firewall starts on system boot, which invokes the Linux iptables facility to load the firewall configuration.

Each Linux server supports at least two Ethernet ports; one for ELAN subnet connectivity and another for TLAN subnet connectivity. By convention, the TLAN is open to the network, while the ELAN is reachable only within the subnet. The Linux application selects the Ethernet port to use. The firewall protects both ports. For a list of Linux Base open firewall ports see Table 2 "Linux Base open firewall ports" (page 27). For a definition of ELAN and TLAN, see “Network configuration” (page 271).

Use the command line interface (CLI) command **basefirewallconfig** to configure the network firewall. For a list of Nortel Linux Base CLI commands see “Nortel Linux Base CLI commands” (page 263).

Table 2
Linux Base open firewall ports

Protocol	Port number or range
TCP	22
UDP	22
UDP	53 (to configured DNS servers only)
UDP	123
UDP	500
UDP	514
TCP	2100
UDP	33434—33524
RPC	111

Note: The port numbers in Table 2 "Linux Base open firewall ports" (page 27) apply only to the Linux Base. Linux applications can require different ports. For a list of ports opened for the application, see the appropriate application document.

Syslog and log rotation

Syslog

Syslog provides application logging. The log files are stored in the /var/log/nortel directory. The log file partition is 10 percent of your hard drive disk space. To increase the performance, the SYNC option is turned off for all application logs. Log files must be readable and writable when logged on using the nortel account.

Log rotation

The log rotation mechanism is enabled for all application log files. Use log rotation to ease the administration of systems that generate large numbers of log files and provide automatic rotation, compression, removal, and mailing of log files. The log files can be configured for rotation on a daily, weekly, or monthly basis or when the log file reaches a predefined limit. For more information, see the logrotate MAN pages on your Linux Base.

Software reliability

Software monitoring

Nortel uses a third-party application package to monitor the important daemon services automatically initiated at startup. If a malfunction occurs, you can see actions such as, alert, start, stop, and restart.

The following system parameters are monitored: memory, CPU, and device space usage. If a parameter exceeds a warning threshold a message appears and an SNMP trap is generated. Table 3 "Warning and Critical thresholds" (page 28) shows the warning and critical thresholds.

Table 3
Warning and Critical thresholds

System Resource	Warning Clear	Warning Set	Critical Clear	Critical Set
Memory usage	—	—	90%	95%
CPU usage	—	—	90%	95%
/boot (/dev/sda1) Size: 100 MB. Critical.	70%	75%	80%	85%
admin (/dev/sda2) Size: 4 GB.	80%	85%	85%	90%
/ (/dev/sda6) Size: 4 GB.	80%	85%	85%	90%
/opt (/dev/sda7) Size: 8 GB. Not critical.	80%	85%	90%	95%
/home (/dev/sda8) Size: 4 GB. Not critical.	80%	85%	90%	95%
/tmp (/dev/sda9) Size: 20 GB. Critical.	80%	85%	85%	90%
/var (/dev/sda10) Size: 30 GB. Critical.	80%	85%	85%	90%

Figure 3 "Critical Set alarm example" (page 28)shows an example of a Critical Set alarm. Figure 4 "Critical Clear alarm example" (page 29)shows an example of a Critical Clear alarm message.

Note: If critical alarms persist, contact your Nortel technical support.

Figure 3
Critical Set alarm example

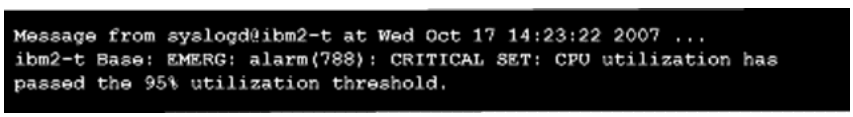
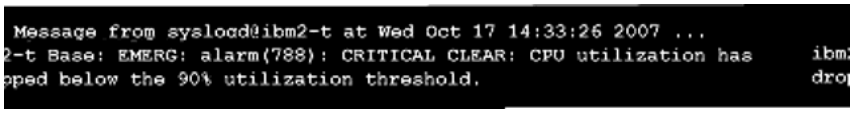


Figure 4
Critical Clear alarm example



Hardware watchdog

Servers running Linux Base offer a hardware watchdog. The watchdog is a hardware component of each server which includes a count-down timer that is programmed during the server startup. If the timer reaches zero, the watchdog unconditionally restarts the server (reboots the Linux operating system). The watchdog timer duration is five minutes. A program running as part of the Linux Base continually resets the timer on a periodic basis. The software program and hardware timer work together to effect a systematic recovery of the server in the unlikely event it enters a halted or suspended state (also known as: hung, frozen, or dead). In this case, the software component also halts, and ceases to reset the hardware timer, resulting in an inevitable restart of the server. A server halt can only be the result of an anomalous hardware or software event.

Linux security hardening

Linux security hardening is divided into two categories: basic hardening and enhanced hardening. During the Linux Base installation, the generic Linux Base components are installed, then the basic and enhanced hardening items are applied. The enhanced hardening items are set to default values when they are applied during the installation process.

Basic hardening

Basic Linux security hardening includes all hardening items that do not affect the performance of Nortel applications. Basic hardening items are on by default and they are not configurable.

Enhanced hardening

Enhanced hardening items include all hardening items that can affect the performance of Nortel applications, or hardening items that require configuration. Enhanced hardening items that do not affect Nortel applications performance are on by default, enhanced hardening items that affect performance are turned off by default.

For details about Nortel Linux security hardening, see *Security Management Fundamentals* (NN43001-604).

Patching

Nortel Linux Base uses Patching Manager to perform patching tasks. You can use Patching Manager on the primary security server to remotely deploy patches from a central location to other Linux servers in the same security domain using the Central Patching Manager. You can also install patches locally. You can access Local patching from the Base Manager of each element, using the Local Patching Manager.

For more information about Nortel Linux patching, see *Patching Fundamentals* (NN43001-407).

Centralized authentication

UCM provides a centralized, GUI-based interface for individual account administration for the CS 1000 network. When a user logs on to a Linux server CLI they receive a prompt for user name and password. First, the user name and password are authenticated locally. If authentication fails, the user name and password is encrypted and sent to the centralized UCM security server through the RADIUS protocol for verification. UCM acts as a RADIUS server to provide authentication for RADIUS clients. If the user is defined in the UCM database then access is granted to the proper Linux shell with the roles defined in the UCM database. For more information about UCM role creation, see *Unified Communications Management Common Services Fundamentals* (NN43001-116).

User accounts and access control

User accounts and access control methods are managed by native Linux user account management (root and nortel) and tools such as RADIUS and PAM for the UCM managed accounts.

Linux Base includes the following accounts:

- root (as Linux default)

  Note 1: Nortel does not recommend logging on using the root account unless you are explicitly directed to do so. All base maintenance and debug actions must be performed using the nortel account.

  Note 2: You can log on directly as root through the COM1 console, or through a keyboard and video monitor (KVM).

CAUTION
Do not change your KVM terminal. If you switch the KVM terminal, logon can fail if you log on directly as root.

ATTENTION
If you log on to the COM1 port, make sure you turn off **Caps Lock** before you log on.

- nortel: The user account for the basic Linux Base operations as well as for base manager. For a list of CLI commands that can be invoked by nortel, see "Nortel Linux Base CLI commands" (page 263).
- System UCM accounts: These accounts are governed by UCM policies; for information about UCM password policies, see *Unified Communications Management Common Services Fundamentals* (NN43001-116).

  Note 1: If you log in and your account remains inactive for 15 minutes, you are automatically logged out.

  Note 2: System Linux Base accounts that make three successive incorrect logon attempts are locked for one hour. System UCM accounts making successive incorrect logins are locked based on the policy settings defined in UCM.

Passwords

The following regulations govern the use of passwords:

The password for the ROOT account expires after three months, but the Root account does not expire.

Note: A warning that the password will expire is given by the system when logging into the server during last seven days before it expires. After the password for the account has expired, the password must be changed the next time the account is used to log into the server. The password for the NORTEL account never expires, but it is still recommended that the password be changed at a regular schedule, based on your security requirements.

- A new password must differ from the previous three passwords.

UCM password rules for Admin are different than the System UCM accounts. For more information, see *Unified Communications Management Common Services Fundamentals* (NN43001-116).

Password creation guidelines

Passwords must meet the following criteria:

- Passwords must contain both uppercase letters, lowercase letters, numeric characters, and special characters.
- In addition to letters, passwords must use digits (0 to 9) and special characters (**@#$%^*()_+|~-=\`{}[]:";'&<>?,./!**).
- The password must contain at least eight alphanumeric characters.
- The password cannot be a word in the English language as defined in the Linux Pluggable Authentication Module (PAM) module.
- Passwords cannot use discernible character patterns such as abcdef or 123123.
- Passwords cannot use the backward spelling of a word.
- Passwords cannot be an English language word (as defined in the Linux PAM module) preceded or followed by a digit. For example, 1secret or secret1.
- You can change your password by using the **passwd** CLI command.

For more information about changing lost or forgotten passwords, see "Changing Linux Base passwords" (page 191).

SNMP

Linux Base supports standard server type Management Information Base (MIB) II MIBs. For information about the configuration of SNMP on Linux Base, see *Communication Server 1000 Fault Management — SNMP* (NN43001-719).

Disaster recovery

ATTENTION
If you are attempting to recover a server that has been upgraded from Communication Server 1000 Release 6.0 and does not have the latest backup data (either USB or SFTP), perform a backup data restore during the Linux Base installation. Performing a restore ensures a graceful reregistration to the UCM Security Domain and UCM Deployment Manager. For more information, see "Performing disaster recovery for Nortel Linux Base " (page 187).

Hardware faults can occur that require disaster recovery. Recovery occurs in two steps. First, restore the Linux Base (including operating system and Base applications), and then restore the Nortel applications.

A file backup and restore option supports the base disaster recovery.

During a system backup, information for the following applications (if installed) is backed up and is restorable when the applications are reinstalled:

Note: The list of backed up Base and Nortel applications is comprised of applications successfully installed prior to the backup. This list contains common applications; your installation can contain applications not listed here.

- Base configuration data
- UCM

  UCM backs up the following data:

  — Data pertaining to Element Registry

  — Certificate Authority (if the server is the primary UCM server); certificates and jboss keystore.

  — User and Emergency accounts. If Subscriber Manager is installed, subscriber accounts are also backed up.

  — Configuration files

  — SSH keys
- SNMP
- DM
- SS
- NRS
- CS

  — Data from the last EDD is backed up.
- SIPL
- EM
- SubM
- Intrasystem Signaling Security Solution (ISSS)

Disaster recovery does not back up Nortel logs; however, UCM backs up security logs.

Application-configured system data

You can configure values for routes using “Adding a route entry” (page 164). You can add or delete host records using “DNS and Hosts” (page 159), and firewall rules using the CLI commands **`routeconfig`**,

hostconfig, and **basefirewallconfig**. These values are application-configured system data. Application-configured system data is backed up as part of the system data backup.

For more information about disaster recovery prerequisites and procedures, see “Disaster recovery” (page 187).

UCM overview

The following section contains an overview and references about Unified Communications Management (UCM) security configuration.

UCM overview

UCM is a collection of system management tools. UCM provides a consistent methodology and interface to perform system management tasks. System management tools are Web-based system management solutions supported by the UCM framework.

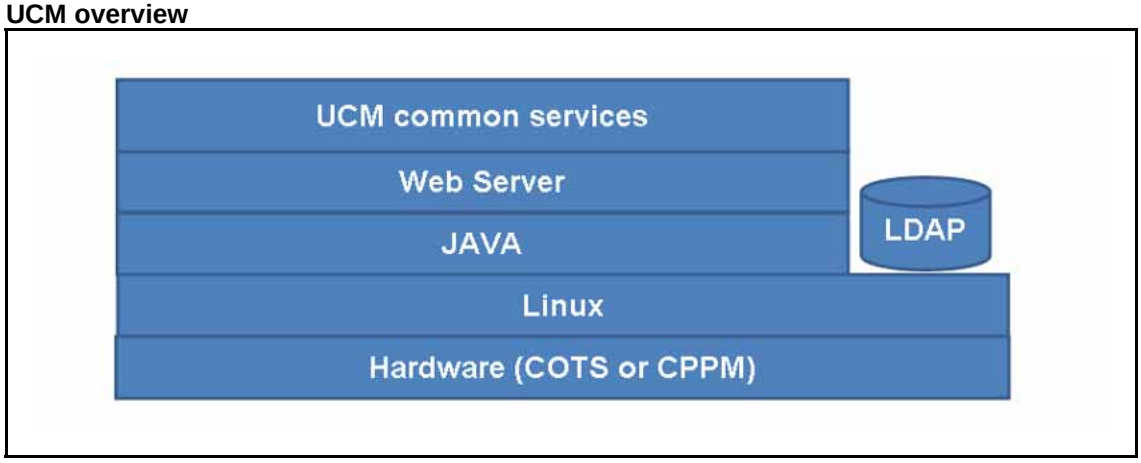
Installed on every Nortel Linux Base operating system is a Web server with extended security features that forms the basis for UCM and provides the following key features:

- Central element registry for all elements
- Authorization and authentication functionality
- Single sign on across application and hardware platforms
- PKI management
- RADIUS support
- External authentication support

Note: Support terminals not connected to the DNS domain must modify their local host files to gain initial access to UCM. For more information about managing local host files, see *Unified Communications Management Common Services Fundamentals* (NN43001-116).

The following overview shows UCM on a Nortel Linux Base system.

Figure 5
UCM overview

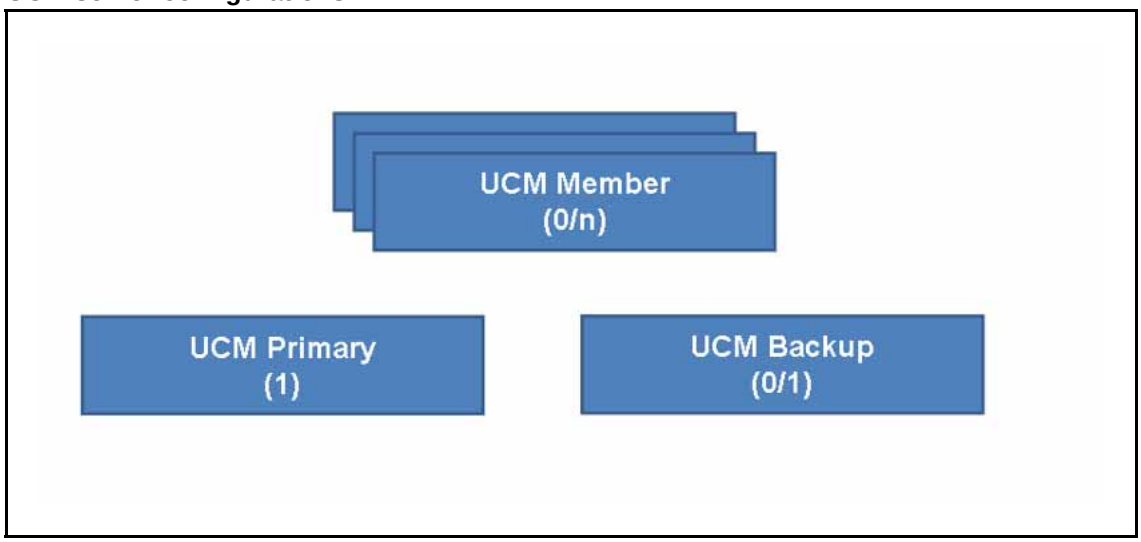


You can configure UCM in one of the following ways:

- Primary security server
- Backup security server
- Member security server

Every security domain must have one primary security server. The security domain can have one or no backup servers; additional servers are member servers.

Figure 6
UCM server configurations



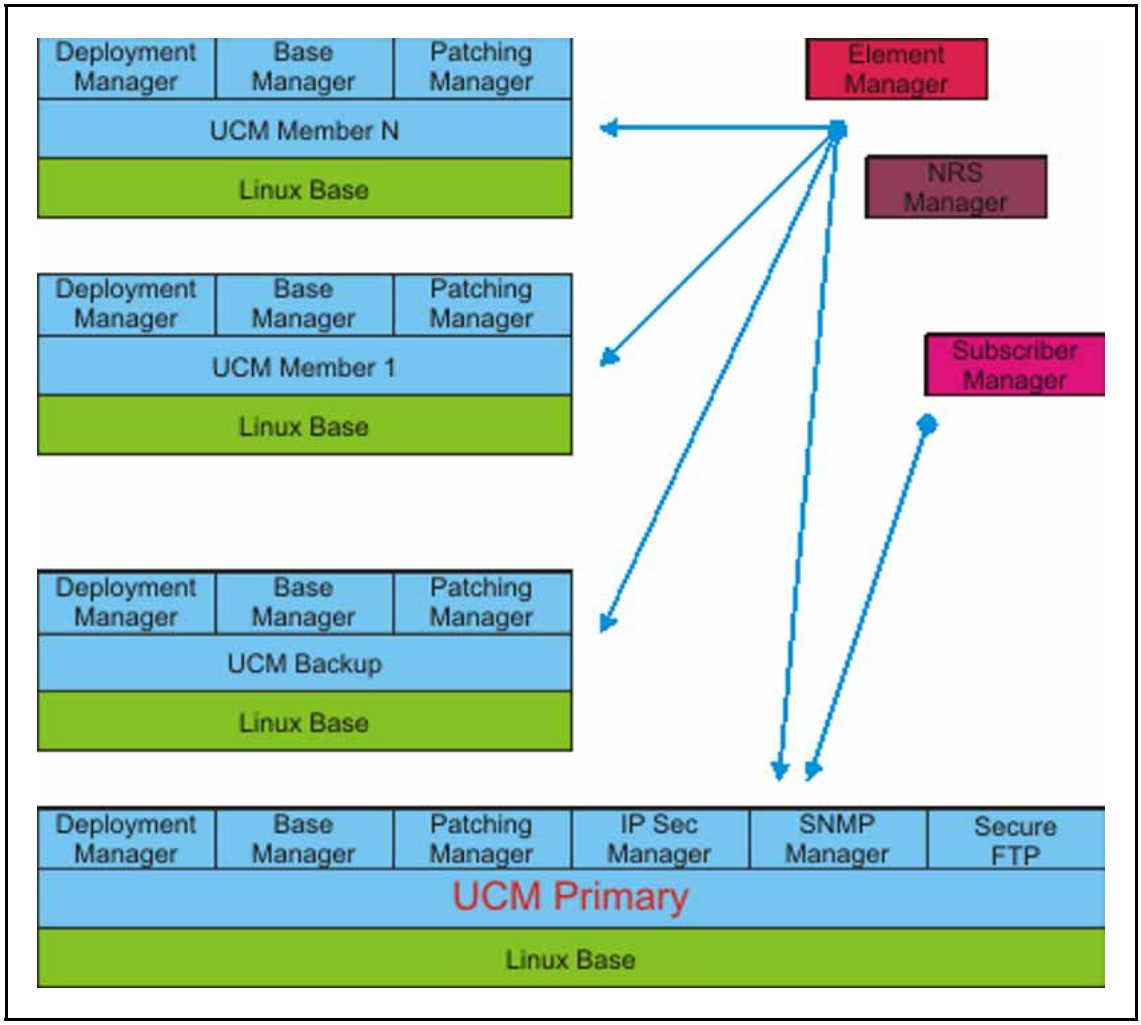
UCM framework is installed and runs on all CS 1000 Linux platforms (CP PM and COTS). Management applications are packaged as Web Archive (WAR) files and loaded into the UCM framework.

CS 1000 management applications are auto-deployed, other applications are deployed as required.

- Auto-deployed to the UCM server
  - Base Manager: Provides local Web management for Linux Base. Supports IPv6.
  - Deployment Manager: Provides a one-step Linux Base and application installation or upgrade across all preconfigured servers. Deployment Manager is installed on the Primary security server. Deployment Manager is accessible locally on the target server.
  - Patching Manager: Provides Web-based patch delivery. Patching Manager is centrally accessible from the primary security server or locally on the target server.
  - IPSec Manager: Provides centralized Web-based IPSec management.
  - SNMP: Provides centralized Web-based fault management.
- User deployed
  - Element Manager: Provides traditional CS 1000 Web-based management, including Call Server overlay support. Support IPv6.
  - Network Routing Service Manager
  - Subscriber Manager
  - Signaling Server (virtual trunks, Terminal Proxy Server)
  - SIP Line

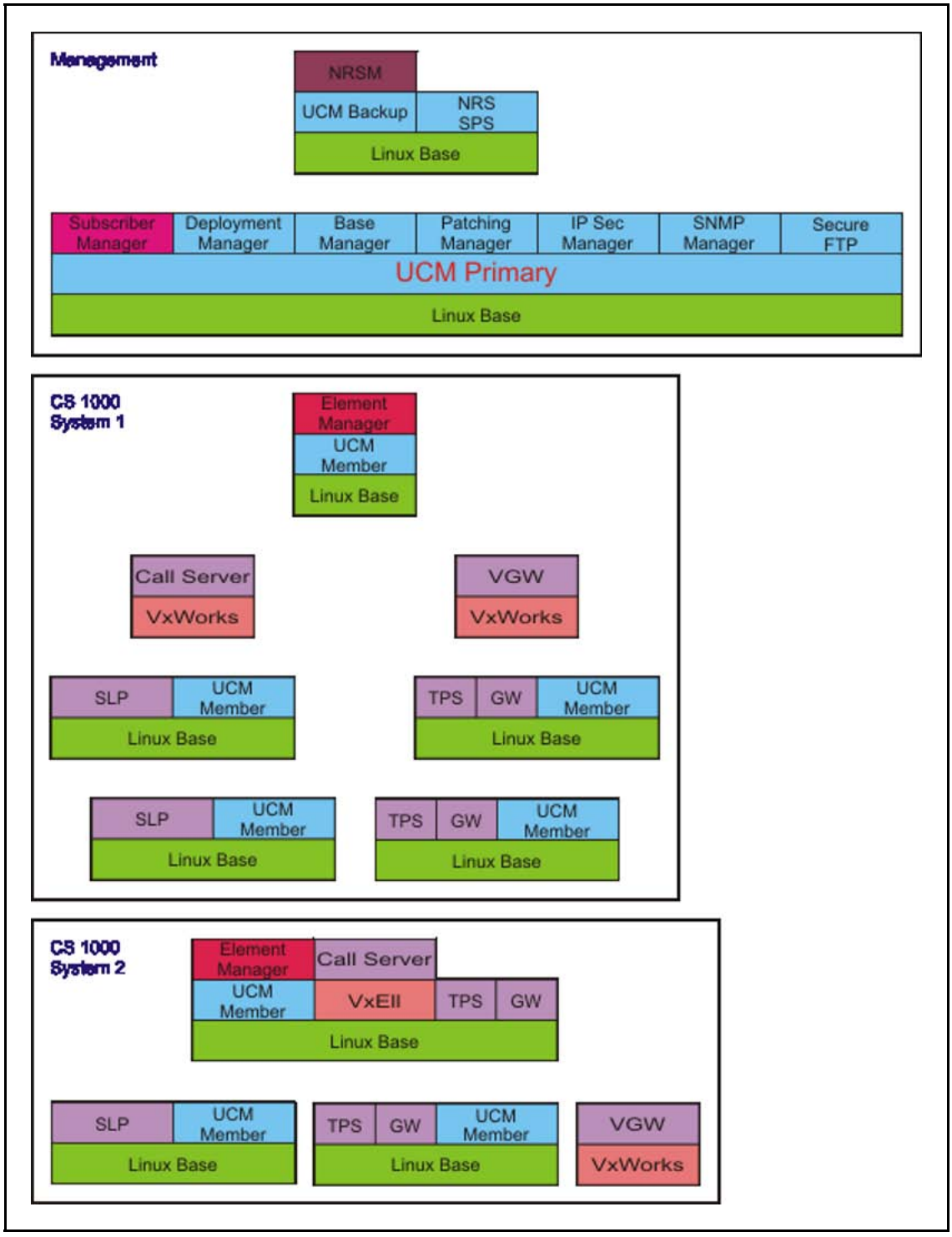
The following figure shows application deployment on UCM servers.

Figure 7
UCM application deployment



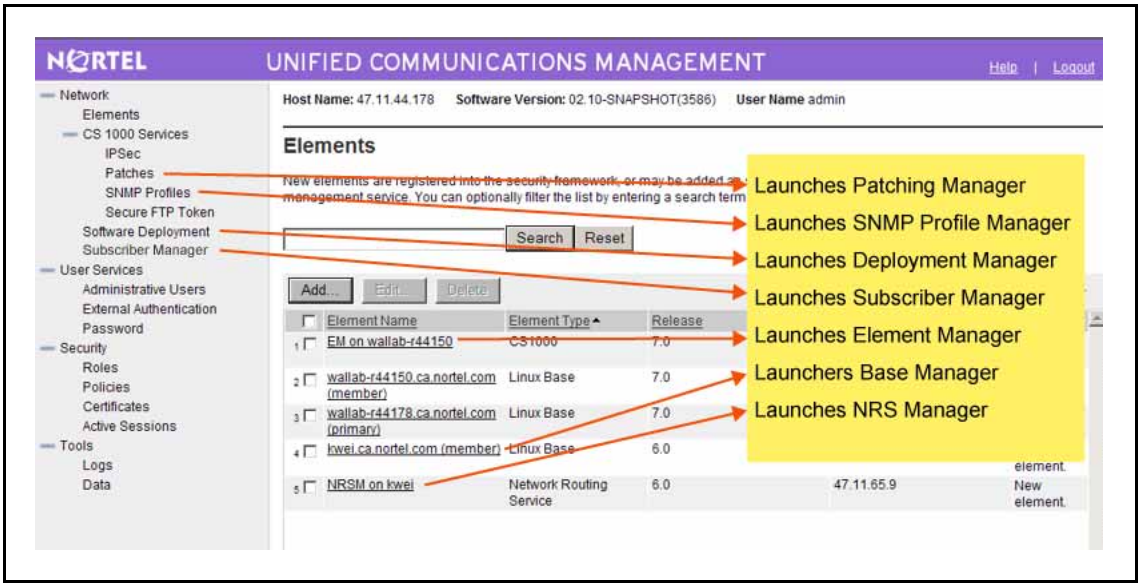
The following figure provides an example of system management components deployed in a typical installation. Network and engineering analysis determines the location of the UCM primary and backup servers. Typically EM is deployed physically close to the Call Server it manages.

Figure 8
Physical deployment of UCM



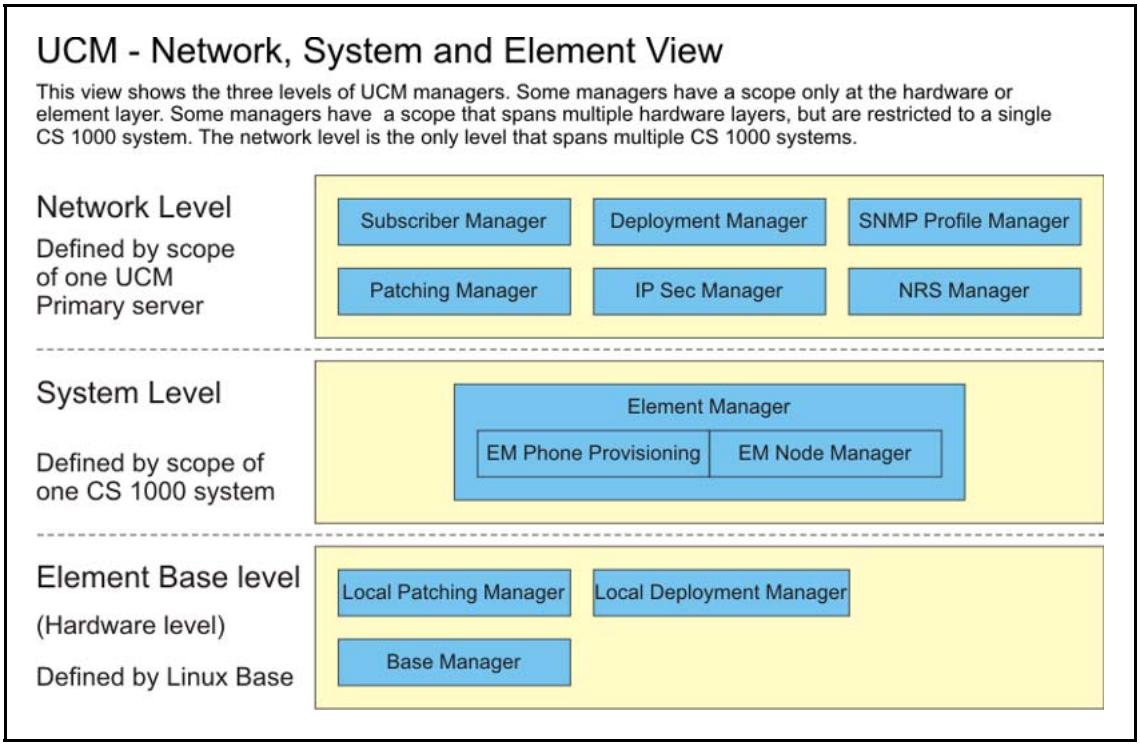
The UCM Graphical User Interface (GUI) is shown in the following figure.

Figure 9
UCM graphical view



The following figure illustrates the three levels of UCM management.

Figure 10
UCM management levels



For detailed information about the components, features, and benefits of Unified Communications Management, see *Unified Communications Management Common Services Fundamentals* (NN43001-116).

Deployment Manager

Use Deployment Manager on the Primary security server for an end-to-end installation and configuration of Linux Base and applications. Deployment Manager provides a simplified and unified solution that enables network installation of Linux Base on target servers. The Primary security server is the Deployment Server.

Install the Linux Base on the Primary security server (Deployment Server) using a local Linux Base installation media. Upgrade Linux Base on the Member and Backup servers over the network using Network File System (NFS). For more information, see "NFS/system upgrade versus a local installation" (page 47).

Use UCM Deployment Manager to select groups for predeployed applications prior to joining the domain. After preconfiguration, commit predeployed applications for deployment. You can then deploy application groups to Servers. If the Server is not running Release 6.0, you can physically deploy using the bootable 7.0 media.

After installation and configuration is complete:

- Linux Base is installed
- Base applications are installed during the first restart of the computer
- UCM is deployed and security configuration is complete
- The application combination is determined and deployed
- Applications are active

There are two different types of Linux Base deployments.

- Linux Base operating system is already installed
- Linux Base operating system is not installed

For more information about the different deployment procedures, see "Deployment View" (page 108).

ATTENTION
You must install and configure VxWorks elements manually. Deployment Manager cannot be used to perform installation and configuration of VxWorks elements.

From UCM, you can click Software Deployment to reach the UCM Deployment Manager. The following links are available.

- "Deployment View" (page 41)
- "Software Loads" (page 43)
- "Backup and restore application data" (page 45)
- "6.0 Deployment Targets" (page 47)

Deployment View

The Deployment View contains the following:

- Servers: This is the default page. The following items appear on the Deployment View page in table format:
  - Hostname
  - Address
  - Type (Linux or VxWorks Call Server)
  - Status (Preconfigured, Predeployed, Committed, or Configured)
    - Preconfigured: the status when the server is first added in Deployment Manager
    - Predeployed: the status to identify the applications are ready to be deployed to the server
    - Committed: the status when the server is ready for NFS installation, deployment, or removal from Deployment Manager
    - Configured: the status when the server is registered to UCM but no applications are installed.
  - Predeployed Applications: the applications that you choose to deploy on the server. (for example, NRS, CS, EM, SS, or CS1000 HS)
  - Base Version: the Linux Base version on the server. The server must be registered in UCM for the version to appear.
  - Server Status: The current deployment status of the server.
  - Current Operation: Informs you of any current operations being performed on the server. Does not report the current operations for NFS installations.

— Deployed Applications: the actual applications that are deployed on the system.

Note: In some situations, additional applications are deployed on the system. These can be different than what you chose, as shown in the Predeployed Applications field.

— Last Operation: The last operation that was performed on this server.

- Network Services: shows a tree view of the network type (IM Presence, MAS, NRS, SIP Trunk Bridge, and Subscriber Manager) for viewing, adding, or deleting
- CS1000 Systems: shows tree view groupings of CS1000 or CS1000 HS for viewing, adding or deleting

ATTENTION
On the Deployment View page, a server that appears in blue cannot be committed. You must add the server to a group before you can Commit.

The following table shows the application that is deployed for a particular group.

Table 4
Deployed applications by group

Group	Deployed application
NRS	NRS
MAS	MAS
IM Presence	IM Presence
Call Server (CS1000 system — Call Server)	CS
Element Manager (CS1000 — Element Manager)	EM
Signaling Server (CS1000 — Signaling Servers, CS1000 HS — HA system — Signaling Servers)	SS
CS1000 Element Manager HS (CS1000 HS — Element Manager HS)	CS1000HS-EM
SIP Trunk Bridge	SIP Trunk Bridge
Subscriber Manager	SubM

Internet Explorer

Deployment Manager supports Internet Explorer 6.02600 or later. However, if you use the tree view structure in Deployment Manager with Internet Explorer 8.0, you must configure the compatibility view setting

from Internet Explorer. Go to the **Tools** menu and select **Compatibility View Settings**. On the Compatibility View Settings page, select **Display all websites in Compatibility View**. Click **Close**.

Software Loads

There are three load types for CS 1000 Linux applications.

- CS 1000 load: nortel-cs1000-linux-700xx-pyyy-mzz.nai
- MAS load: nortel-cs1000-linux-mas-700xx-pyyy-mzz.nai
- IM Presence load: nortel-cs1000-linux-imPresence-700xx-pyyy-mzz.nai

The naming convention for the .nai file is nortel-cs1000-linux-version and release number-loadware number-deplist.nai

- 700xx is the version and release number
- pyyy is the preinstallation loadware number that is part of the nai distribution
- mzz is the deplist number that is part of the nai distribution
- nai is the extension name (Nortel Application Image)

You can download the application load files directly to the hard drive of the client PC, or you can copy the application load file to a CD, DVD, compact flash (CF), or USB device and then attach the storage medium to the client PC and upload the application load file. Deployment Manager provides the functionality to transfer the application load file from the client PC to the server hard disk.

For central deployment, you must upload the application load file to Deployment Manager, which deploys the software to other servers in the security domain. Local deployment requires that you upload the software load to each target server. The primary security server can then deploy the software applications to other servers in the same security domain.

For more information about installing the load files, see “Adding a software load from the Deployment Server” (page 104).

Supported configurations

The following list shows the possible application options supported in Deployment Manager:

Predeployed applications	Supported configurations
SS	SS
EM	EM
NRS	NRS

Predeployed applications	Supported configurations
SubM	SubM
CS	CS
CS1000HS-EM	CS1000-EM
BRIDGE	BRIDGE
SS, EM	SS_EM
SS, NRS	NRS+SS
SS, SubM	SS_SubM
SS, CS	CS+SS
EM, SubM	SS_EM_SubM
EM, NRS	NRS+SS_EM
EM, CS	CS+SS+EM
NRS, SubM	NRS+SS_SubM
NRS, CS	CS+SS_NRS
SubM, CS	CS+SS_SubM
SS, EM, NRS	NRS+SS_EM
SS, EM, SubM	SS_EM_SubM
SS, EM, CS	CS+SS+EM
SS, NRS, SubM	NRS+SS_SubM
SS, NRS, CS	CS+SS_NRS
SS, SubM, CS	CS+SS_SubM
EM, NRS, SubM	NRS+SS_EM_SubM
EM, NRS, CS	CS+SS+NRS+EM
EM, SubM, CS	CS+SS+EM_SubM
NRS, SubM, CS	CS+SS_NRS_SubM
SS, EM, NRS, SubM	NRS+SS_EM_SubM
SS, EM, NRS, CS	SS+SS+NRS+EM
SS, EM, SubM, CS	CS+SS+EM_SubM
SS, NRS, SubM, CS	CS+SS_NRS_SubM
EM, NRS, SubM, CS	CS+SS+NRS+EM_SubM
SS, EM, NRS, SubM, CS	CS+SS+NRS+EM_SubM

The preceding list shows the applications that are supported in standalone mode. All other applications, such as SIP Trunk Bridge and MAS, are supported as standalone only.

Backup and restore application data

In order to retain application data values, you must perform a data backup prior to an installation or upgrade. The type of data backed up is dependent on the applications/manager running on the server. For example:

- UCM data backup always includes Linux Base system settings and parameters.
- If the server is a primary security server, the backup includes UCM data.
- If the MAS application is deployed on the server, the backup (MAS uses Element Manager to backup MAS data) includes MAS data.

> ***Note:*** For information about data backup using MAS Element Manager, see *Media Application Server Administration and Security* (NN44471-600). For a list of MAS technical documents, see “MAS technical documentation ” (page 20). For a checklist to up-issue a new maintenance release for MAS, see “Checklist for adding a new maintenance release for MAS” (page 261).

Other backups can include NRS, Subscriber Manager, CS 1000, CS 1000 HS, Signaling Server/PD, SIP Trunk Bridge, and IM Presence.

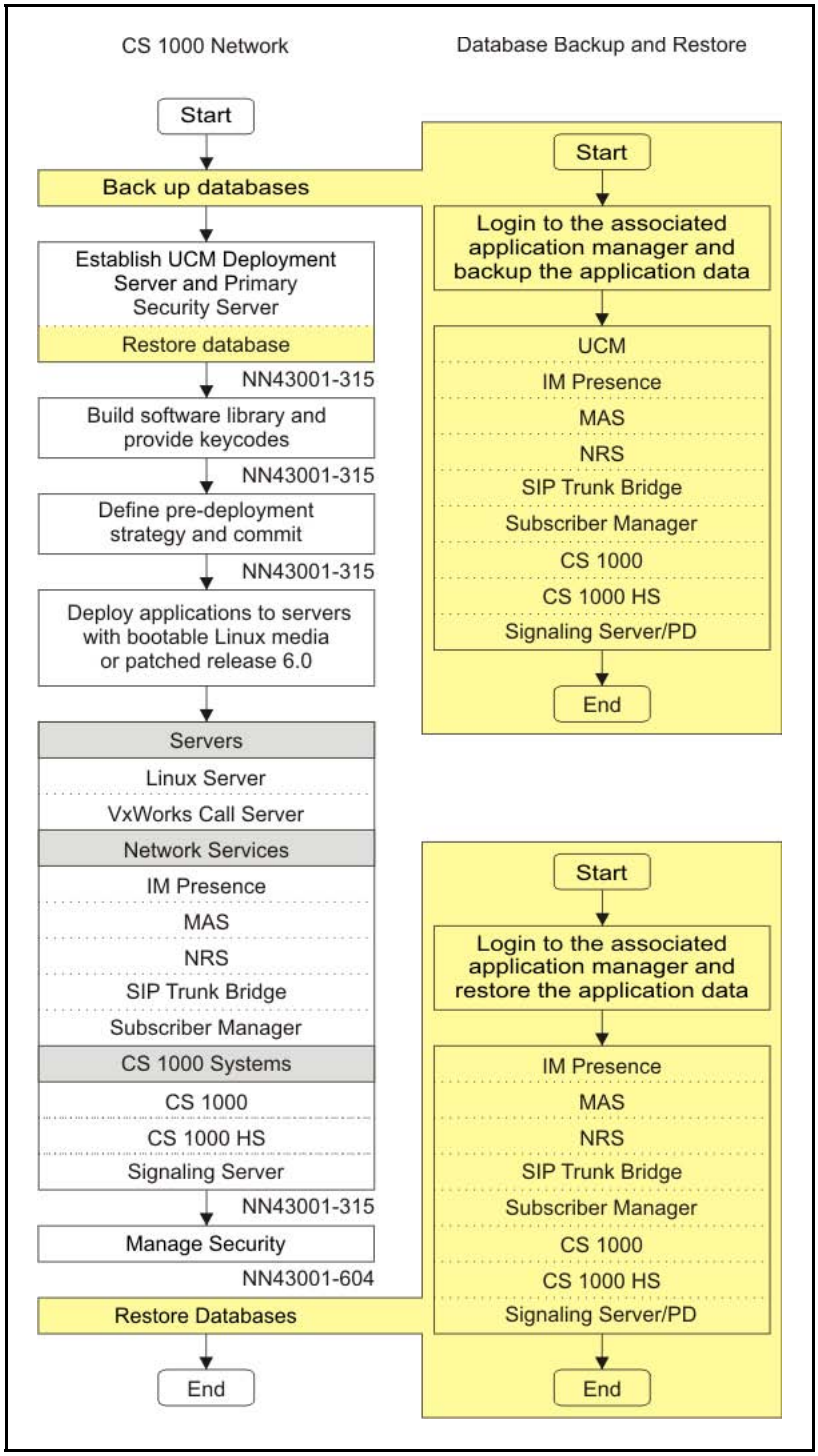
After the application installation or upgrade is complete, you can restore application data from the backup you created.

The following actions are performed during a system restore:

- All applications are stopped (including Web applications).
- Configuration and provisioning data for pre-installed applications and for previously deployed applications is restored.
- All applications are restarted except for Base Operating System configuration (such as IP addresses and DNS).

Figure 11 "Application data backup and restore" (page 46) provides a high-level overview of application data backup and restore processes.

Figure 11
Application data backup and restore



6.0 Deployment Targets

6.0 Deployment Targets can be reached from the UCM Deployment Manager navigation tree. It is available for sites that are supporting a mixed release environment and for those sites that are using a phased approach for migrating to Release 7.0. For Release 6.0 systems, you can continue to access the 6.0 Deployment Targets link to manage and deploy application software and for system data backup and restore. For more information, see “6.0 Deployment Targets” (page 140).

System Upgrade

A system upgrade includes a reinstallation of Linux Base and applications with your system data restored. For more information, see “Upgrading a backup or member server from Release 6.0” (page 92).

NFS/system upgrade versus a local installation

In scenarios where there is not enough network bandwidth, such as a slow WAN connection between the Deployment Manager server and the desired target server, the recommended approach is to perform a local installation. For procedures on performing a local installation, see “Installing a new Linux Base” (page 53).

Element Manager

When configuring your Communication Server 1000 High Scalability (HS) system in Deployment Manager, there are two lists for Element Manager. The first list includes all the Linux servers that can be selected for deployment with the CS1000HS-EM application. The second list (for Alternate Element Manager) contains a default value of Not Configured and shows the Linux servers from the first list except for the server that was selected in the first list.

Upon finishing the configuration for Element Manager and Alternate Element Manager, the configured servers (or just Element Manager if that is the only one configured) become members of a UCM group with the type xemGroup. The main Element Manager server is made the leader for this group. This group is made a member to the multicore cluster group.

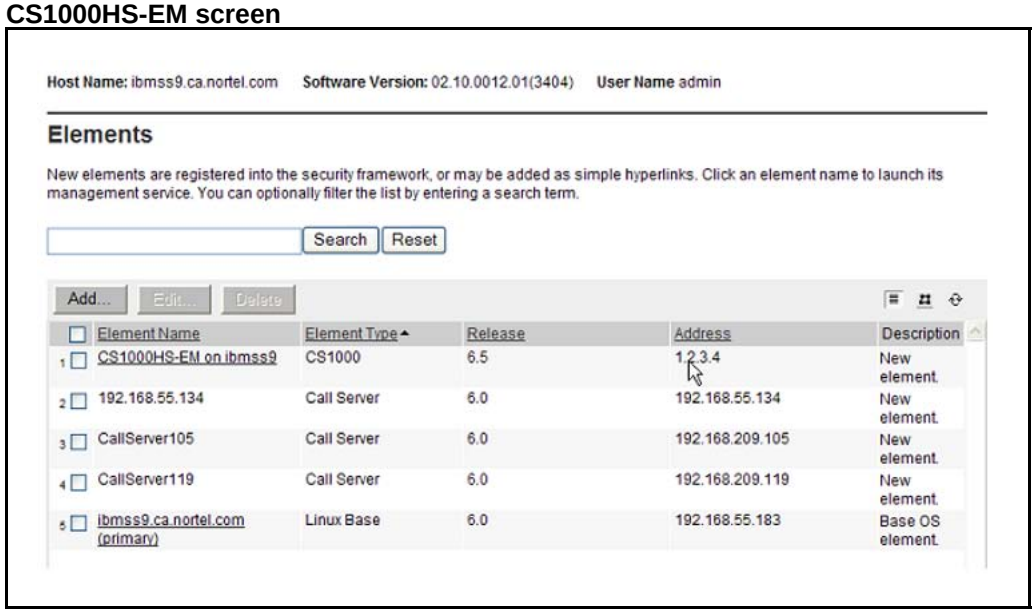
A file is created with the IP addresses of the main Element Manager server and the Alternate Element Manager server which includes whether it is configured as standalone or redundant mode. This file is transferred to the Target Server during the deployment and is read by the monitoring process.

There are one or two CS 1000 elements created in UCM depending on the number of servers. For example, if the Element Manager server has FQDN1 and the Alternate Element Manager server has FQDN2, then the managementURL field for the two links is https://FQDN1/…/xemWeb/index.jsp and https://FQDN2/…/xemWeb/index.jsp.

The monitoring process internally changes the managementURL to point to the active server. In this example, the managementURL of the second server is also changed to https://FQDN1/…/xemWeb/index.jsp. If for any reason the main element management server changes from the first server to the other then the management URL of both servers is changed to https://FQDN2/…/xemWeb/index.jsp. The following figure shows the CS1000HS-EM screen from the UCM elements page.

For more information about Element Manager for HS, see *CS 1000E High Scalability Installation and Commissioning* (NN43041-312). For more information about configuring a CS 1000 High Scalability system, see "Defining a new CS 1000 High Scalability system" (page 130).

Figure 12
CS1000HS-EM screen



New Linux Base installation

The chapter includes a new Linux Base installation. You can install the Linux Base using a local Linux Base installation media or over the network. The following procedures are recommended for a Primary security server installation and, if necessary, you can also use the procedures for an offline installation of the Member and Backup servers. However, the recommended approach for installing Linux Base on the Member and Backup servers is using NFS, see “Installing the servers (NFS-based new installation)” (page 81).

Navigation

- “Prerequisites” (page 49)
- “Installing a new Linux Base” (page 53)

Prerequisites

The server must meet the following requirements:

- The hard drive size must be at least 40 GB.
  - If you are installing Linux Base on an existing VxWorks CP PM Signaling Server, use the command **`diskSizeShow`** to check the hard drive size. For information about upgrading the CP PM hard drive, see procedure *Replacing the hard drive on a CP PM Signaling Server* in *Circuit Card Reference* (NN43001-311).
- The CP PM BIOS must be Release 18 or higher if you are configuring Linux Base on a CP PM server for co-resident Call Server and Signaling Server (Co-res SS and CS) applications.
- The compact flash card must have a capacity of at least 2 GB for CP PM servers. For CP MG and CP DC, USB 2.0 is the only media

supported. CP PM supports Compact Flash and COTS supports only CD/DVD-ROM. USB 1.0 and 1.1 flash devices are not supported.

Note: The N0220961 USB memory stick is supported for Communication Server 1000 Release 7.0. Not all USB memory sticks are supported.

— If you are installing Linux Base on an existing VxWorks CP PM Signaling Server, use the command **`memSizeShow`** to check the memory size. For information about upgrading the memory capacity of a CP PM Signaling Server, see procedure *Upgrading the CP PM memory* in *Circuit Card Reference* (NN43001-311)

— You must create a bootable media device using the mkbootrmd.bat tool every time a bootable software load is copied to the media. For information about creating a bootable media device, see "Creating a bootable RMD for Linux Base installations" (page 196).

Before you install the Linux Base, you must gather the following customer information:

- ELAN IP address
- ELAN gateway IP address
- ELAN netmask
- The host name associated with the TLAN
- The domain name

  Note 1: A Fully Qualified Domain Name (FQDN) consists of a host name, a domain name, and a top-level domain name. For example, the FQDN, kwei.ca.nortel.com, the host name is kwei, the domain name is ca.nortel, and the top-level domain name is .com. The FQDN must contain at least three fields separated by dots. The host name cannot contain dots.

  Note 2: If you are using a DNS server to resolve the FQDN to an IP address, ensure that you can resolve the FQDN to the expected IP address prior to the installation of the Linux server. For example, attempt to ping the FQDN from a PC that uses the external DNS server, and it should resolve to the expected IP address.
- TLAN IP address
- TLAN gateway IP address
- TLAN netmask
- Timezone
- IP address of the Primary Domain Name Service (DNS) server
- Default system gateway associated with the network interface is TLAN.

Note 1: TLAN as the default gateway can be influenced by your deployment decisions about how applications are to be deployed in accordance to your network topology. For a definition of ELAN and TLAN, see "Network configuration" (page 271).

Note 2: The ELAN and TLAN ports on the Co-res CS and SS server can be cabled through the Gateway Controller. Even though the ELAN and the TLAN ports can be connected directly to an external Layer 2 switch, it is recommended that the ports be connected to the Gateway Controller to provide ease of cabling and to take advantage of the dual-homing feature provided by the Gateway Controller.

Note 3: The CLI command **`routeconfig`** can be used to add routing entries. The choice of routing entries will depend upon the network topology and application deployment. For a list of Nortel Linux Base CLI commands, see "Nortel Linux Base CLI commands" (page 263).

WARNING

If you are installing Linux Base on a CP PM card and the CP PM card is currently running Signaling Server software from VxWorks, you must either press the faceplate reset button or reseat the card before you begin the Linux Base installation. Failure to do so results in a watchdog reset during installation. This scenario occurs when you issue a reboot -1 from the pdt shell and then proceed directly to the Linux Base installation. Reset the card using the faceplate button to disable the hardware watchdog and allow the installation to complete.

Additional equipment

You may require the following additional equipment, depending on the installation options that you select.

- **PC**

  you can use a client PC for the following installation tasks:

  — Run a program such as Putty to connect to the Linux server COM1 port. Use of the COM1 port is mandatory for installations on a CP PM server, and optional for installations on a COTS server.

  — Configure UCM primary (Deployment Server), backup, and member servers.

  — Create a bootable media for installation on a Server (for the Primary (Deployment Server) and non-Release 6.0 systems).

  — Launch Deployment Manager using a Web browser to deploy software.

- **Keyboard, video card, and monitor (KVM)**

KVM can be used for COTS server Linux Base installation and password recovery.

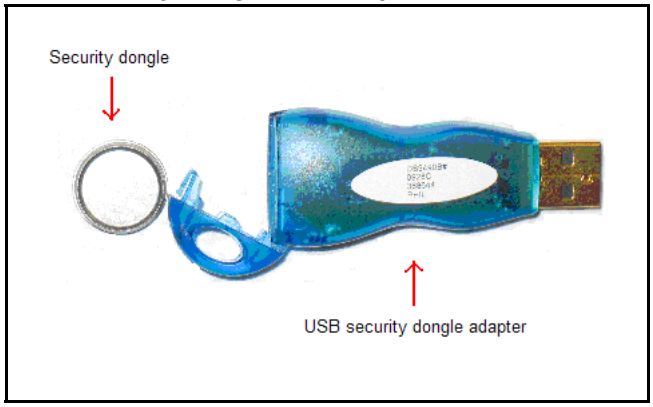
Note 1: KVM is no longer mandatory for password recovery; Linux Base also supports COM port password recovery. You can use a USB Keyboard, USB mouse, and a VGA monitor for CP DC card Linux Base installation and password recovery. The CP DC card has a USB and a VGA port on the faceplate.

Note 2: If you connect to the IBM x3350 server with a terminal for setup, the server does not function with the serial cable that was previously shipped with the ISP 1100 or other COTS platforms. The IBM x3350 server requires the new NTRX26NPE6 9 pin female to 9 pin female null modem cable. For a picture of the null modem cable, see Figure 177 "NTRX26NPE6 9 pin female to 9 pin female null modem cable" (page 250).

- Ensure the USB security dongle adapter is hidden from plain view.
  - For a Dell R300 server: insert the USB security dongle adapter into an internal USB port (recommended).
  - For an IBM x3350 server: insert the USB security dongle adapter into a rear USB port.
  - For a COTS2 server: insert the USB security dongle adapter with security dongle into a USB port.
  - Restart the server to ensure the dongle is recognized.

  The following figure shows a USB security dongle and a USB security dongle adapter.

Figure 13
USB Security dongle and adapter



Installing a new Linux Base

The following Linux Base installation procedures and figures apply to COTS, CP PM, CP MG, and CP DC hardware platforms. Figures and procedures that apply to a specific hardware platform are indicated.

WARNING

If you access the Linux server through the COM port of a client PC, it is possible that garbled characters (such as uuuuuu) can appear during a system restart during the installation. This appearance can make the system seem to hang.

You can resolve the problem by reestablishing the COM port connection from the client PC or work station to the Linux server.

Do not manually restart the system during the upgrade or installation. This can result in hard drive corruption, and forces you to reinstall the system.

Step	Action
1	Insert the installation media: (DVD, Compact Flash, or USB memory stick). • For CP PM servers, insert the compact flash installation media. • For CP MG and CP DC, insert the USB 2.0 memory stick. • For COTS servers, insert the DVD installation media. ***Note 1:*** You must have a Compact Flash (CF) card or USB 2.0 memory stick with a capacity of at least 2 GB. ***Note 2:*** The N0220961 USB memory stick is supported for Communication Server 1000 Release 7.0. Not all USB memory sticks are supported.
2	Restart the server.
3	Boot from the Linux Base installation media.

WARNING

The Linux Base DVD should only be inserted in the DVD drive during the Linux Base installation on a COTS server (this does not apply to CP PM servers). Normally the DVD auto-ejects after the Linux Base installation is complete. If the Linux Base DVD is accidentally left in the DVD drive after installation and a system restart occurs, the system will boot into the installation program. This can be interpreted as a hung system. If this occurs, manually eject the DVD and restart the system.

For COTS: Boot from the Linux Base DVD.

Note: For COTS, ensure the DVD drive is configured in the BIOS settings as a primary boot device.

After the **boot:** prompt appears, proceed to Step 5.

ATTENTION
The boot prompt appears only briefly. You have about eight seconds to respond before it defaults to COM1.

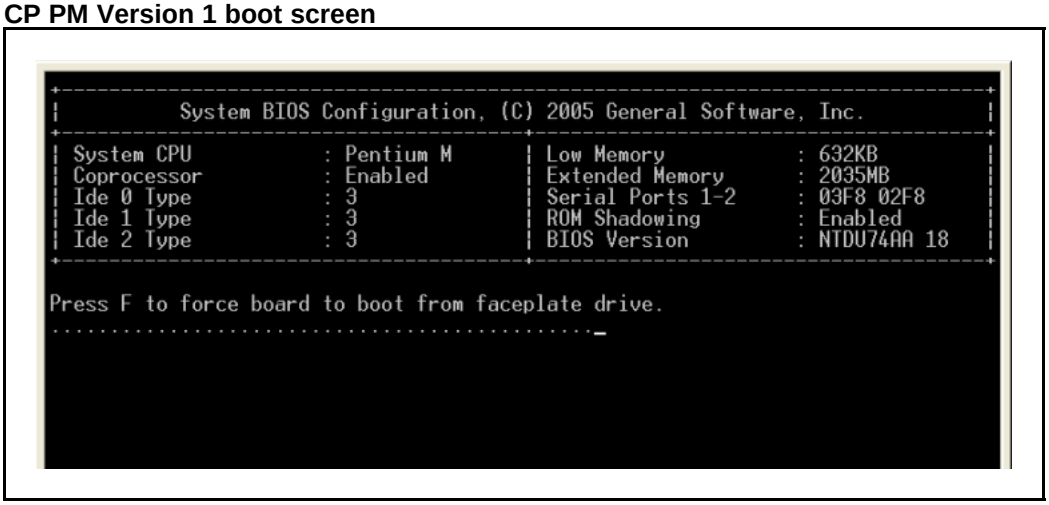
OR

For CP DC (NTDW53, NTDW54), CP MG (NTDW56, NTDW59), or CP PM version 2 (NTDW99CAE6, NTDW66CAE6), press the **F** key when prompted to load the boot manager, as shown in Figure 15 "CP DC and CP MG boot manager screen" (page 55). Proceed to Step 4.

OR

For CP PM Version 1 cards, at the Linux Base installer screen, press the **F** key when prompted to force the board to boot from the faceplate drive, as shown in the following figure, and proceed to Step 5 in this procedure.

Figure 14
CP PM Version 1 boot screen



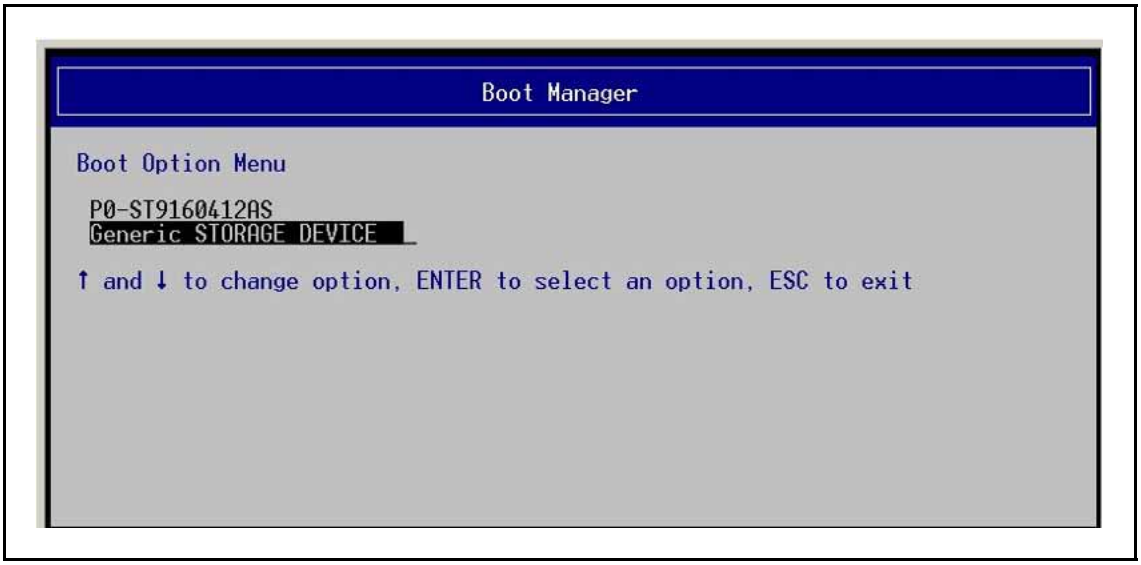
4 Select the Linux base installation media from the boot manager.

For CP DC and CP MG cards, select the **USB boot device** from the Boot Option Menu by moving the arrow keys up or down, and press **Enter** to boot from the Linux Base installation.

OR

For CP PM Version 2 cards, select the **Faceplate RMD** from the Boot Option Menu, and press **Enter** to boot from the Linux Base installation.

Figure 15
CP DC and CP MG boot manager screen



5 Type **com1** to install using a serial console on COM1.

OR

Type **kvm** to install using an attached keyboard and video monitor.

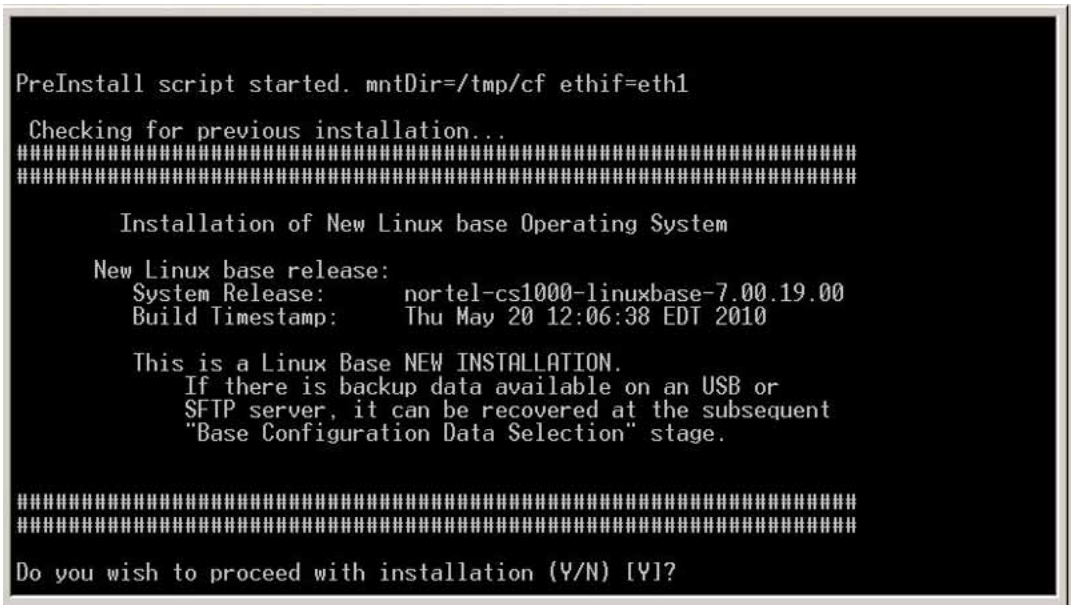
Note: Kvm is not a valid option for CP PM and CP MG servers.

ATTENTION
If you log on to the COM1 port, make sure that **Caps Lock** is turned off before you log on.

The CS 1000 Linux Base system installer confirmation screen appears.

6 Type **Y** and press **Enter**, as shown in the following figure.

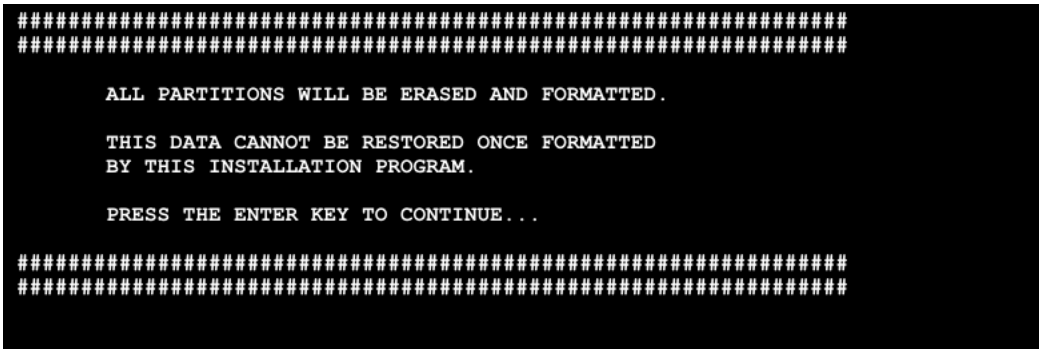
Figure 16
CS 1000 Linux Base system installer confirmation screen



The Format all partitions screen appears.

7 If you have previously installed a Release 5.0 Linux Base, the following figure appears. Press **Enter** to continue.

Figure 17
Format all partitions screen



The Base Configuration Data Selection screen appears.

8 Because this is a new installation, type **1** and press **Enter**, as shown in the following figure.

Note: If you select option 2 or 3, the remainder of the process is the same as the upgrade procedure. Proceed to Step 8 in "Upgrading Linux Base " (page 85).

Figure 18
Base Configuration Data Selection screen

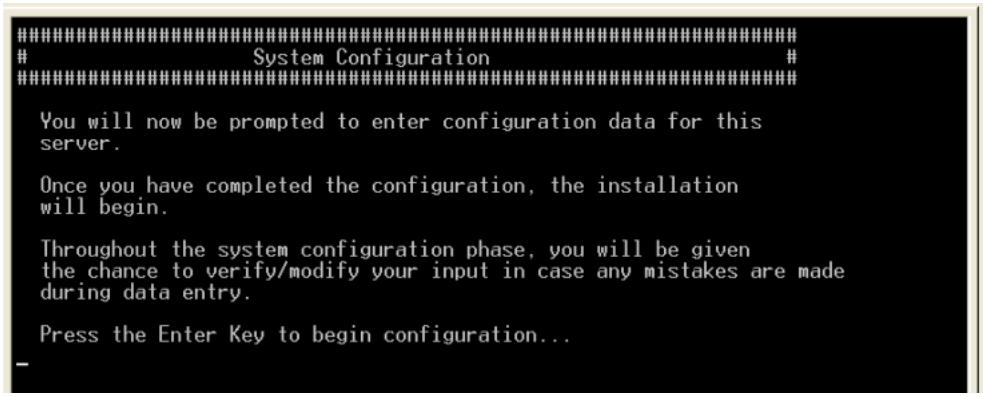
Note: For CP DC and CP MG servers: Option 2 is different. Only one USB storage device can be connected; therefore, your backed up data must be on your USB installation device, as shown below.

Figure 19
CP DC and CP MG Option 2 screen

The System configuration window appears.

9 Press **Enter** to begin network configuration, as shown in the following figure.

Figure 20
System configuration screen



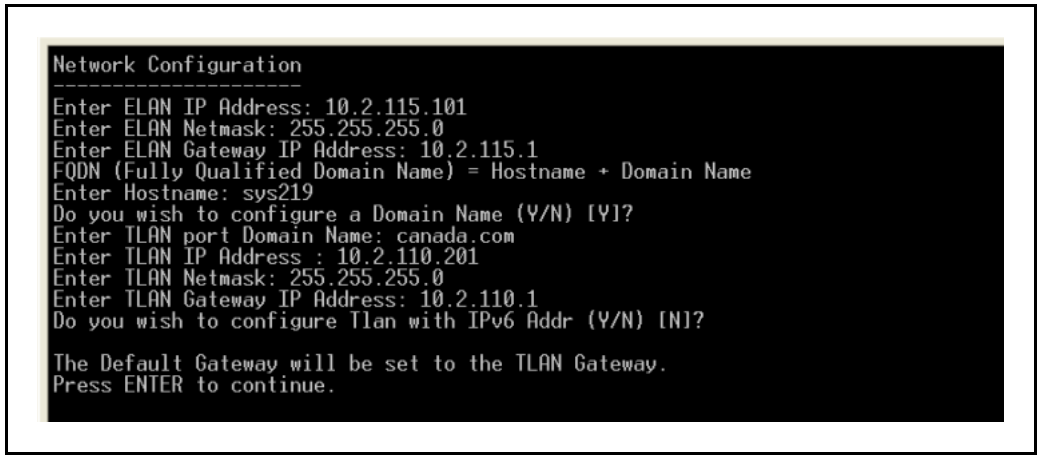
10 You are prompted to type the following, as shown in the following figure.

- **ELAN IP Address**
- **ELAN Netmask**
- **ELAN Gateway IP Address**
- **Hostname**

  At the prompt, **Do you wish to configure a Domain Name (Y/N)**, type **Y** as this is a mandatory requirement.
- **TLAN port Domain Name**
- **TLAN IP Address**
- **TLAN Netmask**
- **TLAN Gateway**

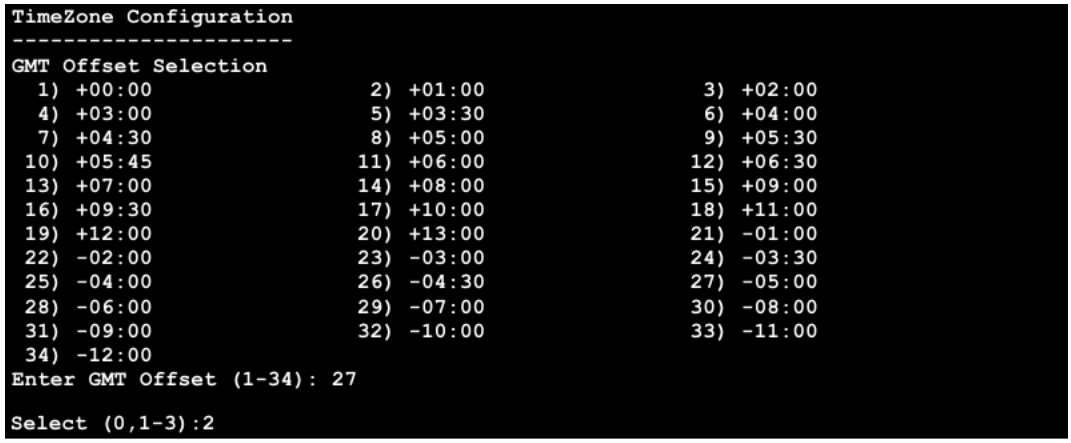
  At the prompt, **Do you wish to configure TLAN with IPv6 Addr (Y/N) [N]**, type **Y** to configure TLAN with an IPv6 Address. Default is No.
  Press **Enter** to continue.

Figure 21
Network Configuration screen



11 On the **TimeZone Configuration** screen, type the number corresponding to the GMT offset you want to choose, as shown in the following figure.

Figure 22
TimeZone Configuration screen



For example, to select a time in the United States Eastern time zone, type **28**. The time zone and the corresponding Greenwich Mean Time (GMT) offsets, are shown in the following table.

Table 5
Time zone offsets

Name	Description	Relative to GMT
GMT	Greenwich Mean Time	GMT
UTC	Universal Coordinated Time	GMT
ECT	European Central Time	GMT+1:00
EET	Eastern European Time	GMT+2:00

Name	Description	Relative to GMT
ART	(Arabic) Egypt Standard Time	GMT+2:00
EAT	Eastern African Time	GMT+3:00
MET	Middle East Time	GMT+3:30
NET	Near East Time	GMT+4:00
PLT	Pakistan Lahore Time	GMT+5:00
IST	India Standard Time	GMT+5:30
BST	Bangladesh Standard Time	GMT+6:00
VST	Vietnam Standard Time	GMT+7:00
CTT	China Taiwan Time	GMT+8:00
JST	Japan Standard Time	GMT+9:00
ACT	Australia Central Time	GMT+9:30
AET	Australia Eastern Time	GMT+10:00
SST	Solomon Standard Time	GMT+11:00
NST	New Zealand Standard Time	GMT+12:00
MIT	Midway Islands Time	GMT-11:00
HST	Hawaii Standard Time	GMT-10:00
AST	Alaska Standard Time	GMT-9:00
PST	Pacific Standard Time	GMT-8:00
PNT	Phoenix Standard Time	GMT-7:00
MST	Mountain Standard Time	GMT-7:00
CST	Central Standard Time	GMT-6:00
EST	Eastern Standard Time	GMT-5:00
IET	Indiana Eastern Standard Time	GMT-5:00
PRT	Puerto Rico and US Virgin Islands Time	GMT-4:00
CNT	Canada Newfoundland Time	GMT-3:30
AGT	Argentina Standard Time	GMT-3:00
BET	Brazil Eastern Time	GMT-3:00
CAT	Central African Time	GMT-1:00

12 On the **DST Selection** screen, type the number that corresponds to the Daylight Saving Time (DST) value that you want to choose and press **Enter**, as shown in the following figure.

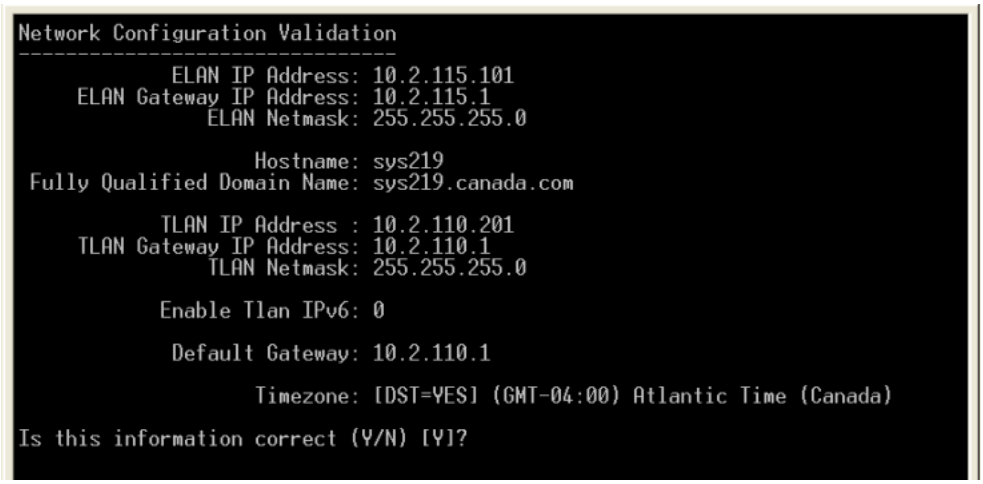
Figure 23
DST Selection screen

13 Review the configuration information on the **Network Configuration Validation** screen. Type **Y** to confirm the data, and press **Enter**.

OR

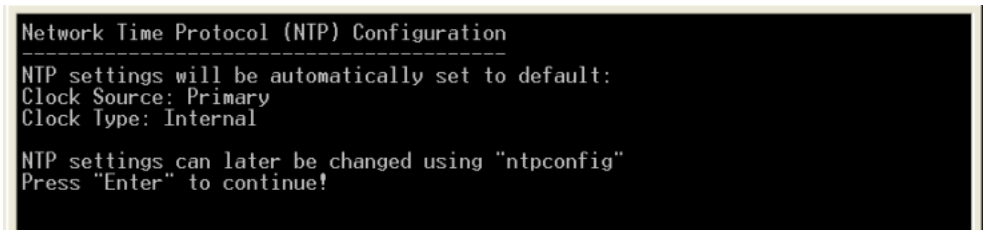
Type **N** and press **Enter** to reenter the configuration information, as shown in the following figure.

Figure 24
Configuration Validation screen



14 On the **Network Time Protocol (NTP) Configuration** screen, press **Enter**, as shown in the following figure.

Figure 25
Network Time Protocol (NTP) Configuration screen



Note: NTP settings can be changed after the installation is complete. To change NTP settings, see "Adding a Linux server" (page 109). You can also configure NTP settings using the CLI command **`ntpconfig`**.

15 On the **DNS Server configuration** screen, type **N** and press **Enter** as you do not want to configure the Primary DNS server IP address if there are no active DNS servers present, as shown in the following figure.

Figure 26
DNS Server Configuration screen

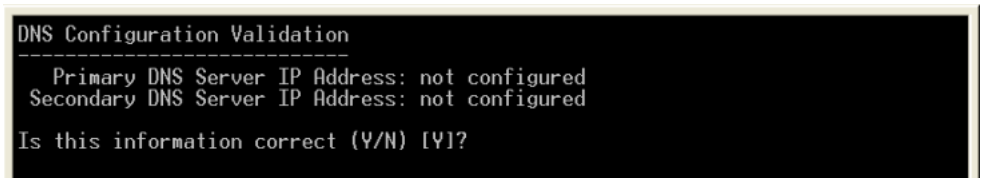
WARNING
Do not configure the DNS IP addresses when no active DNS server is present on the network as you can experience delays in the GUI operations. Use Base Manager to add at a later time.

16 On the **DNS Configuration Validation** screen, type **Y** and press **Enter** to confirm the configuration.

OR

Type **N** and press **Enter** if the configuration information is not correct.

Figure 27
DNS Configuration Validation screen

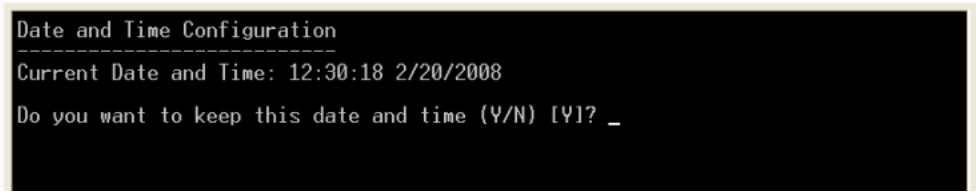


17 On the **Date and Time Configuration** screen, type **Y** and press **Enter** to confirm the date and time.

OR

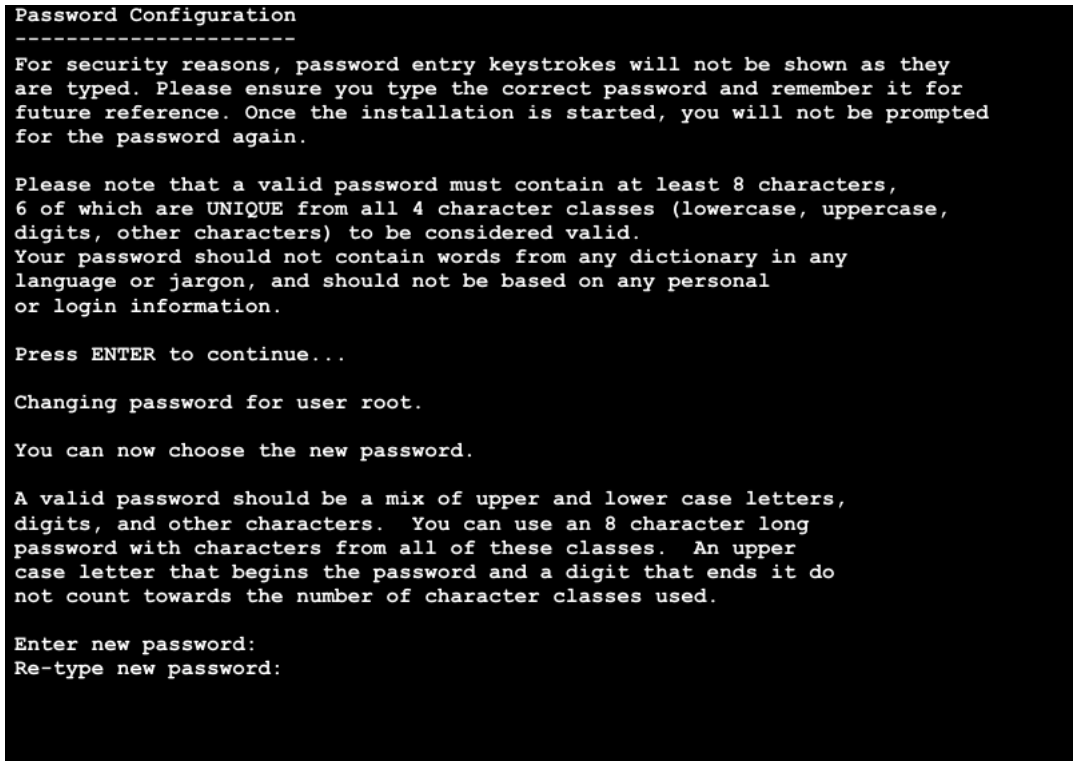
type **N** and press **Enter** if the configuration information is not correct.

Figure 28
Date and Time Configuration screen



18 On the **Password Configuration** screen for the local server account, type a root password and retype the root password, as shown in the following figure.

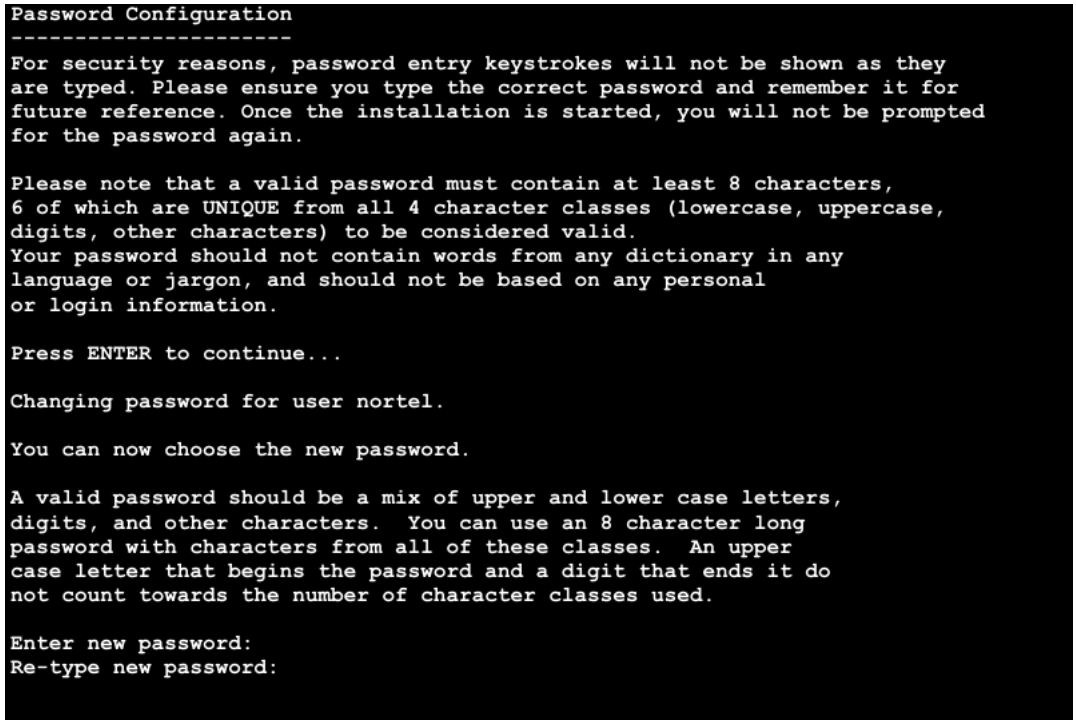
Figure 29
root Password Configuration screen



Note: For information about passwords, see "Password creation guidelines" (page 32).

19 On the nortel **Password Configuration** screen, type the nortel password and retype the nortel password, as shown in the following figure.

Figure 30
Password Configuration screen



20 On the **Deployment Server** screen, type **Y** if you wish to configure this system as the Deployment Server (Primary security server)

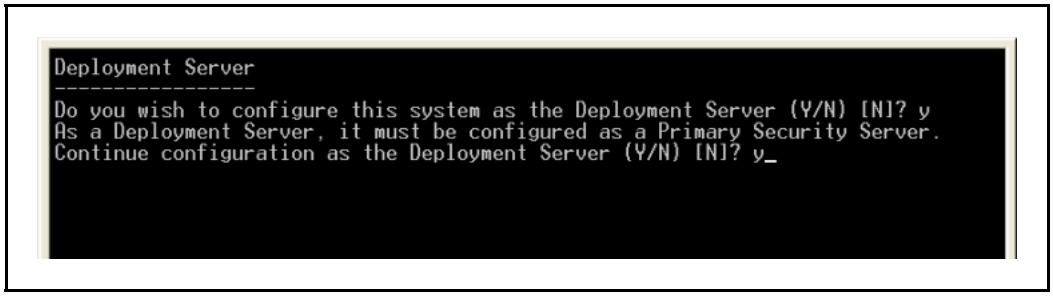
OR

Type **N** for Member and Backup servers, as shown in the following figure. Press **Enter**.

Continue to the next step to confirm that the Deployment Server is the Primary security server.

21 If you select **Y** in the previous step, you are prompted to type **Y** at the **Continue configuration as the Deployment Server (Y/N) [N]** screen, as shown in the following figure.

Figure 31
Deployment Server screen



A pre-installation status screen appears, as shown in the following figure.

Figure 32
Pre-installation status screen

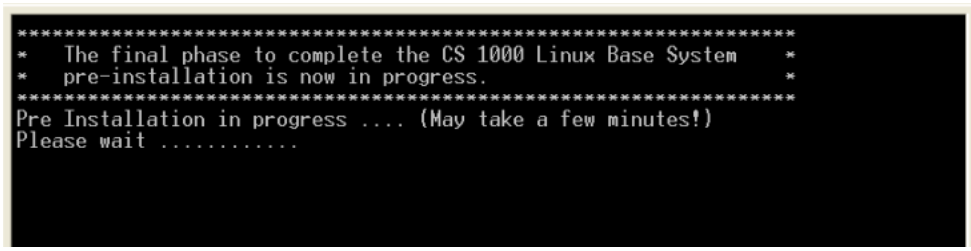
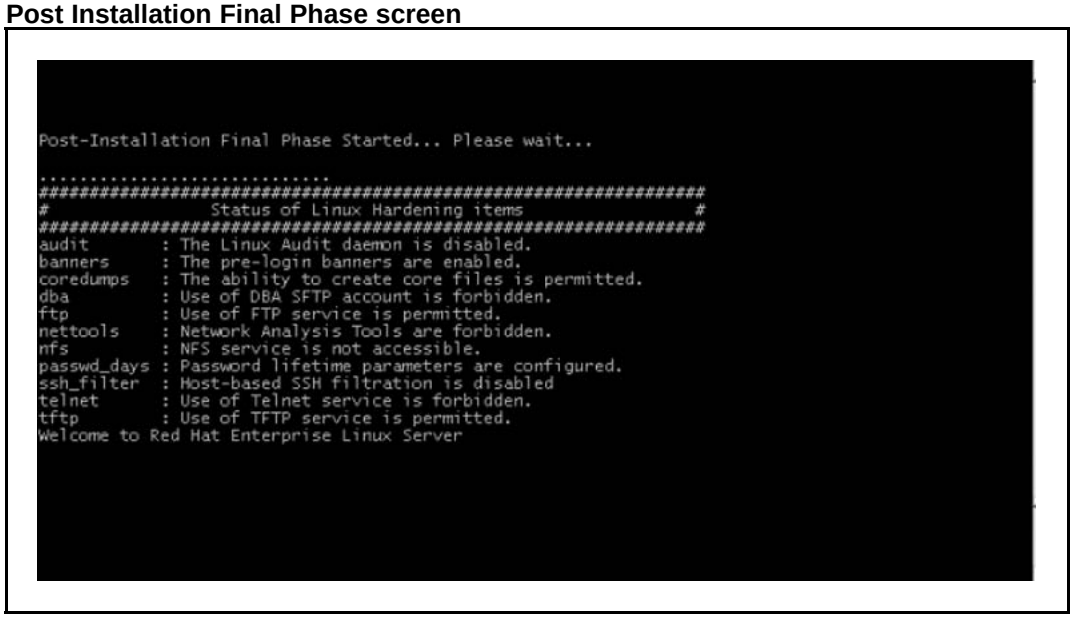


Figure 33
Post System Configuration screen

The Linux Hardening status displays, as shown in the following figure. This indicates that the Linux Base installation is finished.

Figure 34
Post Installation Final Phase screen



The system restarts, as shown in the following figure.

Figure 35
System restart screen

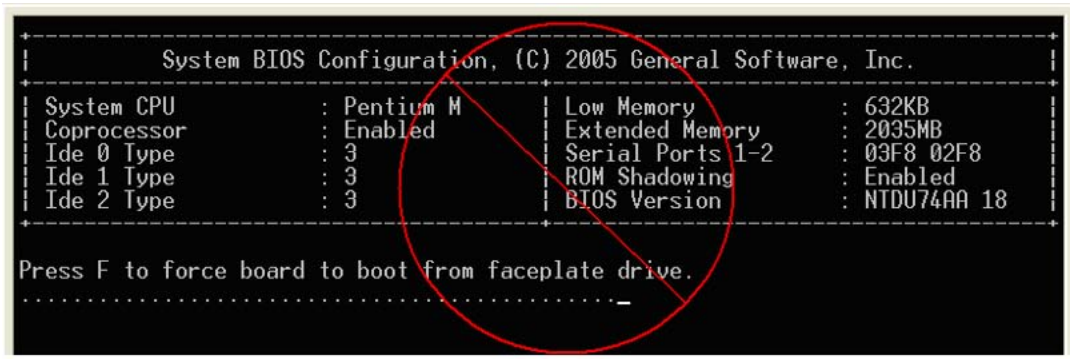
WARNING
For COTS servers, make sure that the installation DVD ejects. If the installation DVD does not eject automatically, eject the DVD manually.

22 Remove installation media and insert backup media.

23 For CP PM server cards, do not press F when prompted, as shown in the following figure.

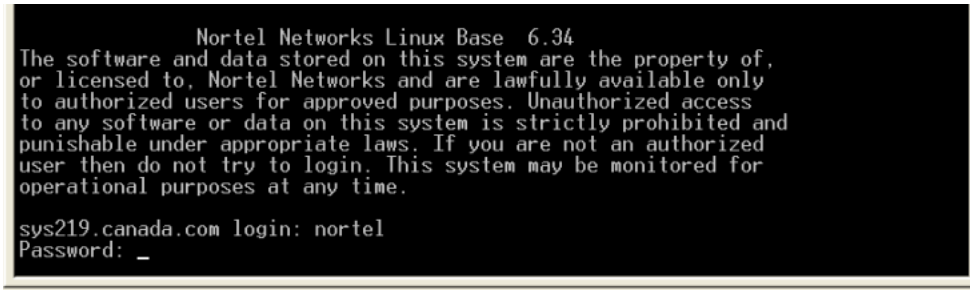
CAUTION
Do not press F at this step; otherwise, you are taken back to the installation menu and must perform the procedures again.

Figure 36
CP PM screen



24 On the **Nortel Networks Linux Base** screen, type the nortel userid at the login prompt, and type the nortel password, as shown in the following figure. This can take several minutes before you can proceed to the next step.

Figure 37
Nortel Networks Linux Base screen



25 Start a Web browser to configure the primary security server. For more information about configuring a primary security server, see "Configuring the primary security server" (page 71).

--End--

New CS 1000 system Linux installation and commissioning

This chapter provides the procedures for an end-to-end installation and commissioning of Linux Base and applications. At this stage, Linux Base has been installed on the Primary security server (Deployment Server) but not configured.

If the Nortel Linux Base is pre-loaded on your Server as shipped new from the factory, go to “Configuring a Server pre-loaded with Nortel Linux Base” (page 98) for configuration.

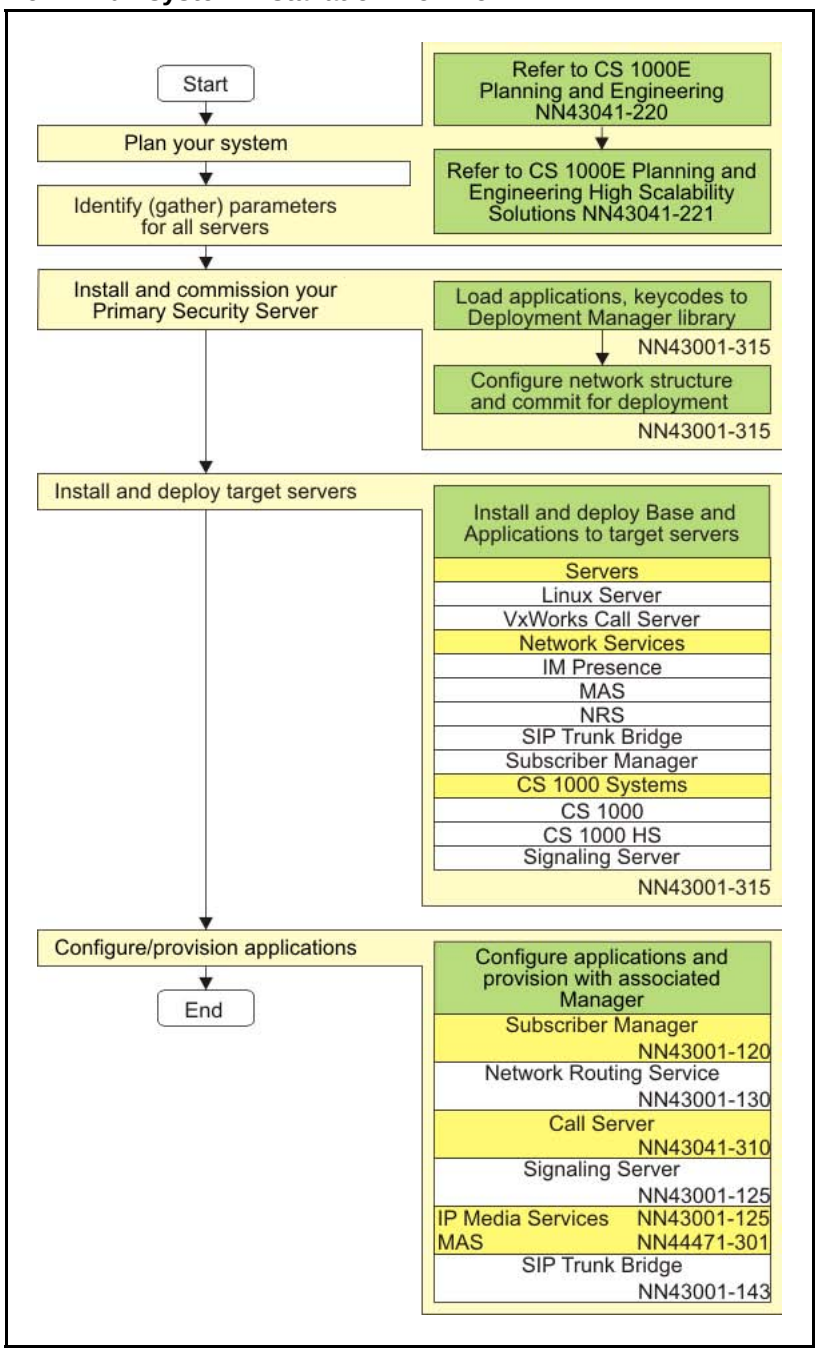
Navigation

- “Installation workflow ” (page 70)
- “Primary security server configuration” (page 71)
- “Preconfiguring (staging) deployment targets” (page 75)
- “NFS based new installation” (page 78)

Installation workflow

The following figure provides an overall workflow for a new CS 1000 system Linux installation and commissioning. The workflow indicates the recommended sequence of events to follow and provides the technical document number for the detailed procedures required for the task.

Figure 38
New Linux system installation workflow



Primary security server configuration

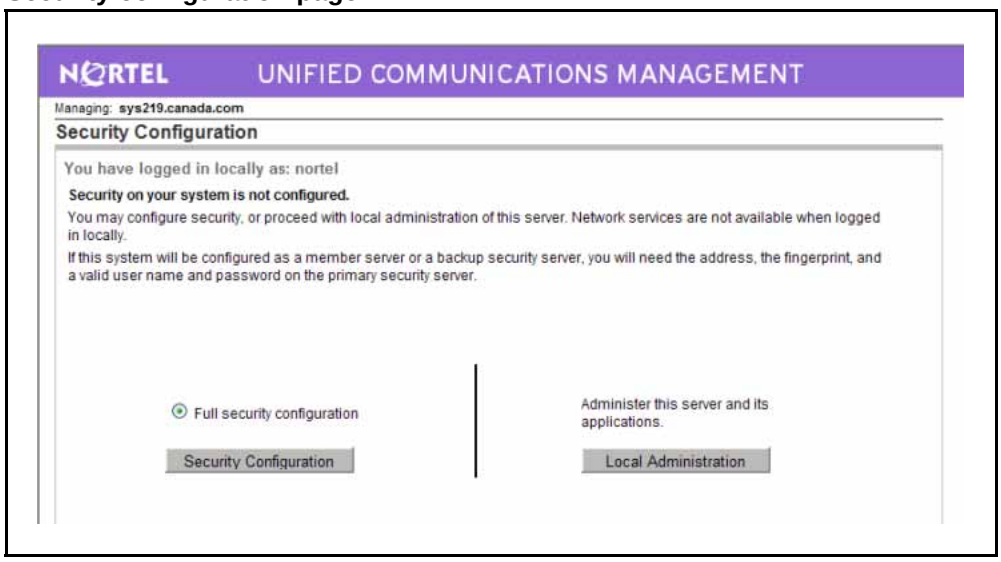
This section provides the procedures for configuring the primary security server. For more information about security server configuration, see "Configuring the primary security server" (page 71) or *Unified Communications Management Common Services Fundamentals* (NN43001-116).

Configuring the primary security server

Configure the primary security server.

Step	Action
1	In the Web browser Address bar, type **https://<FQDN>/local-login/** of the primary security server, enter the UserID and password as configured during the Linux Base installation, Password Configuration step and press **Enter**.
2	On the **Security Configuration** page, select **Full security configuration**, as shown in the following figure.

Figure 39
Security configuration page



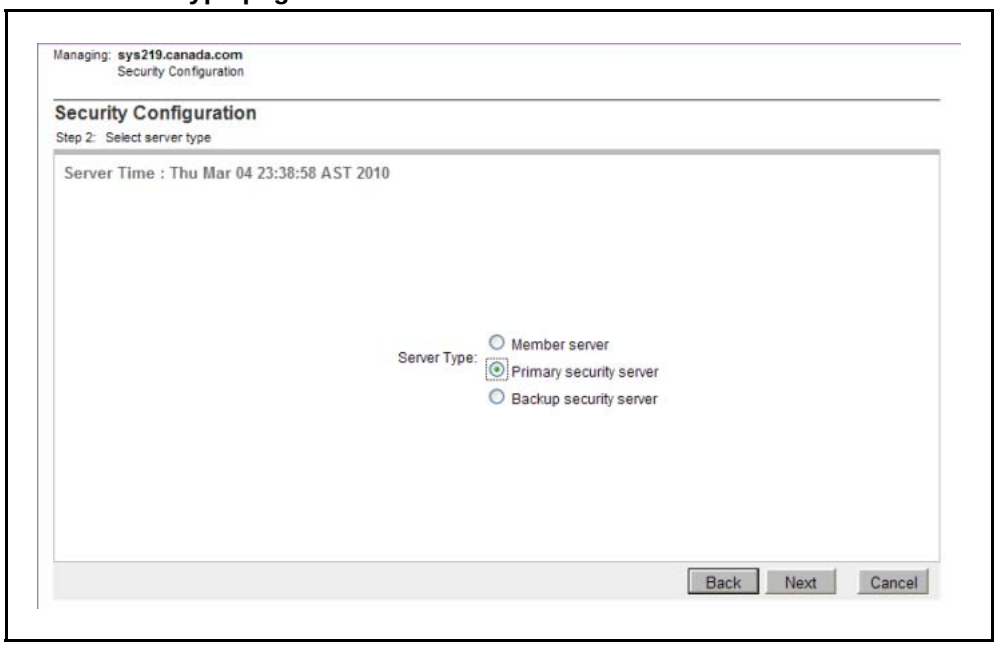
3	Click **Security Configuration**. The FQDN validation page appears, as shown in the following figure.

4 Confirm the IP address and FQDN is correct, and click **Next**.

ATTENTION
If using a DNS server, the DNS server must be configured before proceeding.

5 On the **Select server type** page, select Primary security server, and click **Next**.

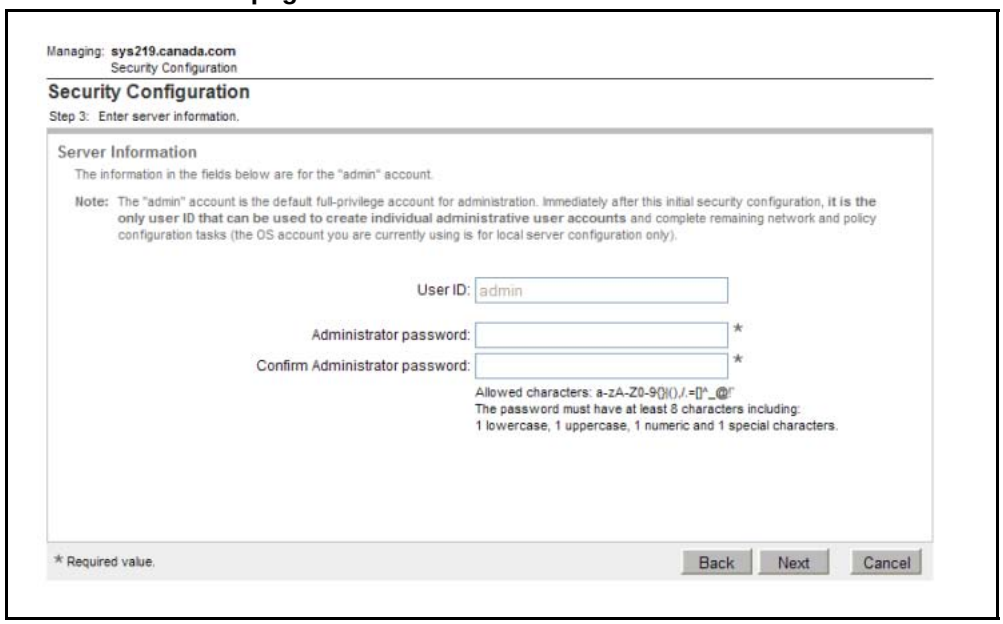
Figure 40
Select server type page



6 On the **Enter server information** page, type the **Administrator password** for the built-in Admin account, and retype the

password in the **Confirm Administrator password** field, and click **Next**, as shown in the following figure.

Figure 41
Server Information page



7 On the **Enter Certificate information** page to configure the following values and then click **Finish**.

Friendly name: Type a string that would be used to identify the certificate, for example, UCM Primary Security Server.

Bit length: Type a value that represents the number of bits used for encryption. Values can be 512, 1024, and 2048. More CPU is required for processing as the bit value increases.

Organization: Your company name.

Organization unit: A division within your company.

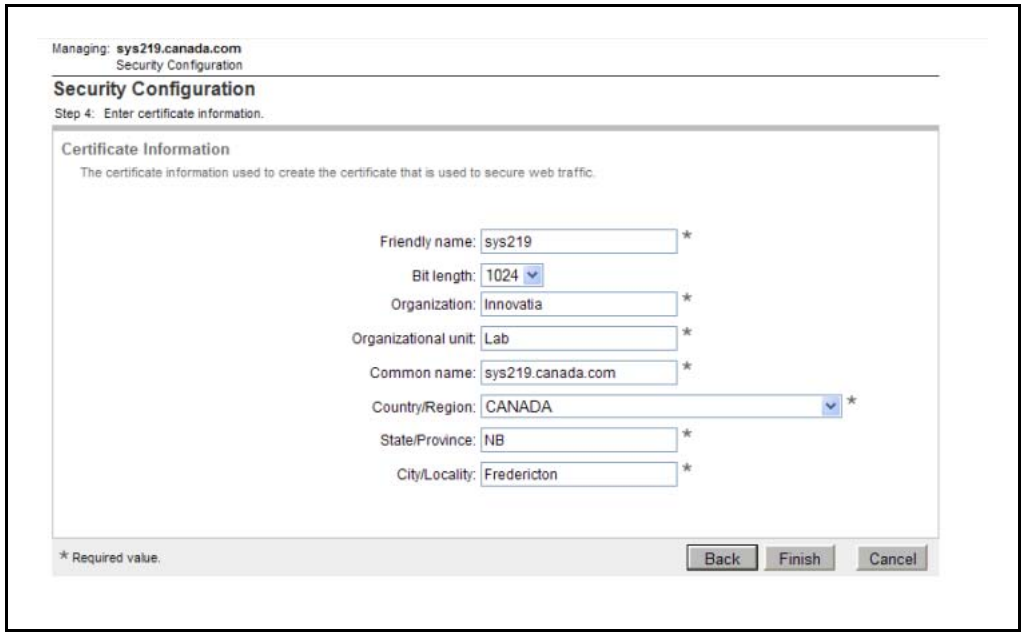
Common name: FQDN of the server. The default is a combination of Windows environment variables Computername and Userdnsdomain. Ensure this field matches the hostname of the system the certificate is on.

Country/Region: Select a country from the list.

State/Province: A State/Province where the primary server is located.

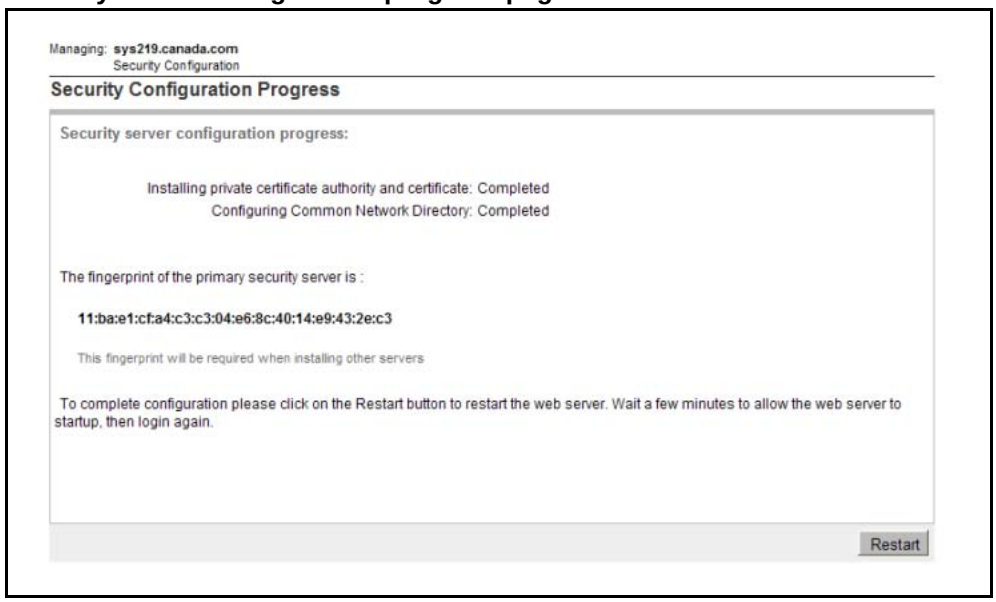
City/Locality: A City/Locality where the primary server is located.

Figure 42
Certificate Information page



8 On the **Security server configuration progress** page, click **Restart** to restart the Web server and the security configuration changes to take effect.

Figure 43
Security server configuration progress page



The Restarting the server Web page appears.

9 Close the Web browser and proceed to “Preconfiguring (staging) deployment targets” (page 75).

ATTENTION
Wait several minutes after configuring the primary security server before logging on to UCM.

--End--

Preconfiguring (staging) deployment targets

You have installed Linux Base on your primary security server (Deployment Server). You can now begin the preconfiguration stage to logically configure the member and backup servers before physically installing the Servers and joining them to the domain.

Prerequisites

- Linux Base must be running Release 7.0 on your primary security server, see “Installing a new Linux Base” (page 53) or “Upgrading Linux Base ” (page 85).
- You must have all the configuration details prepared before you begin preconfiguring the Primary, Member, and Backup servers using Deployment Manager.
- The primary security server must be configured. For more information, see “Configuring the primary security server” (page 71).
- You must be able to log on to UCM. For more information, see “Logging on to Unified Communications Management” (page 102).
- Must be able to access Deployment Manager. For more information, see “Accessing Deployment Manager” (page 103).
- Ensure your hardware is a COTS 2 or CP DC.

Step	Action
1	Log on to the UCM primary security server with the account that has the NetworkAdministrator role assigned.
2	In the navigation pane, click **Network**, **Software Deployment**. The Deployment View page appears.
3	In the navigation pane, click **Software Loads**.
4	Select the required .nai files to upload to the deployment server library. For detailed procedures, see “Adding a software load from the Client Machine” (page 105).

ATTENTION
You can upload only one version of each load type. All deployed servers use the same load version.

5 Add the backup and member Linux servers. For detailed procedures, see "Adding a Linux server" (page 109) If your servers have joined the security domain, proceed to Step 7; otherwise, continue to the next step to add the VxWorks Call Servers to your network.

ATTENTION
The server does not need to be physically installed at this step. Only the configuration details are required.

A Linux Base element is created in UCM and the element name is visible from the default Deployment View or UCM Elements page.

ATTENTION
On the Deployment view page, the Linux Base version does not appear under the Base Version field and the Status field is identified as Preconfigured. The server is still a logical server at this point. After you physically install the server, the Base Version and Status fields show the new version number and Configured status.

6 Add the VxWorks Call Servers to your network, as described in "Adding a VxWorks Call Server " (page 118) or "Adding a VxWorks Call Server for a High Availability system" (page 117).

Note: If your VxWorks Call Server has joined the security domain, proceed to the next step.

An active VxWorks Call Server element appears on the Deployment View page. For HA systems, an inactive VxWorks Call Server also appears on the Deployment View page.

ATTENTION
The servers are not physically installed or registered to the security domain at this stage.

7 Allocate the servers into the hierarchical groups which determines the application packages required for deployment.

The servers can be allocated into the following groups:

- Network Services: for detailed procedures, see the following:
  - "Adding a MAS service" (page 120)
  - "Adding a Network Routing Service" (page 121)
  - "Adding a Subscriber Manager service" (page 122)

— “Adding a SIP Trunk Bridge” (page 123)

— “Adding an IM presence” (page 119)

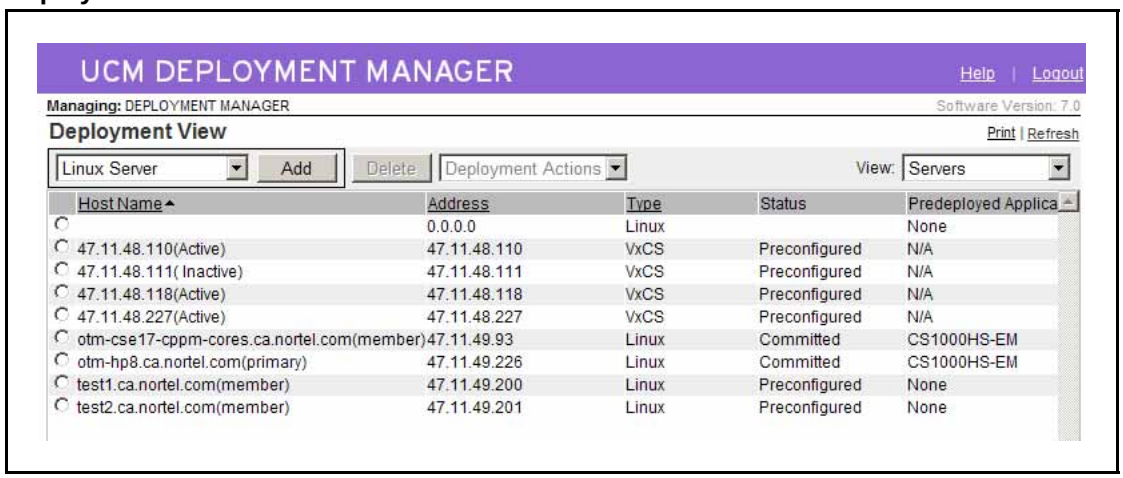
- CS 1000 systems: for detailed procedures, see the following:
  — “Adding a CS 1000 system” (page 125)
  — “Defining a new CS 1000 High Scalability system” (page 130)

On the Deployment view page, the Status field changes from Preconfigured to Predeployed to identify that the server is now part of one or more groups. The Predeployed Applications field shows the applications that correspond to the selected services.

8 On the **Deployment View** page, choose **Servers** from the **View** list, and click **Commit**, as shown in the following figure.

ATTENTION
The Commit button is a system wide operation. All servers in the Predeployed status are committed.

Figure 44
Deployment View commit screen



The Deployment View status is updated to Committed and the Linux servers are now ready for installation and deployment.

9 Install the VxWorks Call Servers and join the security domain, if not already done.

10 You must now physically connect the member and backup servers. If Linux Base for the backup and member servers is not installed, proceed to “NFS based new installation” (page 78) or if Linux Base is preinstalled, reconfigure the parameters, see “Configuring a Server pre-loaded with Nortel Linux Base” (page 98) or if Linux Base is already installed from installation media

and security is configured, proceed to “Deploying applications on a server” (page 137).

--End--

NFS based new installation

This section is new for Release 7.0 and describes the recommended approach for installing Linux Base on the member and backup target servers using an Network File System (NFS) based remote installation method.

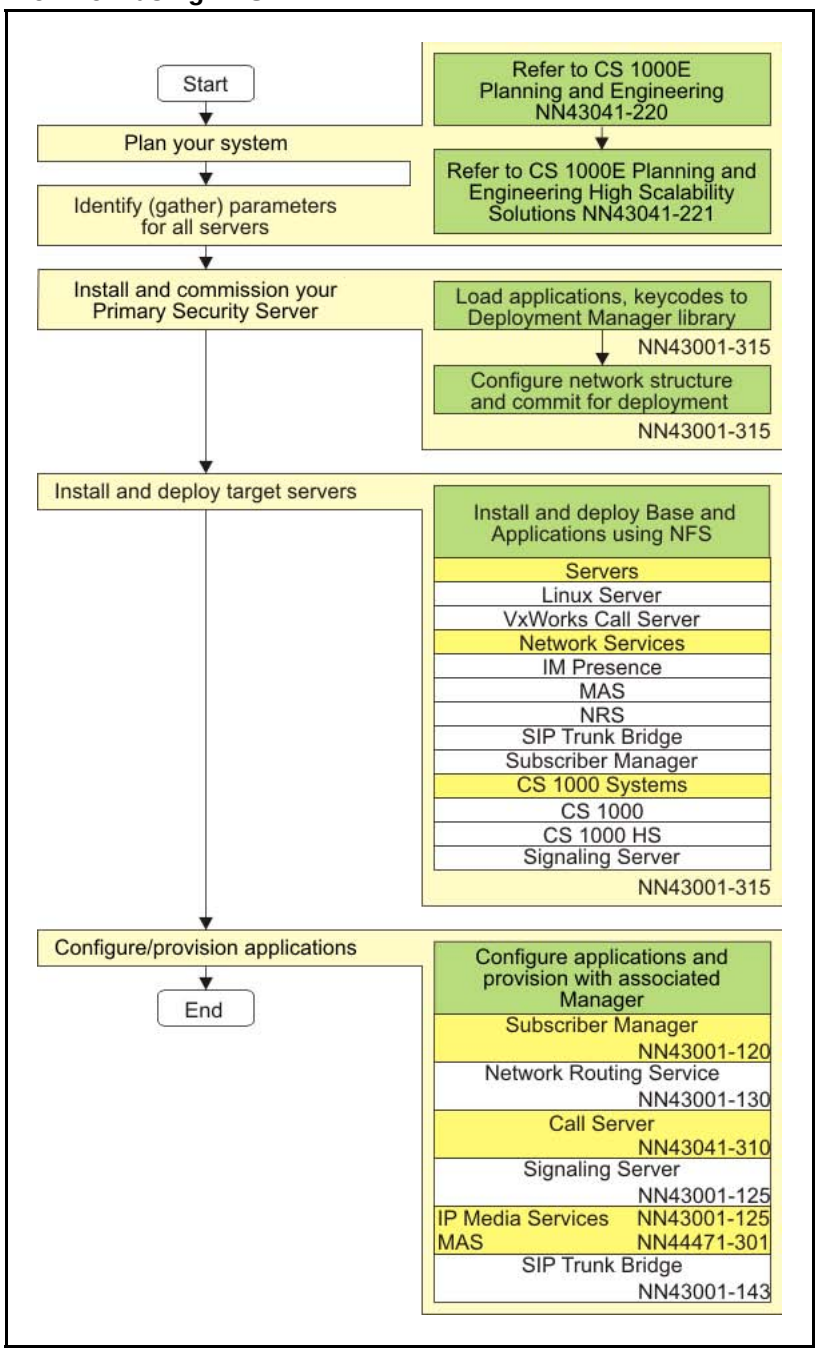
For Linux Base upgrades or Disaster Recovery procedures, see the following sections:

- “Upgrade Linux Base” (page 85)
- “Disaster recovery” (page 187)

Installation workflow using NFS

The following figure shows the workflow for a new CS 1000 system Linux installation and commissioning using NFS. The flow indicates the recommended sequence of events to follow and provides the technical document number for the detailed procedures required for the task.

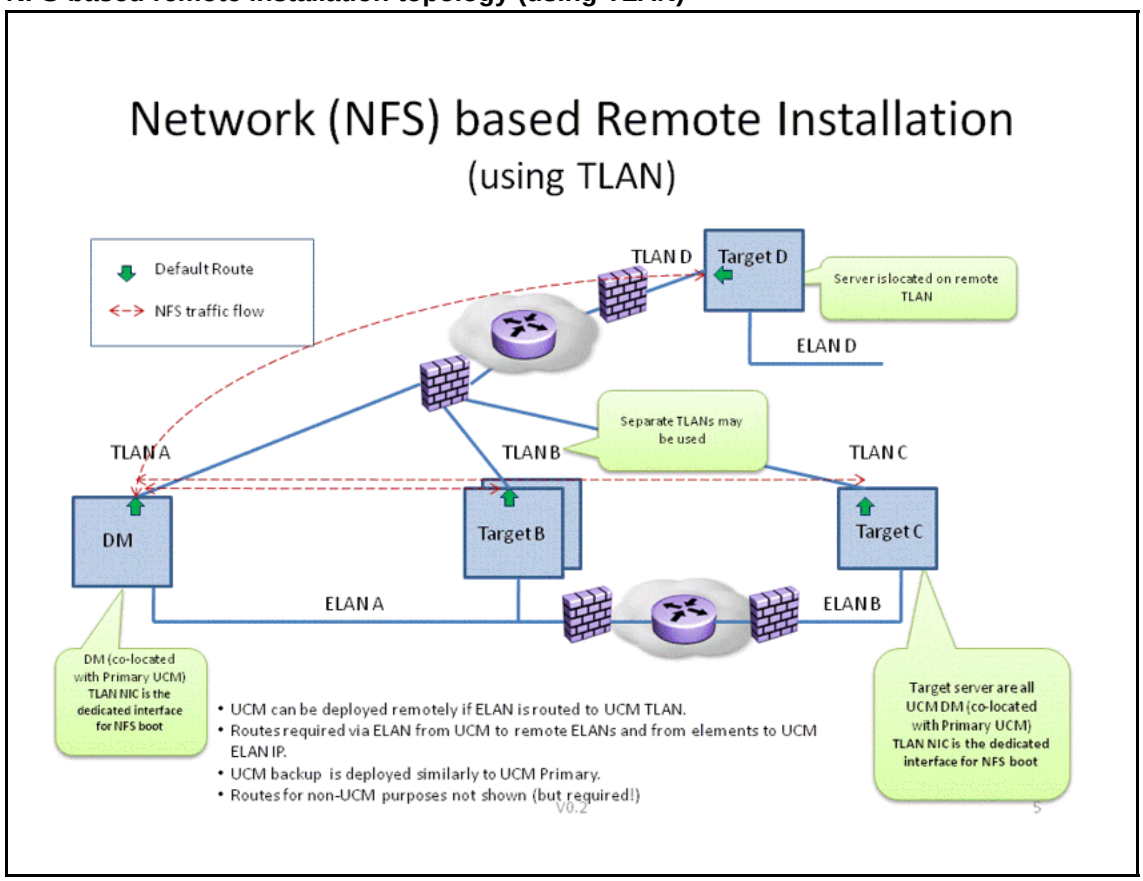
Figure 45
Workflow using NFS



NFS based remote installation topology

The following figure depicts a detailed NFS-based installation. Only the TLAN network interface is supported on the Deployment Server and target servers. In this diagram, TLAN A, B, C, and D are on different subnets in a WAN environment.

Figure 46
NFS-based remote installation topology (using TLAN)



Prerequisites

- You must connect your terminal to a serial port or kvm (for COTS, CP DC, or CP MG).
- The Deployment Manager must already be commissioned on a server.
- The target servers must be in a Committed status.
- Ensure that the proper TLAN routing on your data network is enabled.
- Ensure NFS service is Enabled from Deployment Manager in the Servers view.
- Ensure NFS traffic is allowed on your data network.

- On the target servers, ensure the correct IP addresses are provided during the NFS restart process.
- On the target server, ensure the Deployment Server TLAN IP address is provided during the NFS restart process.
- On the target server, ensure the cables for your ELAN/TLAN interfaces are connected.

Installing the servers (NFS-based new installation)

Use the following procedure for installing a new Linux Base on your target servers using NFS. For a network topology diagram of NFS, see Figure 46 "NFS-based remote installation topology (using TLAN)" (page 80).

Step	Action
1	Insert the installation media: (DVD, Compact Flash, or USB memory stick) for your specific member server. • For CP PM servers, insert the compact flash installation media. • For CP MG and CP DC, insert the USB 2.0 memory stick. • For COTS servers, insert the DVD installation media. ***Note 1:*** You must have a Compact Flash (CF) card or USB 2.0 memory stick with a capacity of at least 2 GB. ***Note 2:*** The N0220961 USB memory stick is supported for Communication Server 1000 Release 7.0. Not all USB memory sticks are supported.
2	Restart the server.
3	Boot from the Linux Base installation media. For COTS: Boot from the Linux Base DVD. **ATTENTION** The boot prompt appears only briefly. You have about eight seconds to respond before it defaults to COM1. After the **boot:** prompt appears, proceed to Step 5. **OR** For CP DC (NTDW53, NTDW54), CP MG (NTDW56, NTDW59), or CP PM version 2 (NTDW99CAE6, NTDW66CAE6), press the **F** key when prompted to load the boot manager, as shown in Figure 15 "CP DC and CP MG boot manager screen" (page 55). Proceed to Step 4. **OR**

For CP PM Version 1 cards, at the Linux Base installer screen, press the **F** key when prompted to force the board to boot from the faceplate drive, as shown in Figure 14 " CP PM Version 1 boot screen" (page 54), and proceed to Step 5 in this procedure.

4 Select the Linux Base installation media from the boot manager.

For CP DC and CP MG cards, select the **USB boot device** from the Boot Option Menu by moving the arrow keys up or down, and press **Enter** to boot from the Linux Base installation.

OR

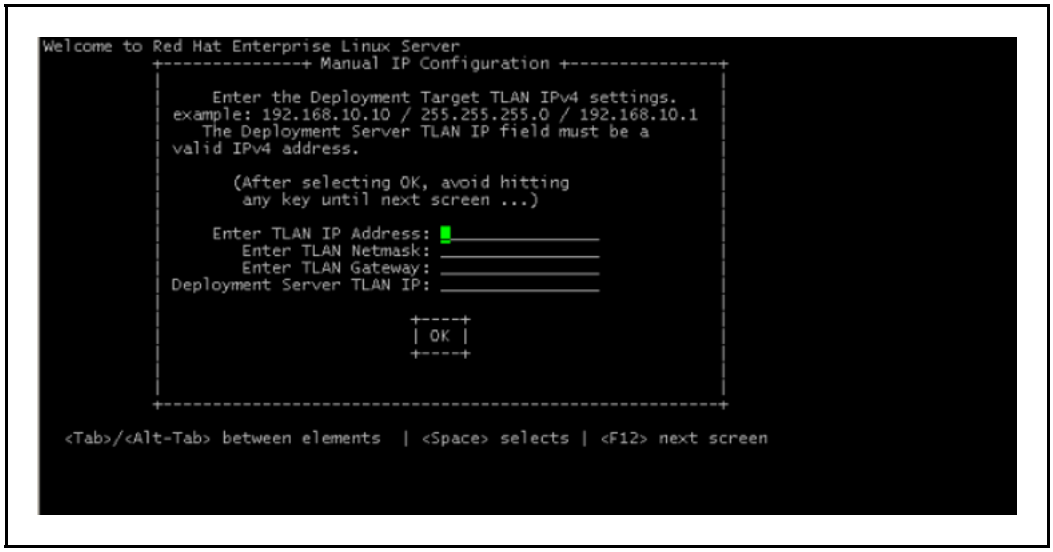
For CP PM Version 2 cards, select the **Faceplate RMD** from the Boot Option Menu, and press **Enter** to boot from the Linux Base installation.

5 At the boot prompt, type **com1-nfs** or **kvm-nfs**.

Note: Kvm-nfs is not a valid option for CP PM and CP MG servers.

6 On the **Manual IP Configuration** page, type the Target Server **TLAN IP Address**, the **TLAN Netmask**, the **TLAN Gateway** address, and the **Deployment Server TLAN IP** address, as shown in the following figure.

Figure 47
Manual IP configuration screen



7 Select **OK**.

The console displays installation details during the automated process. Upon completion, you receive the logon prompt.

ATTENTION
Expect this procedure to take some time. Upon completion, the member server is installed with the Linux Base, security configured, and the required applications are deployed.

--End--

Upgrade Linux Base

This chapter describes the procedures for upgrading Linux Base.

Navigation

- “Prerequisites to upgrading Linux Base ” (page 85)
- “Upgrading Linux Base ” (page 85)

Prerequisites to upgrading Linux Base

- During an upgrade procedure, keycodes for Co-res installations are lost. You must create a copy of the keycodes before you perform the upgrade procedure.
- You must be able to log on using the nortel or admin account or any user account with the networkadministrator role assigned.

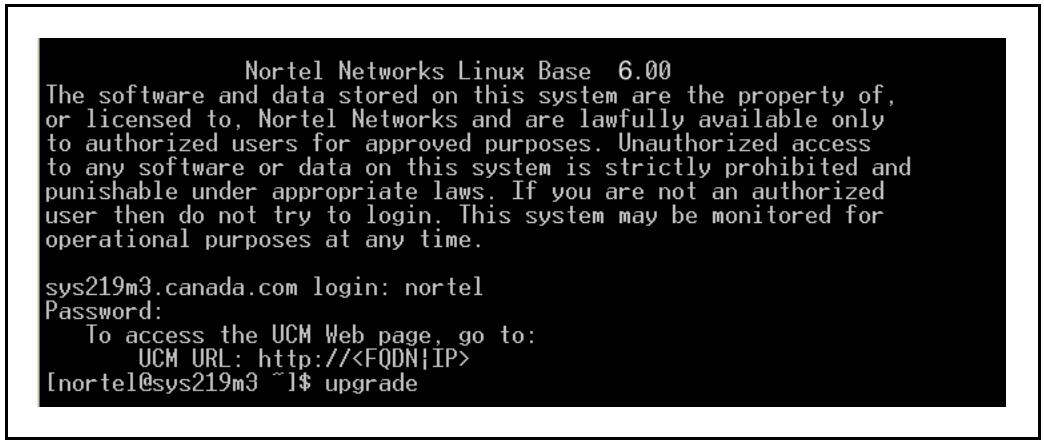
Upgrading Linux Base

The following Linux Base installation procedure and figures apply to COTS, CP PM or CP MG, and CP DC hardware platforms. Figures and procedures that apply to a specific hardware platform are indicated.

ATTENTION
During an upgrade, the hard drive is formatted and all data is lost. To preserve the data, perform a backup to an external source before you attempt an upgrade.

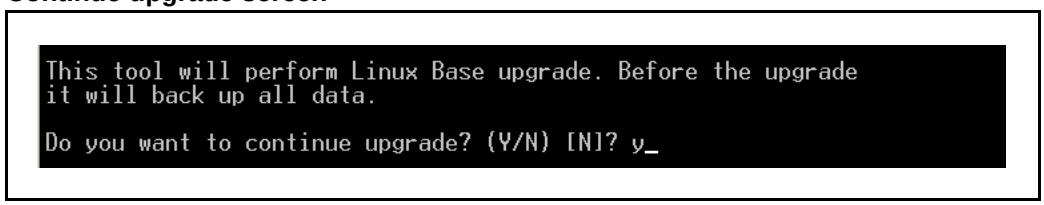
Step	Action
1	Log on to the server using an account with networkadministrator privileges. For example, admin.
2	At the command prompt, type **upgrade**, as shown in the following figure.

Figure 48
Upgrade



3 Type **Y** at the command prompt to continue the upgrade, as shown in the following figure.

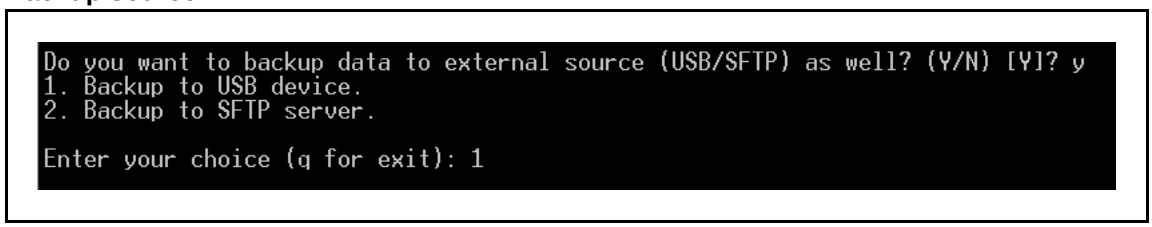
Figure 49
Continue upgrade screen



The tool backs up all system data before upgrading. The system data is saved to the /admin partition. Use the option Re-use /admin partition during Linux Base installation.

4 Type **Y** at the prompt to backup data to external source (USB/SFTP), as shown in the following figure.

Figure 50
Backup source



Type **1**, if you would like to backup to a USB device or type **2**, if you would like to backup your data to an SFTP server, as shown in the previous figure.

OR

Type **q** to exit and not save the system data to an external source.

5 On the **secure FTP server's IP address** line, type a value for secure FTP server IP address.

On the **SFTP login** line, type a value for SFTP login.

On the **SFTP password** line, type a value for SFTP password.

On the **remote SFTP directory** line, type a value for remote SFTP directory.

ATTENTION
If you perform SFTP as the nortel user (non-jailed) then an example of an absolute sftp path is: /var/opt/nortel/patch. If you perform SFTP as any other user (jailed) then an example of an absolute sftp path is: /patch (assuming that the user is part of the patchadmin group). For users other than nortel (jailed), the directories available using SFTP depends on what group they belong to.

6 Type **Y** if you want to proceed with the installation, as shown in the following figure.

Figure 51
Confirmation screen

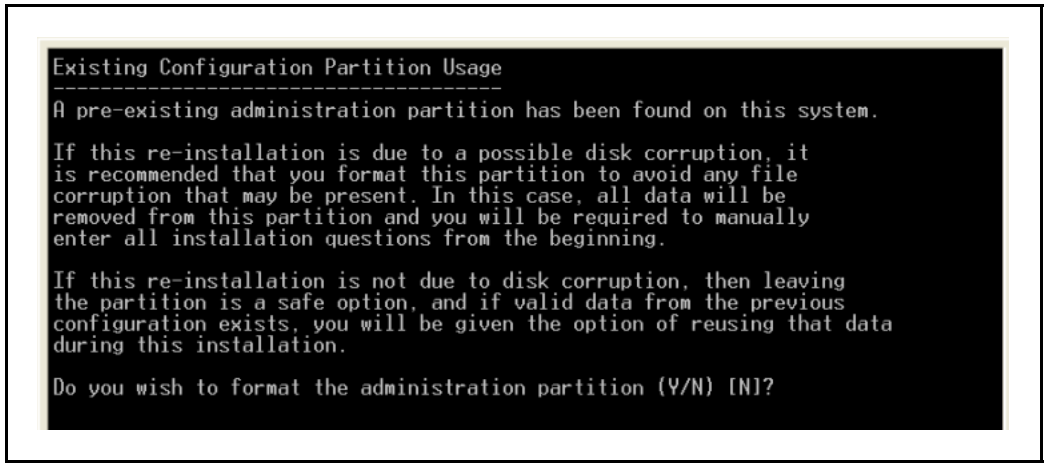
You are now prompted to format the administration partition. Only format the partition if you suspect the integrity of the partition has been compromised, for example, a corrupted disk, the local backup information is incorrect, etc.

7 Type **N** if you do not want to format the existing administration partition.

OR

Type **Y** if you want to format the existing administration partition, as shown in the following figure.

Figure 52
Existing administration partition confirmation screen

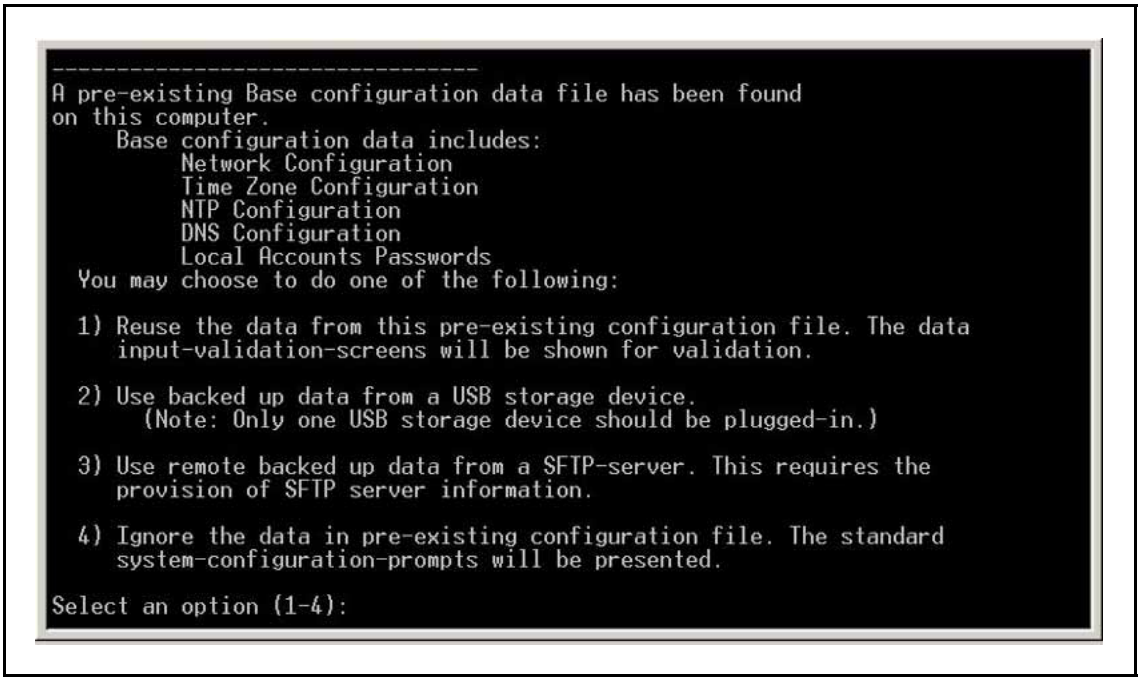


The Base Configuration Data Selection screen appears, as shown in the following figure.

8 Type one of the following, as shown in the following CP PM figure:

1. Type **1** to reuse the data from the preexisting configuration file. That data input validation screens are shown for validation.
2. Type **2** to load previously backed up data from a USB storage device.
3. Type **3** to load previously backed up data from SFTP server.
4. Type **4** to ignore the data from the preexisting configuration file. The standard system configuration prompts are presented.

Figure 53
CP PM Base configuration data selection screen



Note: For CP DC and CP MG servers: Option 2 is different.Only one USB storage device can be connected; therefore, your backed up data must be on your USB installation device, as shown below.

Figure 54
CP DC and CP MG Option 2 screen

9 Proceed to Step 9 to Step 15 in "Installing a new Linux Base" (page 53) to continue the installation process.

--End--

Upgrade CS 1000 system Linux installation

This chapter provides the procedures for an end-to-end upgrade of Linux Base and applications. At this stage, Linux Base has been upgraded on the Primary security server (Deployment Server).

WARNING
During an upgrade, the hard drive is formatted and all data is lost. To preserve the data, perform a backup to an external source before you attempt an upgrade.

WARNING
During an upgrade procedure, keycodes for Co-res installations are lost. You must create a copy of the keycodes before you perform the upgrade procedure.

WARNING
If you access the Linux server through a Terminal Server connected to the COM port, it is possible that garbled characters (such as uuuuuu) can appear during a system restart (for example, during the installation or upgrade procedure). This appearance can make the system seem to hang.

You can resolve the problem by reestablishing the COM1 connection from the client PC or work station to the Linux server.

Do not manually restart the system during the upgrade or installation. This can result in hard drive corruption and forces you to reinstall the system.

Navigation

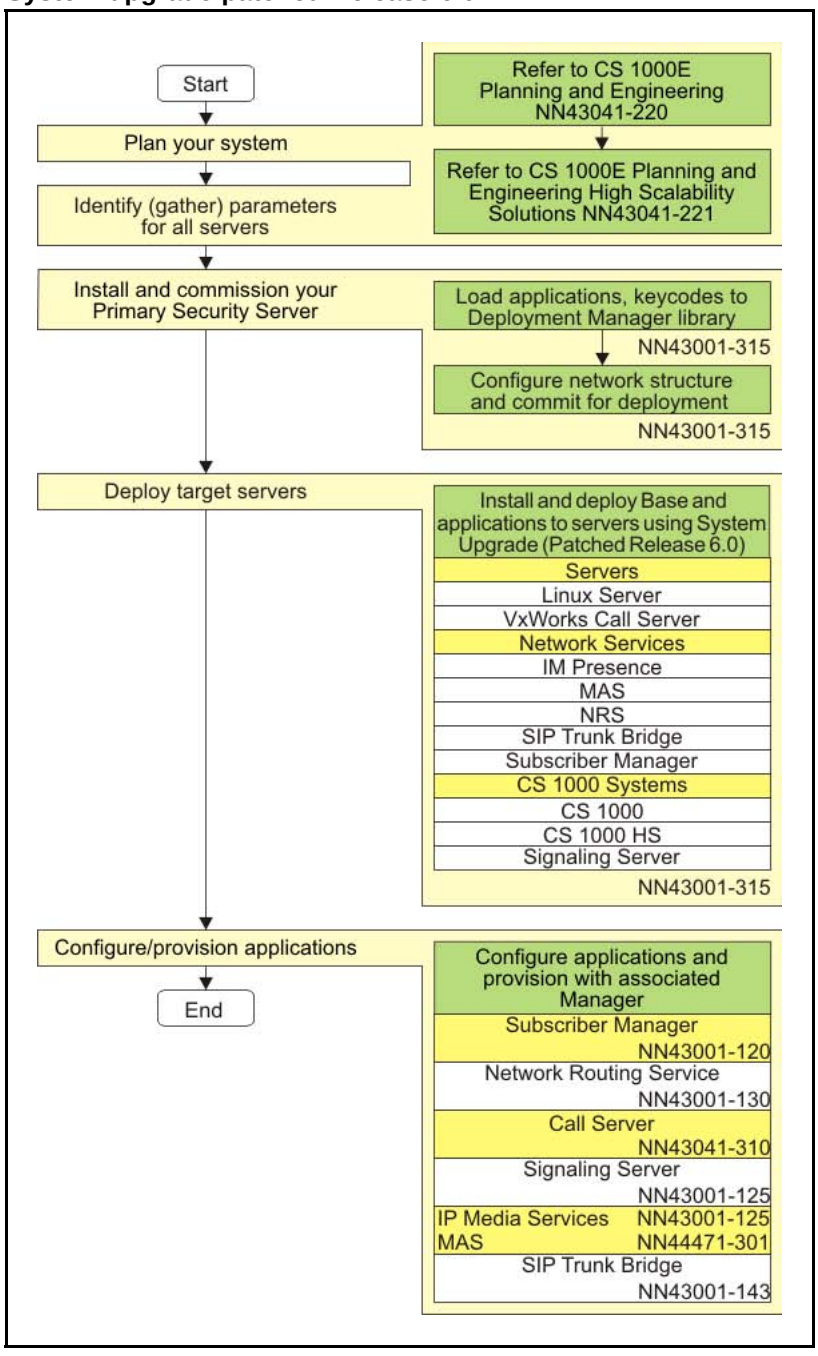
- “Upgrading a backup or member server from Release 6.0” (page 92)
- “Accessing the Local Deployment Manager” (page 95)
- “Configuring a Server pre-loaded with Nortel Linux Base” (page 98)

Upgrading a backup or member server from Release 6.0

Upgrade a backup or member server from Release 6.0. A system upgrade includes a reinstallation of Linux Base and applications with your system data restored.

The following figure provides a workflow for upgrading a CS 1000 system Linux installation and commissioning on a patched Release 6.0 system. The flow indicates the recommended sequence of events to follow and provides the technical document number for the detailed procedures required for the task.

Figure 55
System upgrade patched Release 6.0



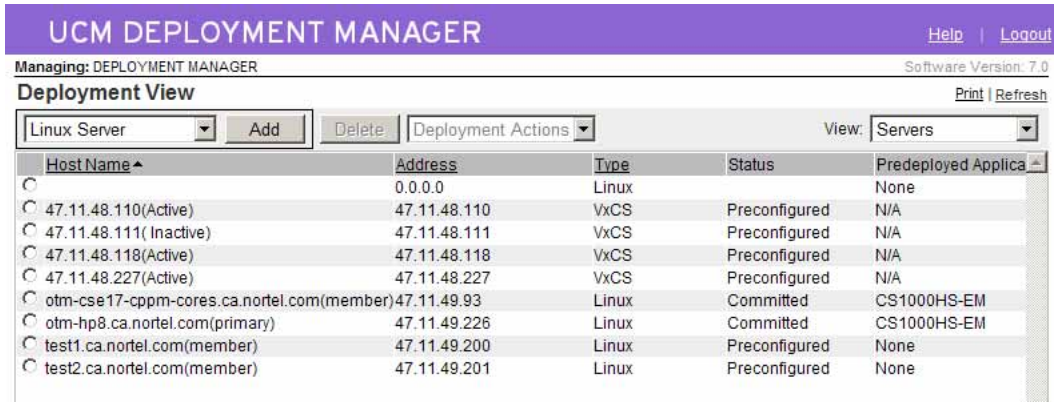
Prerequisites:

- The Primary security server (Deployment Server) must already be upgraded to Release 7.0. See “Upgrading Linux Base ” (page 85).

Step	Action
1	Apply the Service Update (SU) patch for your Release 6.0 Target Server.
2	Allocate the servers into the hierarchical groups which determines the application packages required for deployment. The servers can be allocated into the following groups: **ATTENTION** If you are upgrading a previously deployed server and there is a previous configuration or a subset of a supported Release 7.0 configuration, the grouping can only be applied to a supported Release 7.0 configuration. For example, if the previously configured server contained NRS+SS_EM, then this server can be configured for the NRS group, SS group, and you can choose Element Manager. You cannot configure this server as a Call Server. You must also ensure that the server is associated in the same group. For example, if the previously configured server was configured with EM to manage a particular call server, you need to associate this server in the same group as that call server. • Network Services: for detailed procedures, see the following: — “Adding a MAS service” (page 120) — “Adding a Network Routing Service” (page 121) — “Adding a Subscriber Manager service” (page 122) — “Adding a SIP Trunk Bridge” (page 123) — “Adding an IM presence” (page 119) • CS 1000 systems: for detailed procedures, see the following: — “Adding a CS 1000 system” (page 125) — “Defining a new CS 1000 High Scalability system” (page 130) On the Deployment view page, the Status field changes from Preconfigured to Predeployed to identify that the server is now part of one or more groups. The Predeployed Applications field shows the applications that correspond to the selected services.
3	On the **Deployment View** page, choose **Servers** from the **View** list, and click **Commit**, as shown in the following figure.

ATTENTION
The Commit button is a system wide operation. All servers in the Predeployed status are committed.

Figure 56
Deployment View commit screen



4 Select the server to upgrade and select **System Upgrade** from the **Deployment Actions** list

If required, you can monitor the installation and deployment progress by using a serial port console.

5 You must register the upgraded 6.0 element using one of the following two options:

In LD 117, type REGISTER UCMSECURITY SYSTEM FORCE

OR

From UCM, select the element to update and click **Edit**.

6 From the **Element Details** page, click **Edit**.

The Release page appears.

7 Select **Release 7.0** from the list and click **Save**.

--End--

Accessing the Local Deployment Manager

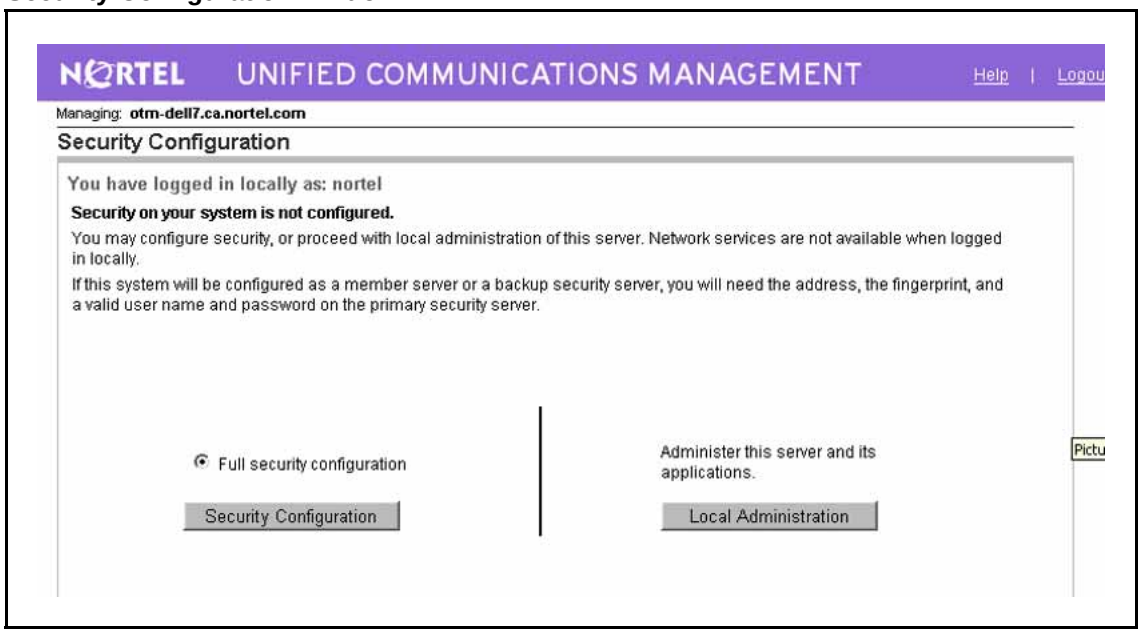
Application software can be deployed on a server before joining the security domain. To do this, you must log on to the local server and use Deployment Manager to deploy the software locally. When the server does join the security domain, local deployment information is recognized by Deployment Manager. For information about joining the security domain, see *Unified Communications Management Common Services Fundamentals* (NN43001-116).

Prerequisites:

- Download the appropriate .nai file (CS1000, IM Presence, or MAS) from the software download site to the server running Deployment Manager.

Step	Action
1	Log on to the server using the nortel user ID and password. The Security Configuration screen appears, as shown in Figure 57 "Security Configuration window" (page 96).

Figure 57
Security Configuration window



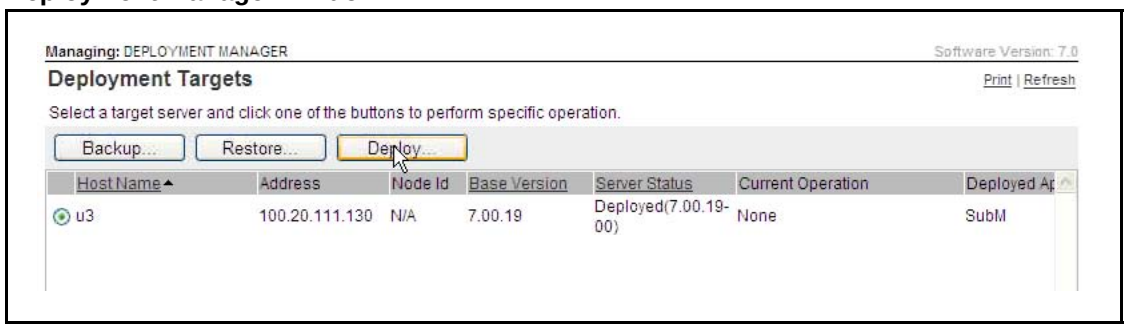
2	Click **Local Administration**. The screen appears, as shown in Figure 58 "Base Manager window" (page 97).

Figure 58
Base Manager window

3 In the navigation pane, click **Deployment**.

The Deployment Manager screen appears, as shown in Figure 59 "Deployment Manager window" (page 97).

Figure 59
Deployment Manager window



4 Click the button beside the hostname.

5 Click **Deploy**.

6 Click **Upgrade**.

--End--

Configuring a Server pre-loaded with Nortel Linux Base

The Nortel Linux Base image can be pre-loaded on new Servers shipped from the factory; this saves the Linux Base installation time. The pre-loaded Server is shipped with some default settings preconfigured, such as:

- The default password for both the root and nortel user accounts is nortel12_Nortel
- The default IP address for the ELAN interface is 192.168.1.3
- The default IP address for the TLAN interface is 192.168.1.2
- The default hostname is: localhost

You are required to start the commissioning of the server by connecting a maintenance terminal to the serial port on the Server for configuration of customer-assigned IP addresses, the FQDN, and other customer settings such as DNS server or time and date.

Perform the following procedure to prepare the Server for installation.

Step	Action
1	Connect a maintenance terminal to the Server serial port.
2	Log on as nortel using the default password.
3	Type **`passwd`** .
4	Change the nortel password. For information about changing passwords, see “Changing Linux Base passwords” (page 191).
5	Log on as root by typing **`su-`** and the default password.
6	Type **`passwd`** .
7	Change the root password. For information about changing passwords, see “Changing Linux Base passwords” (page 191).
8	Log on as nortel by typing the **`exit`** CLI command. ***Note:*** You must be logged on as root. **OR** Log on as nortel by logging on to the COM1 port as nortel and using the newly created password.
9	Type **`baseparamsconfig`**.

WARNING
Do not change the FQDN of the primary or backup security server when you use the baseparamsconfig command.

10 Make appropriate changes to base parameters, such as FQDN or IP settings.

11 Type **Y** to save the base parameters changes.

The system restarts.

12 Connect the ELAN and TLAN interfaces to the data network.

13 Proceed to Step 2 in “Preconfiguring (staging) deployment targets” (page 75).

--End--

Deployment Manager

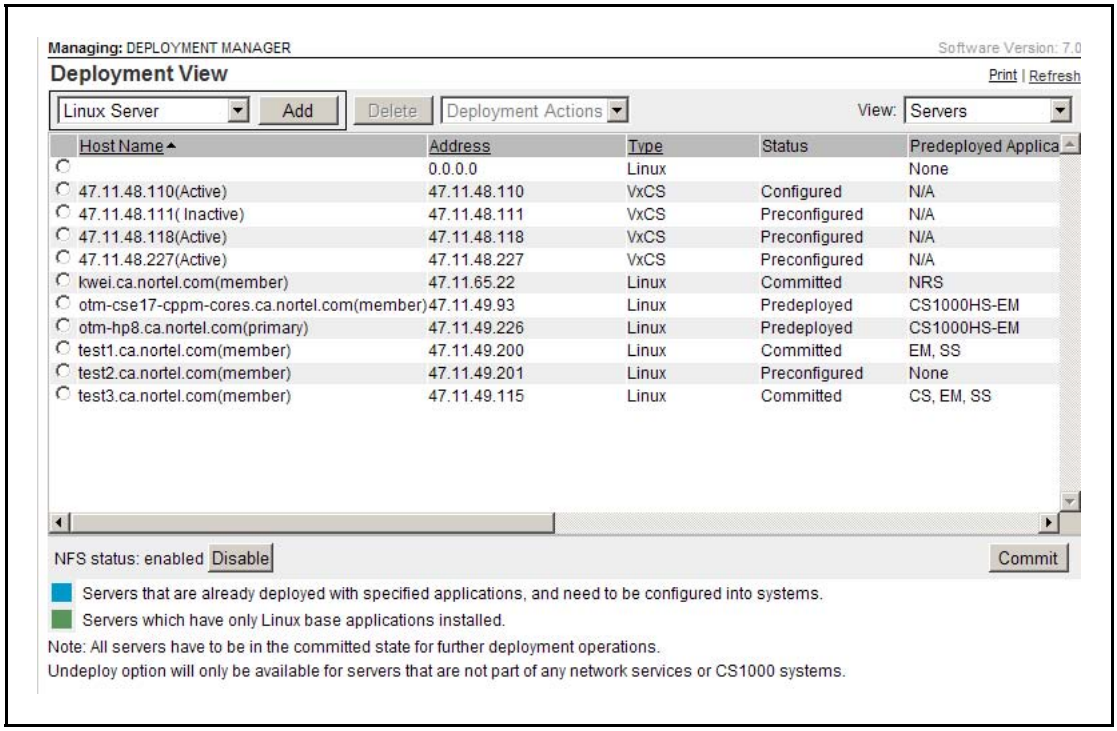
This chapter provides the software deployment procedures you need to configure and install software by using Deployment Manager. For an overview of Deployment Manager, see “Deployment Manager” (page 40). For the procedures on an end-to-end installation and configuration of Linux Base and applications to your target servers, see “New CS 1000 system Linux installation and commissioning” (page 69) or “Upgrade CS 1000 system Linux installation ” (page 91).

Prerequisites

- Log on to UCM. For more information, see “Logging on to Unified Communications Management” (page 102).
- Have access to Deployment Manager. For more information, see “Accessing Deployment Manager” (page 103).
- For Internet Explorer 8. You must update the compatibility view setting if using the tree view structure. For more information, see “Internet Explorer” (page 42).

Deployment Manager is accessed from UCM by clicking Software Deployment. The following figure depicts the UCM Deployment Manager navigation tree with Deployment View as the default page.

Figure 60
UCM Deployment Manager



Navigation

- "Logging on to Unified Communications Management" (page 102)
- "Accessing Deployment Manager" (page 103)
- "Software loads" (page 104)
- "NFS security hardening" (page 107)
- "Deployment View" (page 108)
- "Backups" (page 140)
- "6.0 Deployment Targets" (page 140)

Logging on to Unified Communications Management

Access UCM for application deployment using Deployment Manager.

Step	Action
1	Open the Web browser.

2 Enter one of the following in the Address bar:

- Fully Qualified Domain Name (FQDN) for the UCM server (preferred).
- Unified Communications Management (UCM) framework IP address. After you enter the UCM framework IP address, a Web page appears stating that you must access Unified Communications Management by using the FQDN for the UCM server. Click the link on this Web page to use the FQDN for the UCM server.

3 In the **User ID** field, log on using the Admin account.

4 In the **Password** field, enter your password.

5 Click **Log In**.

The default navigation Web page for UCM appears.

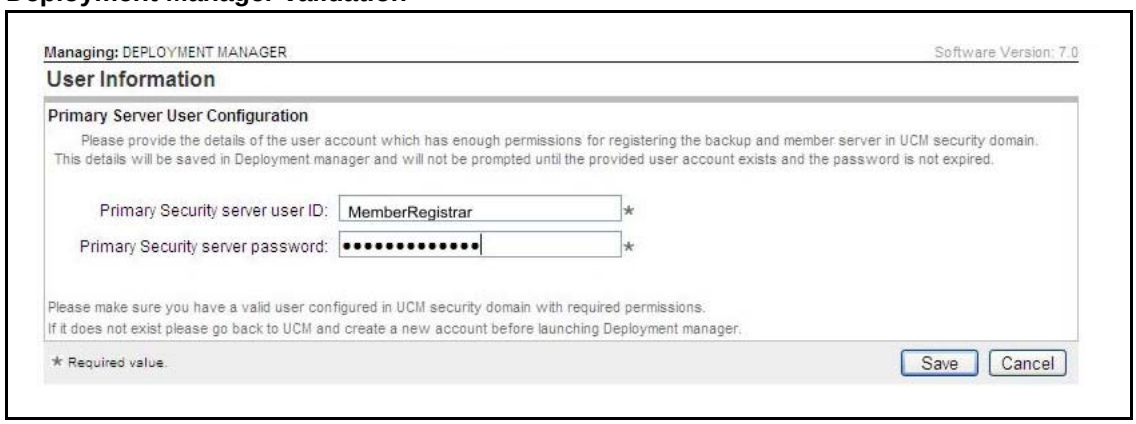
--End--

Accessing Deployment Manager

Access Deployment Manager from UCM.

Step	Action
1	Log on to UCM. See “Logging on to Unified Communications Management” (page 102).
2	In the navigation pane, click **Network**, **Software Deployment**.
3	Validation is performed. If you are logging on for the first time or your credentials have changed, you are prompted for the **Primary Security server user ID** and **Primary Security server password**, as shown in the following figure.

Figure 61
Deployment Manager validation



4 Click **Save**.

--End--

Software loads

This section describes how to upload software to Deployment Manager for predeployment. For information about software loads, see “Software Loads” (page 43).

Prerequisites:

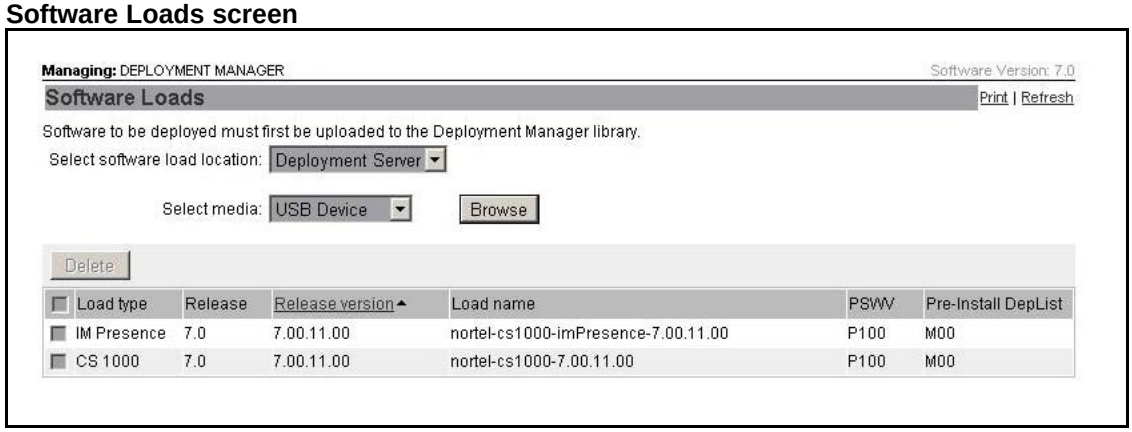
- Upload the appropriate .nai file (CS1000, IM Presence, or MAS) from the software download site to the server running Deployment Manager.
- Collect your network setup information.
- Must be logged on to the UCM Primary security server using the Admin account. For more information, see “Logging on to Unified Communications Management” (page 102).
- Must have accessed the Software Deployment section from UCM. For more information, see “Accessing Deployment Manager” (page 103).

Adding a software load from the Deployment Server

Add a software load from the Deployment Server for predeployment.

Step	Action
1	Click **Software Loads** from the **Deployment Manager** navigation tree. The Software Loads screen appears, as shown in the following figure.

Figure 62
Software Loads screen



2 In the **Select software load location** list, select **Deployment Server**.

3 In the **Select media** list, the choices presented to you are determined by the hardware type for the Deployment Manager.

- CP DC and CP MG servers: USB Device
- CP PM: USB and Compact Flash
- COTS: USB and CD/DVD-ROM

4 Click **Browse** to locate the software load.

A warning screen appears to ensure that you insert the correct software media on the deployment server or that you upload the correct software to the Deployment Manager Library.

5 Click **Add Load**.

An upload progress screen appears.

6 The Software Loads screen appears when the upload is complete.

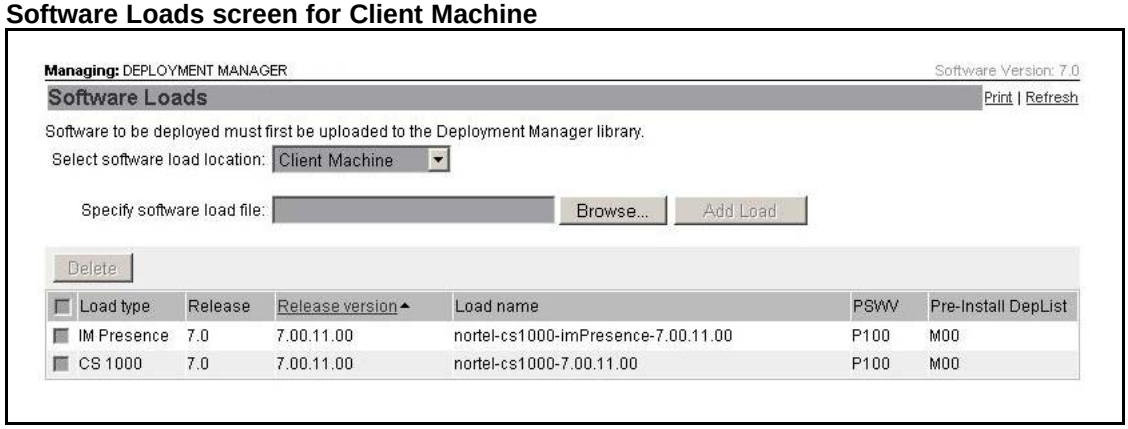
--End--

Adding a software load from the Client Machine

Perform the following procedure to add a software load from a client machine.

Step	Action
1	Click **Software Loads** from the **Deployment Manager** navigation tree. The Software Loads screen appears, as shown in the following figure.

Figure 63
Software Loads screen for Client Machine



2 In the **Select software load location** list, select **Client Machine**.

3 In the **Specify software load file** field, click **Browse** to locate the software load on the client machine.

The Add Load button is now available.

4 Click **Add Load**.

The upload progress screen appears.

5 The Software Loads screen appears when the upload is complete.

--End--

Deleting a software load

Delete a software load.

Step	Action
1	Click **Software Loads** from the **Deployment Manager** navigation tree. The Software Loads screen appears, as shown in Figure 62 "Software Loads screen" (page 105).
2	Select the check box beside the software load to delete. The Delete button is now available for you to select.
3	Click **Delete**.

--End--

NFS security hardening

Every Primary security server (deployment server) must have the Network File System (NFS) enabled when you deploy the Linux Base and applications to the target servers. By enabling NFS, the server can be an NFS server. Nortel recommends that you disable NFS upon completing the transfer of the Linux Base and application software to the target server. You cannot enable NFS on the member or backup security servers. For information about CLI commands for harden nfs, see Table 19 "securityadmin CLI commands" (page 267).

Enabling or disabling NFS from Deployment Manager

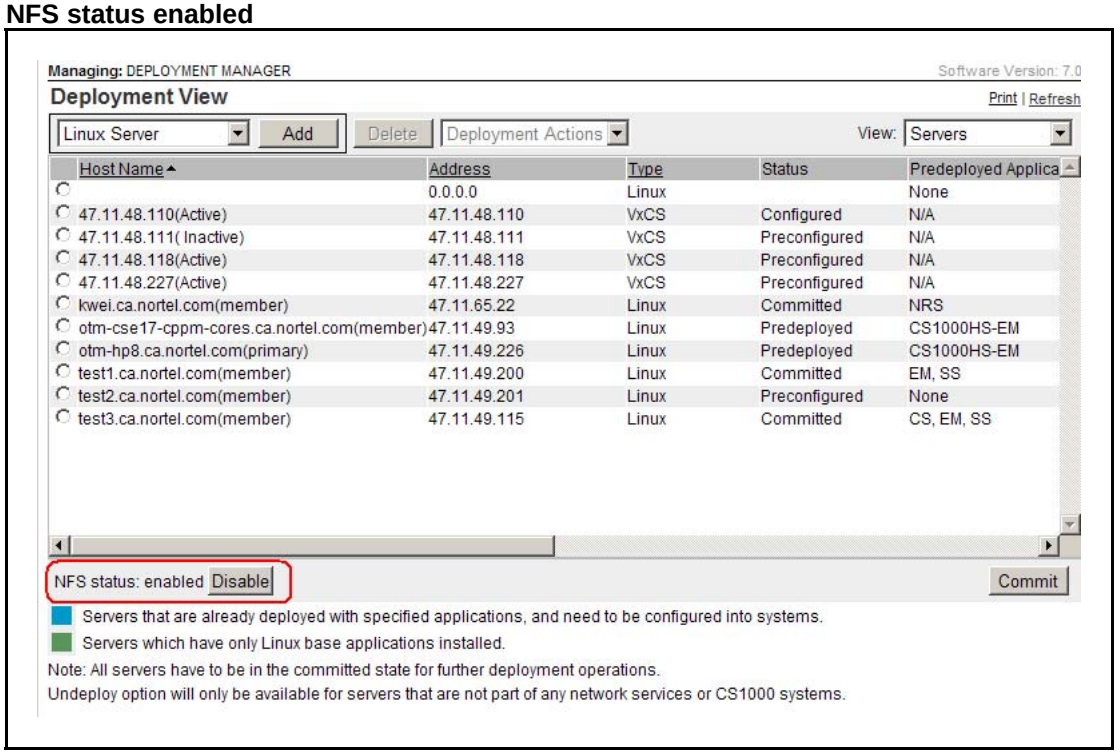
Enable or disable NFS on the Primary security server. The default state is enabled.

Prerequisites

- Must be able to access Deployment Manager. For more information, see “Accessing Deployment Manager” (page 103).

Step	Action
1	On the **Deployment View** page, choose **Servers** from the **View** list.
2	In the **NFS status** section, click **Enable** to enable NFS. The NFS status is refreshed to show the status as enabled, as shown in the following figure.

Figure 64
NFS status enabled



OR

Click **Disable** to disable NFS after the Linux Base and applications are deployed to the server.

ATTENTION
The current state of NFS is displayed in the NFS status section on the Deployment View, Servers page.

--End--

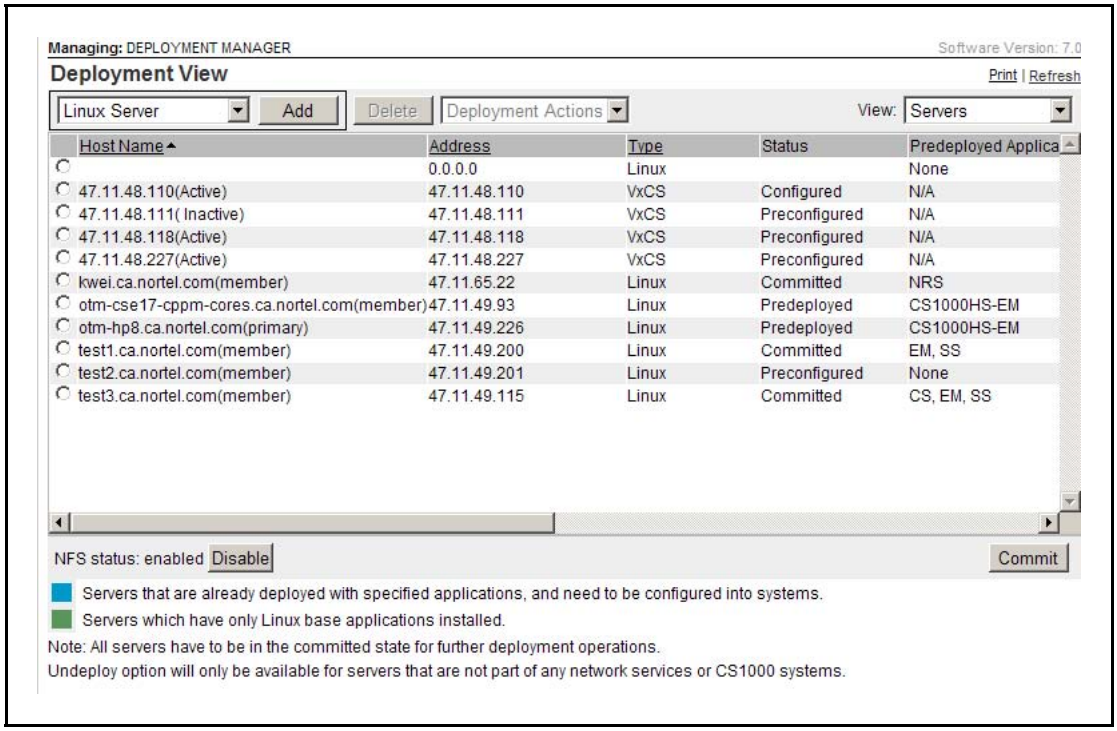
Deployment View

This section describes how to add servers, Network Services, and CS 1000 systems and commit the software for deployment. From UCM, you can access the Deployment View page by clicking Software Deployment, UCM Deployment Manager. For an overview of the Deployment View page, see “Deployment View” (page 41).

From Deployment View, you can access the following:

- “Servers” (page 109)
- “Network Services” (page 119)
- “CS 1000 systems” (page 125)

Figure 65
Deployment View page



Servers

The following describes how to add and remove Linux Servers and VxWorks Call Servers.

Navigation

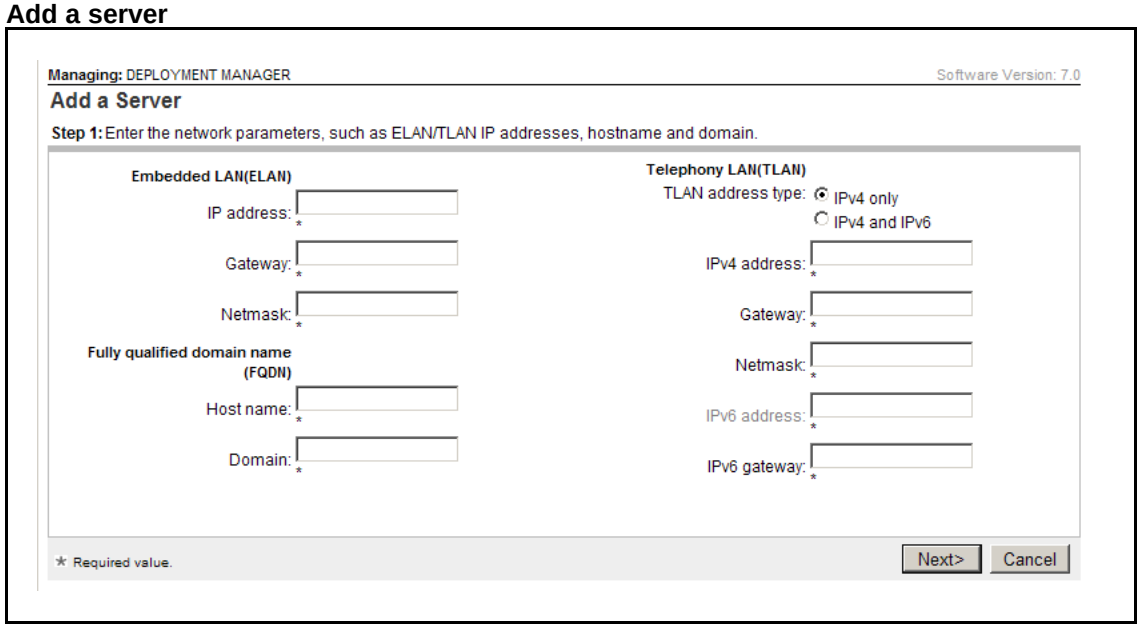
- "Adding a Linux server" (page 109)
- "Configuring the clock source for a Primary server" (page 114)
- "Configuring the clock source for a secondary server" (page 115)
- "Configuring a server that is not a clock server" (page 116)
- "Deleting a Linux server" (page 116)
- "Adding a VxWorks Call Server for a High Availability system" (page 117)
- "Adding a VxWorks Call Server " (page 118)
- "Deleting a VxWorks Call Server" (page 118)

Adding a Linux server

Add a Linux server to Deployment Manager.

Step	Action
1	On the **Deployment View** page, select **Linux Server** from the list, and click **Add**, as shown in Figure 65 "Deployment View page" (page 109). The Enter the network parameters, such as ELAN/TLAN IP addresses, hostname and domain screen appears, as shown in the following figure.
2	In the **Embedded LAN (ELAN)** section, type the IP address, Gateway, and Netmask. In the **Fully qualified domain name (FQDN)** section, type the Host name and Domain.

Figure 66
Add a server

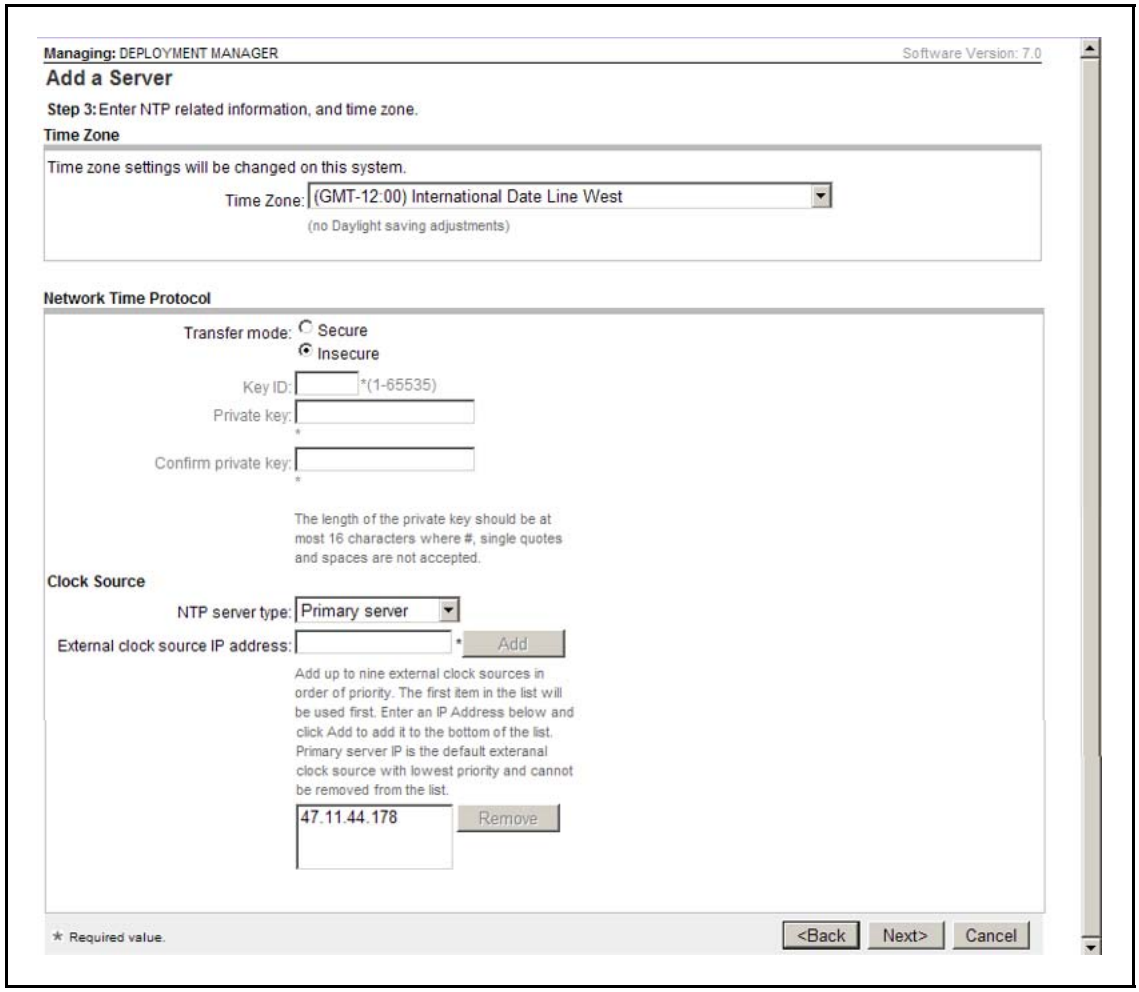


3	In the **Telephony LAN (TLAN)** section, select the TLAN address type **IPv4 only**.**OR** **IPv4 and IPv6**. If you choose only IPv4, type the IPv4 IP address, Gateway, and Netmask. **OR** If IPv4 and IPv6 is chosen, you must also type the IPv6 address and IPv6 gateway, as shown in the previous figure.
4	Click **Next**. The Enter the DNS parameters, such as primary/secondary DNS servers IP addresses page appears.
5	In the **Primary** section, type the Primary DNS IP Address .

In the **Secondary** section, type the Secondary DNS IP Address, and click **Next**.

The Enter NTP related information and time zone page appears, as shown in the following figure.

Figure 67
Enter NTP related information page



6 In the **Time Zone** section, choose the time zone setting for this server.

7 In the **Network Time Protocol** section, select the Transfer mode as **Secure** or **Insecure**.

ATTENTION
If the Insecure option is selected, the Key ID and Private key fields are dimmed and cannot be changed.

8 If you select the Secure option:

In the **Key ID** field, enter a value for key ID.

In the **Private key** field, enter a value for private key.

In the **Confirm private key** field, enter the private key value again.

ATTENTION
The Private key must not exceed 16 characters. The pound (#) symbol, single quotation marks (’), and spaces are not accepted in the string.

9 In the **Clock Source** section, choose one of the following from the **NTP server type** list:

- Primary server
- Secondary server
- Not a clock server

10 Enter the **External clock source IP Address** and click **Add**.

11 Click **Next**.

12 If you select **Primary server** from the NTP server type list, see “Configuring the clock source for a Primary server” (page 114).

If you select **Secondary server** from the NTP server type list, see “Configuring the clock source for a secondary server” (page 115)

If you select **Not a clock server** from the NTP server type list, see “Configuring a server that is not a clock server” (page 116)

The Enter passwords, hardware type and other base related information page appears.

13 In the **Hardware type** list, choose one of the following:

- CPDC
- CPPM
- Dell R300
- HP DL320G4
- IBM X306M
- IBM X3350

14 In the **nortel password** field, type the Nortel password and then confirm the password in the **confirm nortel password** field.

15 In the **root password** field, type the root password and then confirm the root password in the **confirm root password** field.

16 Click **Next.**

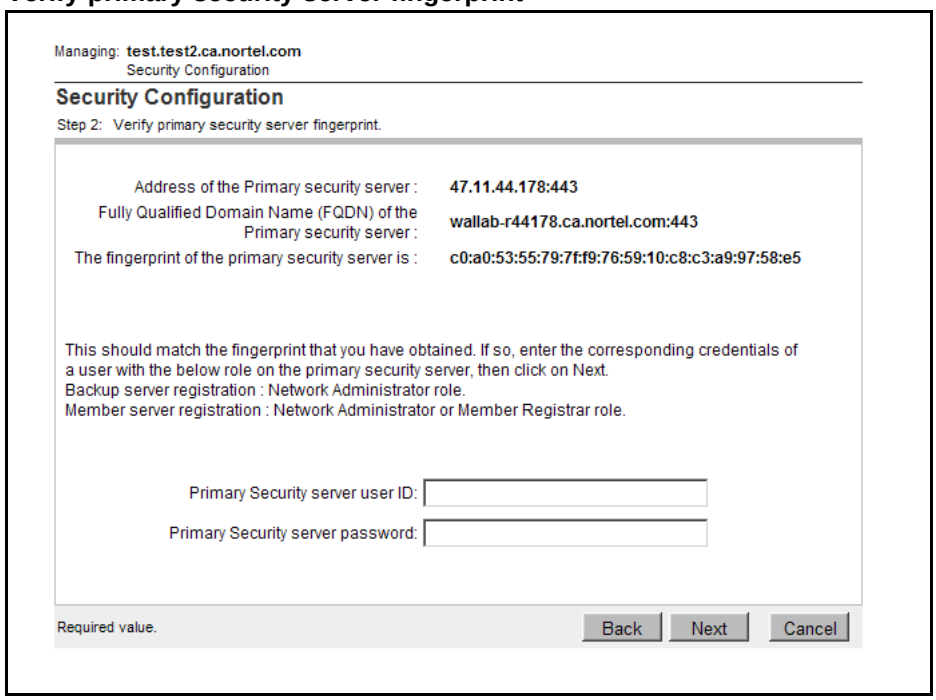
The Select server type for the Security Configuration page appears.

17 Click **Member server** or **Backup security server** as the Server Type.

18 Click **Next**.

The Verify primary security server fingerprint page appears, as shown in the following figure.

Figure 68
Verify primary security server fingerprint



19 Type the **Primary Security server user ID** and **Primary Security server password**.

ATTENTION
The primary security server user ID and password is requested only for the first server configured. If you add additional servers, the values are filled in automatically.

20 Click **Next**.

The Enter certificate information page appears.

21 Confirm the Certificate Information, and click **Finish**.

A Linux Base element is created in UCM and the element name is visible from the default Deployment View and UCM Elements page.

ATTENTION
The Linux Base version does not appear in the Base Version field and the Status field is identified as Preconfigured. The server is still a logical server at this point. After you physically install the server, the Base Version and Status fields show the new version number and Configured status.

--End--

Return to “Preconfiguring (staging) deployment targets” (page 75).

Configuring the clock source for a Primary server

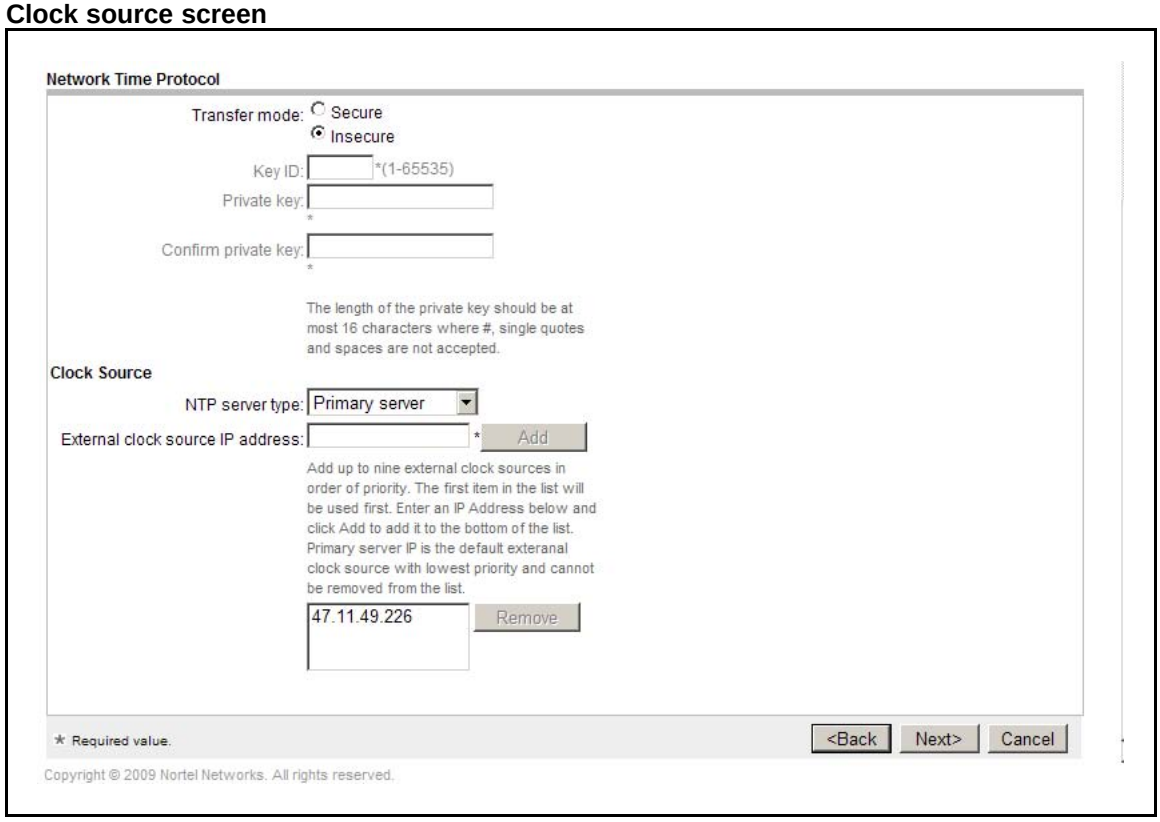
Configure the clock source for a Primary server.

Prerequisites

You must log on using a role from the systemadmin or timeadmin access groups to perform date and time configuration.

Step	Action
1	Perform Step 1 to Step 9 in “Adding a Linux server” (page 109).
2	In the **Clock Source** section, type an IP address for the external clock source in the **External clock source IP address** field, and click **Add**, as shown in the following figure.

Figure 69
Clock source screen



3 Enter additional external clock sources as required, and click **Add**.

ATTENTION
You can add up to 10 external clock sources in order of priority.

4 Click **Next**.

5 Proceed to Step 13 in "Adding a Linux server" (page 109)

--End--

Configuring the clock source for a secondary server

Configure the clock source for a secondary server.

Step	Action
1	Perform Step 1 to Step 9 in "Adding a Linux server" (page 109). Upon choosing Secondary Server, the page refreshes to show Primary NTP server IP address.
2	In the **Primary NTP server IP address** field, type a value for the IP address of the Primary NTP server.

3 In the type of clock source field, select **Internal** and proceed to Step 13 in "Adding a Linux server" (page 109) to continue the configuration.

OR

In the type of clock source list, select **External**.

The Add a Server page is refreshed.

4 Proceed to Step 13 in "Adding a Linux server" (page 109).

--End--

Configuring a server that is not a clock server

Configure a server that is not a clock server.

Step	Action
1	Perform Step 1 to Step 9 in "Adding a Linux server" (page 109). Upon choosing Not a clock server, the page refreshes to show Primary and Secondary NTP server IP address fields.
2	In the **Primary NTP server IP address** field, type a value for the IP address of the Primary NTP server.
3	In the **Secondary NTP server IP address** field, type a value for the IP address of the Secondary NTP server. Use of a Secondary NTP server is optional.
4	Click **Next**.
5	Proceed to Step 13 in "Adding a Linux server" (page 109).

--End--

Deleting a Linux server

Delete a Linux server.

Prerequisites

- Ensure the Linux server is not a Primary Security Server.
- Ensure the Linux server is not a member of a group.
- Log on to UCM. See "Logging on to Unified Communications Management" (page 102).
- Access Deployment Manager. See "Accessing Deployment Manager" (page 103).

ATTENTION
You cannot delete the server if it is a Primary Security Server or a member of a group.

Step	Action
1	On the Deployment View page, choose **Servers** from the **View** list on the right of the page.
2	Click the option button beside the Host Name of the server to delete.
3	Click **Delete**. A confirmation dialog box appears.
4	Click **Yes** to delete the server.

--End--

Adding a VxWorks Call Server for a High Availability system

If your VxWorks Call Server is not registered, add a VxWorks Call Server to the Deployment Manager to create an active and inactive VxWorks Call Server for a High Availability system.

Step	Action
1	On the **Deployment View** page, select **VxWorks Call Server** from the list, and click **Add**. The Enter Call Server details page appears.
2	Select the **High Availability System** check box.
3	In the **Active call server ELAN IP** field, enter the ELAN IP address for the Active Call Server.
4	In the **Inactive call server ELAN IP** field, enter the ELAN IP address for the Inactive Call Server.
5	Click **Finish**. The Deployment View page appears with the active and inactive VxWorks Call Servers added.

--End--

ATTENTION
You must register the Call Server after it is up and running.

Adding a VxWorks Call Server

Add an active VxWorks Call Server to the Deployment Manager.

Step	Action
1	On the **Deployment View** page, select **VxWorks Call Server** from the list, and click **Add**. The Enter Call Server details page appears.
2	In the **Active call server ELAN IP** field, enter the ELAN IP address for the Active Call Server.
3	Click **Finish**. The Deployment View page appears with the active VxWorks Call Servers added.

--End--

Deleting a VxWorks Call Server

Delete a VxWorks server.

Prerequisites

- Ensure the VxWorks server is not a member of a group.
- Ensure the server in not an inactive Call Server of a High Availability (HA) system.
- Log on to UCM. See “Logging on to Unified Communications Management” (page 102).
- Access Deployment Manager. See “Accessing Deployment Manager” (page 103).

Step	Action
1	On the **Deployment View** page, select **Servers** from the **View** list on the right of the page.
2	Click the option button beside the active server to delete. **ATTENTION** Deleting the active Call Server for a High Availability system also deletes the inactive Call Server.
3	Click **Delete**. A confirmation dialog box appears.

4	Click **Yes** to delete the server.

--End--

Network Services

This section contains procedures to view, add, or delete NRS, MAS, Subscriber Manager, SIP Trunk Bridge, and IM Presence.

Adding an IM presence

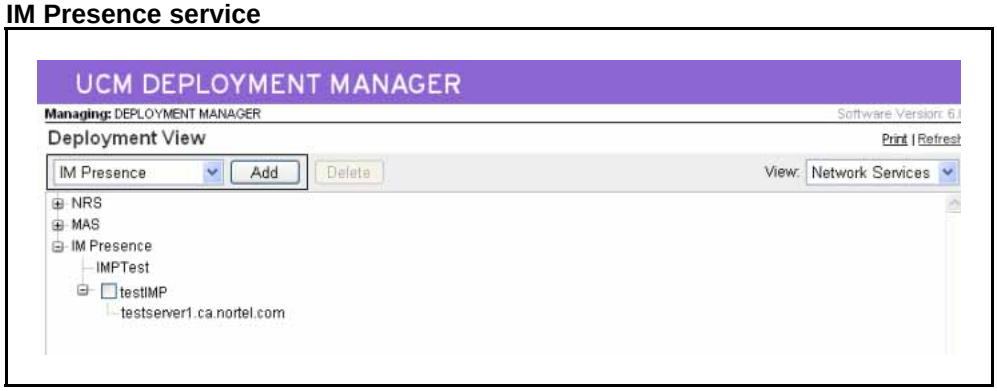
Add the IM presence service.

Prerequisite

- You must first upload the IM Presence software load. See “Software loads” (page 104).

Step	Action
1	On the **Deployment View** page, and choose **Network Services** from the **View** list, as shown in Figure 70 "IM Presence service" (page 120).
2	Choose **IM Presence** from the list, and click **Add**. The Enter a name and a description for the service page appears.
3	In the **Name** field, enter a service name.
4	In the **Description** field, enter a description.
5	Click **Next**. The Choose the Primary Server page appears.
6	From the list, select the server on which to deploy the network service.
7	Click **Save**. The IM presence service appears on the Deployment View page for Network Services, as shown in the following figure.

Figure 70
IM Presence service



--End--

Adding a MAS service

Add Media Application Server (MAS) as a network service. For more information about MAS, see “MAS technical documentation ” (page 20).

Prerequisite

- You must first upload the MAS software load. See “Software loads” (page 104). For information about loading a maintenance release for MAS, see “Checklist for adding a new maintenance release for MAS” (page 261).
- Ensure your hardware is a COTS 2 or CP DC.

Step	Action
1	On the **Deployment View** page, choose **Network Services** from the **View** list.
2	Choose **MAS** from the list, and click **Add**. The Enter a name and a description for the service page appears.
3	In the **Name** field, enter a service name.
4	In the **Description** field, enter a description.
5	Click **Next**. The Choose the Server for the selected Network Service page appears.
6	In the **Server** field, choose a Server from the list, and click **Next**. The Pre-configuration for MAS server page appears.

7	Click **Browse** to choose a keycode file, and click **Validate**. **OR** Use MAS Element Manager to choose a keycode file at a later time.

--End--

8	Click **Finish.** The Deployment view page appears with a tree view of the MAS server association. The MAS server is now a member of the primary security server.

--End--

To continue the preconfiguration process, return to Step 7 in "Preconfiguring (staging) deployment targets" (page 75).

Adding a Network Routing Service

Add a Network Routing Service (NRS) from the Deployment View page.

Prerequisite

- You must first upload the CS1000 application software load. See "Software loads" (page 104).

Step	Action
1	On the **Deployment View** page, and choose **Network Services** from the **View** list.
2	Choose **NRS** from the list, and click **Add**, as shown in Figure 71 "NRS" (page 122). The Enter a name and a description for the service page appears.
3	In the **Name** field, enter a service name.
4	In the **Description** field, enter a description.
5	Click **Next**. The Choose the primary and secondary NRS servers page appears.
6	In the **Primary NRS Server** field, choose a server from the list.
7	In the **Secondary NRS Server** field, choose a server from the list.
8	Click **Finish.**

The Deployment view page appears with a tree view of the NRS server association. The primary and secondary NRS servers are now members of the NRS group, as shown in the following figure.

Figure 71
NRS

--End--

To continue the preconfiguration process, return to Step 7 in "Preconfiguring (staging) deployment targets" (page 75).

Adding a Subscriber Manager service

Prerequisite

- You must first upload the CS 1000 application software load. See "Software loads" (page 104).

Add a Subscriber Manager service from the Deployment View.

Step	Action
1	On the **Deployment View** page, and choose **Network Services** from the **View** list.
2	Choose **Subscriber Manager** from the list, and click **Add**. The Enter a name and a description for the service page appears.
3	In the **Name** field, enter a service name.
4	In the **Description** field, enter a description.
5	Click **Next**. The Choose the primary server page appears.

6	In the **Name** field, leave the previously entered name or type a new name.
7	In the **Server** field, choose the Primary Security server from the list.
8	Click **Finish.** The Subscriber service is available only on the primary security server. The Subscriber group is created with the specified name and the selected server is a member of the group.

ATTENTION
The Finish button is dimmed until you select a Primary Server. Allow several seconds for the button to be available to click.

--End--

To continue the preconfiguration process, return to Step 7 in "Preconfiguring (staging) deployment targets" (page 75).

Adding a SIP Trunk Bridge

Add a SIP Trunk Bridge.

Prerequisite

- You must first upload the CS 1000 application software load. See "Software loads" (page 104).

ATTENTION
Values are required for all fields.

Step	Action
1	On the **Deployment View** page, choose **Network Services** from the **View** list.
2	Choose **SIP Trunk Bridge** from the list, and click **Add**. The Enter a name and a description for the service page appears.
3	In the **Name** field, enter a cluster name (service name).
4	In the **Description** field, enter a description.
5	Click **Next**. The Choose the SIP Trunk Bridge Cluster Servers page appears.
6	In the **Cluster ID** field, choose a value from 1 to 255 from the list.

ATTENTION
The Cluster ID must be unique for the network service; therefore, only the available Cluster IDs appear in the list.

7 In the **Cluster Virtual Address** field, enter a valid IP address.

ATTENTION
The cluster Virtual IP Address must be unique. For example, it cannot be the same as the ELAN or TLAN IP address of the Primary or Secondary server of the cluster or any IP or Virtual IP Address of any server or cluster.

8 In the **Mode** field, choose a value from the list. Options are **1** for single server mode or **1+1** for redundant mode.

9 In the **Server** or **Primary Server** field, choose a server from the list.

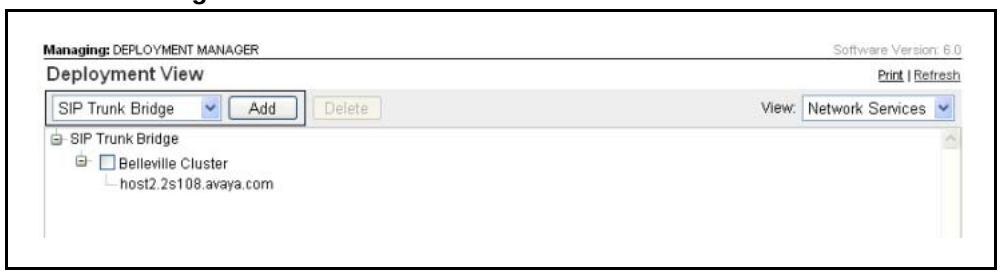
10 If you select 1+1 mode, choose a Server from the **Secondary Server** field.

11 Click **Finish.**

ATTENTION
The Finish button is dimmed until you have selected one or two servers as required for the selected mode. The Cluster Virtual IP is validated only when you click Finish. If there is an error with the IP as entered, it is indicated by red text beside the entered value. In this case, you must correct the error and click Finish again to complete adding this service.

A SIP Trunk Bridge group appears with the associated primary and secondary servers as members to the group, as shown in the following figure.

Figure 72
SIP Trunk Bridge service



--End--

To continue the preconfiguration process, return to Step 7 in "Preconfiguring (staging) deployment targets" (page 75).

Deleting a Network Service

You can delete any Network Service.

Step	Action
1	On the **Deployment View** page, choose **Network Services** from the **View** list. The Deployment View page refreshes to show the tree.
2	Expand the tree view by clicking the plus (+) sign.
3	Select the check box beside the server name to delete. The Delete button becomes available for you to click. You can select more than one service to delete.
4	Click **Delete**. A confirmation dialog box appears.
5	Click **Yes** to delete.

--End--

CS 1000 systems

The following section contains procedures for viewing, adding, or deleting CS 1000 or CS 1000 High Scalability systems.

Adding a CS 1000 system

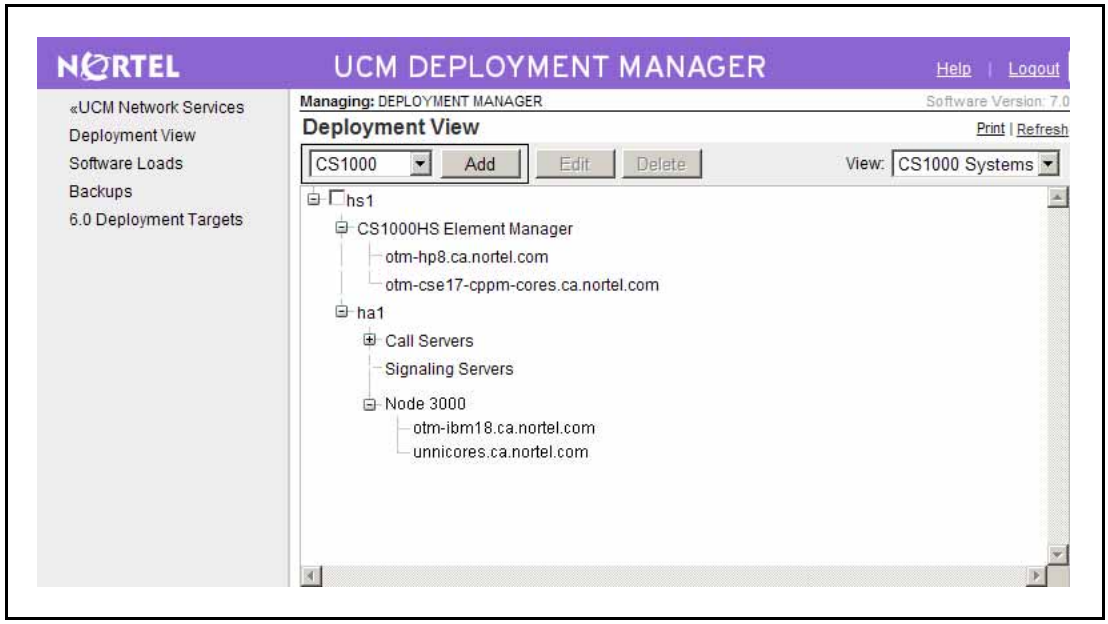
Add a CS 1000 system.

Prerequisites

- Ensure you add all the VxWorks servers required for your CS 1000 system, as described in “Adding a VxWorks Call Server ” (page 118).
- Ensure you add all the Linux servers required for your CS 1000 system, as described in “Adding a Linux server” (page 109).
- Allocate one or two Linux servers to use for Element Manager.

Step	Action
1	On the **Deployment View** page, select **CS 1000 systems** from the **View** list, as shown in the following figure.

Figure 73
CS 1000 Deployment View screen



2 Select **CS1000** from the list, and click **Add**.

The Enter the Call Server Information page appears, as shown in Figure 74 "Add a CS 1000 system" (page 127).

3 In the **CS1000 name and description** section, enter the following:

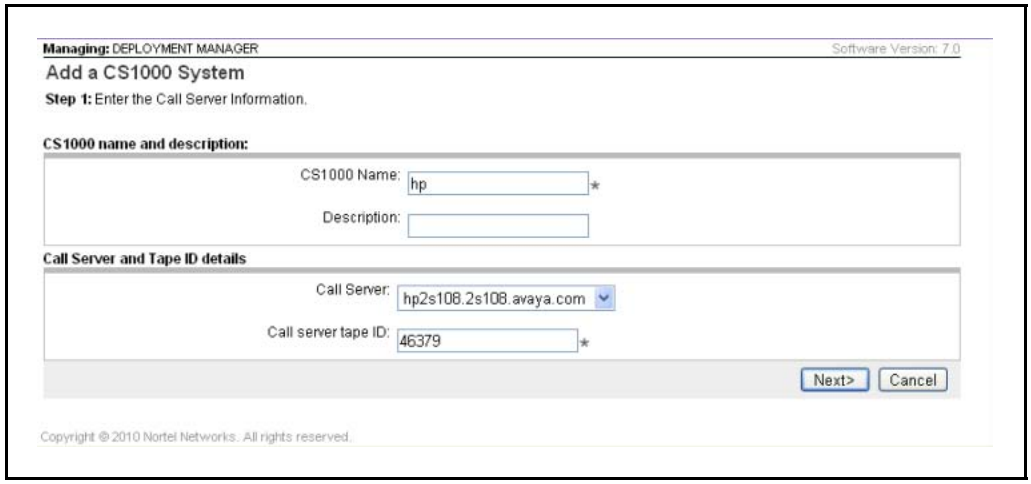
- **CS1000 Name:** enter the name for the entire system you are configuring. This name appears on the top level of the hierarchical tree view.
- **Description:** enter a description.

4 In the **Call Server and Tape ID details** section, enter the following

- **Call Server:** choose a server name from the list.
- **Call server tape ID:** enter the tape ID value.

ATTENTION
If the selected server is a server that has not joined the security domain at this time, for example, a VXworks server or a Linux server that was just added, you must manually enter the tape ID. Deployment Manager automatically determines the tape ID of the Call Server application that is deployed on a Linux server when it is chosen as a Call Server.

Figure 74
Add a CS 1000 system



5 Click **Next**.

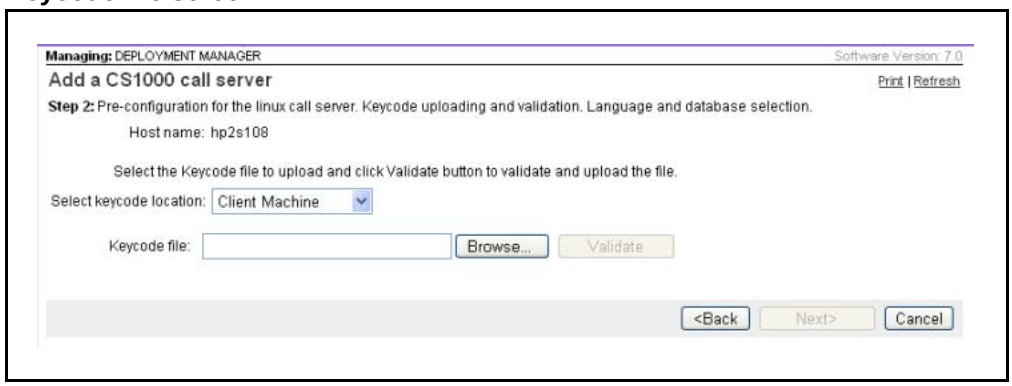
The Pre-configuration for the Linux call server. Keycode uploading and validation. Language and database selection page appears.

6 In the **Select keycode location** field, select **Client Machine** from the list.

7 In the **Keycode file** field, click **Browse** to obtain the keycode file to upload, and click **Validate** to validate and upload the file.

The keycode is not validated on the target system; however, minimal prevalidation occurs from the deployment server.

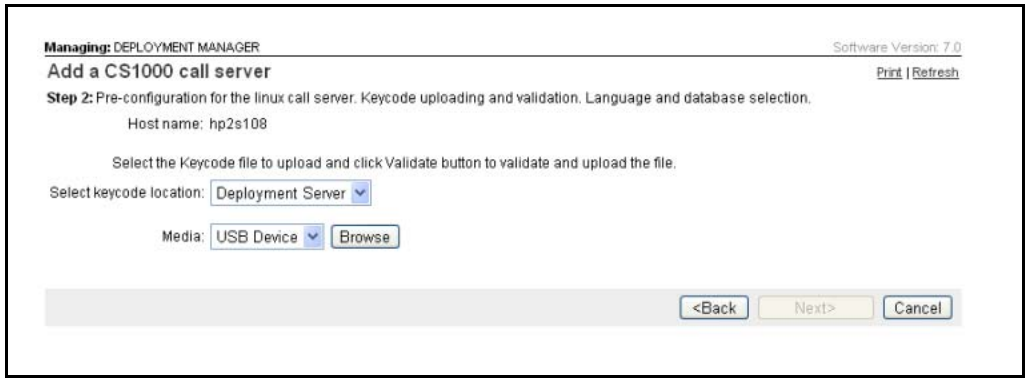
Figure 75
Keycode file screen



OR

If **Deployment Server** is selected, the page is refreshed, as shown in the following figure.

Figure 76
Deployment Server screen



8 In the **Media** field, select **USB Device** from the list, and click **Browse**.

The page refreshes to show the Keycode file field.

9 In the **Keycode file** field, select a keycode file from the list of keycodes on the USB device and click **Validate** to validate and upload the file.

Keycode files must end with the .kcd filename extension. If you select a Keycode from the Deployment Server USB device, click Browse to show a list of all files on the USB device ending in kcd. For example, backup/single/keycode.kcd.

10 Click **Next**.

The page refreshes to show the validation completed and keycode accepted. The language and Database fields appear.

11 In the **Language** field, select a language from the list.

12 In the **Database** field, select one of the following from the list.

- **Default Database**: This is the prepackaged database that is delivered with the software.
- **Existing Database**
- **Customer Database on Client Machine**: The database can be uploaded from any device connected to the client machine.
- **Customer database on Deployment Server USB**: The database can be uploaded from a USB device connected directly to the server hosting the Deployment Manager (primary security server).

ATTENTION
If you select Customer Database on Deployment Server USB, click Browse to show a list of all directories that should be valid Call Server databases. The directory name must be generated by the Call Server to be valid. Final validation is performed after you click Upload.

13 Click **Next**.

The page refreshes to show the Media field.

14 In the **Media** field, select **USB Device** from the list and click **Browse**.

The page refreshes to show the Path field.

15 In the **Path** field, select **backup/** from the list and click **Upload**.

The page refreshes to confirm the uploaded database is valid.

16 Click **Next**.

17 In the **CS1000 Element Manager** field, choose the server to use for Element Manager.

18 In the **Alternate CS1000 Element Manager** field, choose a server if you want to configure an alternate Element Manager server.

ATTENTION
If you choose an Alternate Element Manager server, Deployment Manager installs Element Manager to this server. However, no date synchronization occurs between the two servers.

On the Deployment View page, the Predeployed Applications field is updated to show EM.

19 In the **Description** field, type a description.

20 In the **Add Signaling Servers** section, choose your Signaling Servers from the list the Linux servers, and click **Add**.

On the Deployment View page, the Predeployed Applications field is updated to show SS.

21 Click **Finish**.

ATTENTION
Only the servers that can host a particular application, appear in the list.

--End--

To continue the preconfiguration process, return to Step 7 in "Preconfiguring (staging) deployment targets" (page 75).

ATTENTION
After the CS 1000 group is created, the Signaling Server tree displays all the available Signaling Servers that are added as part of the CS 1000 group. After you add or modify IP Telephony Nodes in Element Manager, a subgroup called Node Group is created or updated with all the node member information. This Node Group appears in Deployment Manager as Node XXXX, where XXXX represents the Node ID of the IP Telephony Node, as shown in Figure 73 "CS 1000 Deployment View screen" (page 126). After the Signaling Server is part of a Node Group, it is removed from the Signaling Server group to ensure that the same server does not appear in both places. Any servers that belong to the Signaling Server group can be added to any Nodes within that CS 1000 group. When the IP Telephony Node is deleted from Element Manager, all the servers that were part of the Node group go back to the Signaling Server group. These servers are now available to be added to other IP Telephony Nodes.

Defining a new CS 1000 High Scalability system

Add a CS 1000 High Scalability (HS) system. A High Availability (HA) group consists of VxWorks Call Server and a number of Signaling Servers. An HS system consists of multiple HA groups. Each HA group consists of a pair of VxWorks Call Servers and a group of Signaling Servers.

Prerequisites

- Determine the Linux and VxWorks Call Servers that are to be used for each HA group.
- Identify the Linux servers to use as Signaling Servers and the associated HA group.
- Determine one or two Linux servers to be used for Element Manager HS.

  ATTENTION
  Element Manager HS is a stand-alone application and must be on a dedicated Linux server. You can allocate a second stand-alone server for redundancy support.

Step	Action
1	On the **Deployment View** page, select **CS 1000 systems** from the **View** list on the right of the page.
2	Select **CS1000 HS**, and click **Add**.
	The Enter the High Scalability System Information page appears.
3	In the **Name** field, enter the name of the High Scalability server.
4	In the **Description** field, enter a description.
5	Click **Next**.

The Enter the High Scalability System Management Information page appears.

6 In the **CS1000 Element Manager** field, choose the server to use for Element Manager from the list.

7 In the **Alternate CS1000 Element Manager** field, choose a server if you want to configure an alternate Element Manager server from the list.

8 In the **Description** field, enter a description.

9 Click **Next**.

The Add CS1000 high availability systems page appears.

10 Click **Add** to add a new HA system.

The Add CS1000 high availability systems page appears.

11 In the **Call Server** field, choose a server from the list.

ATTENTION
You see only the available VxWorks Call Servers. The VxWorks Call Servers that are already defined for other CS 1000 or CS 1000 HS systems do not appear.

In the **Inactive call server ELAN IP** field, the Inactive Call Server IP address appears.

12 In the **Name** field, type a name for the HA system.

13 In the **Description** field, type a description.

14 In the **Choose signaling servers** section, choose your Signaling Servers from the list the Linux servers, and click **Add**.

15 Click **Save**.

On the Deployment View page, the Predeployed Applications field is updated to show SS.

16 Repeat Step 10 to Step 15 in this procedure to add additional HA groups.

17 Click **Finish**.

To continue the preconfiguration process, proceed to Step 7 in "Preconfiguring (staging) deployment targets" (page 75).

--End--

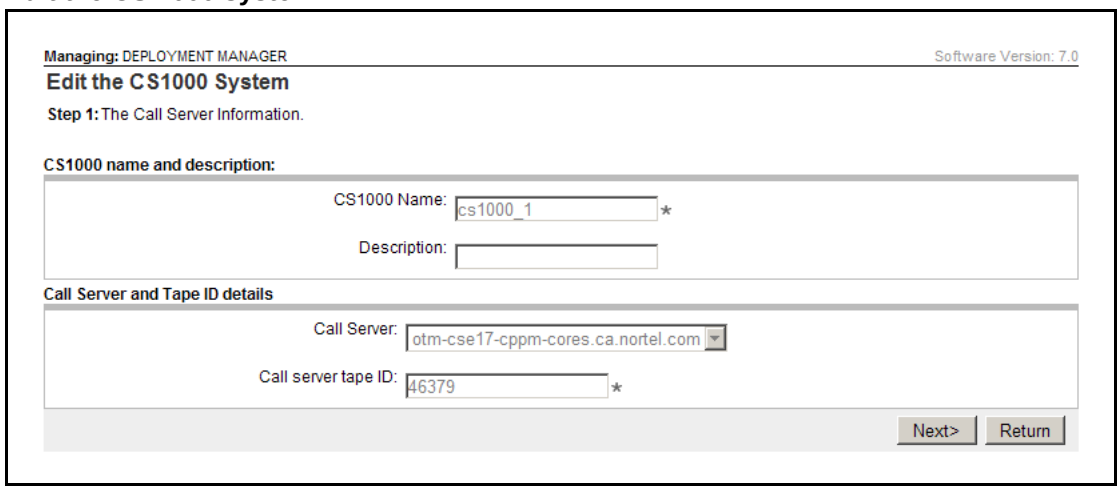
To continue the preconfiguration process, return to Step 7 in "Preconfiguring (staging) deployment targets" (page 75).

Editing a CS 1000 system

Add or change the Alternate CS 1000 Element Manager and add or delete Signaling Servers.

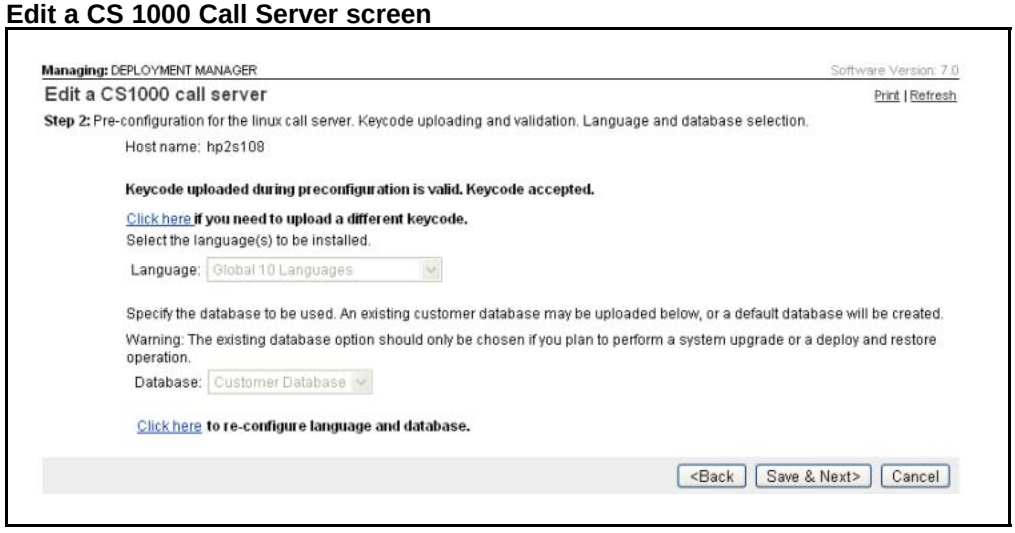
Step	Action
1	On the **Deployment View** page, select **CS 1000 systems** from the **View** list on the right of the page.
2	Select the check box of the CS 1000 system, and click **Edit**. The Call Server information page appears, as shown in the following figure.

Figure 77
Edit the CS 1000 system



Step	Action
3	Click **Next**. The Pre-configuration for the Linux call server. Keycode uploading and validation. Language and database selection screen appears.
4	To upload a different keycode, select **Click here**, as shown in the following figure.

Figure 78
Edit a CS 1000 Call Server screen



5 To change the **Language**, select **Click here**, as shown in the preceding figure.

The list is no longer dimmed.

6 To change the **Database**, select **Click here**, as shown in the preceding figure. You can choose from **Default Database**, **Existing Database**, **Customer Database on Client Machine** and **Customer Database on Deployment Server USB**.

ATTENTION
The Customer Database list does not show whether it is Customer Database on Deployment Server USB or Customer Database on Client Machine. If you have previously configured one of these and do not want to change this configuration, just click Save & Next to leave your configuration unchanged. However, if you had previously configured Customer Database on Client Machine and select "Click here", the default selection appears as Customer Database on Deployment Server USB because if you select Customer Database on Client Machine, a tool is started for uploading a new database from the PC. Therefore, if you have already configured Customer Database on Client Machine and do not want to change, just click Save & Next to avoid starting this tool.

7 Click **Save & Next**. Proceed to Step 8 through Step 10 if you chose the Database option as Customer Database on Deployment Server USB; otherwise, skip to Step 11.

The page refreshes to show the Media field.

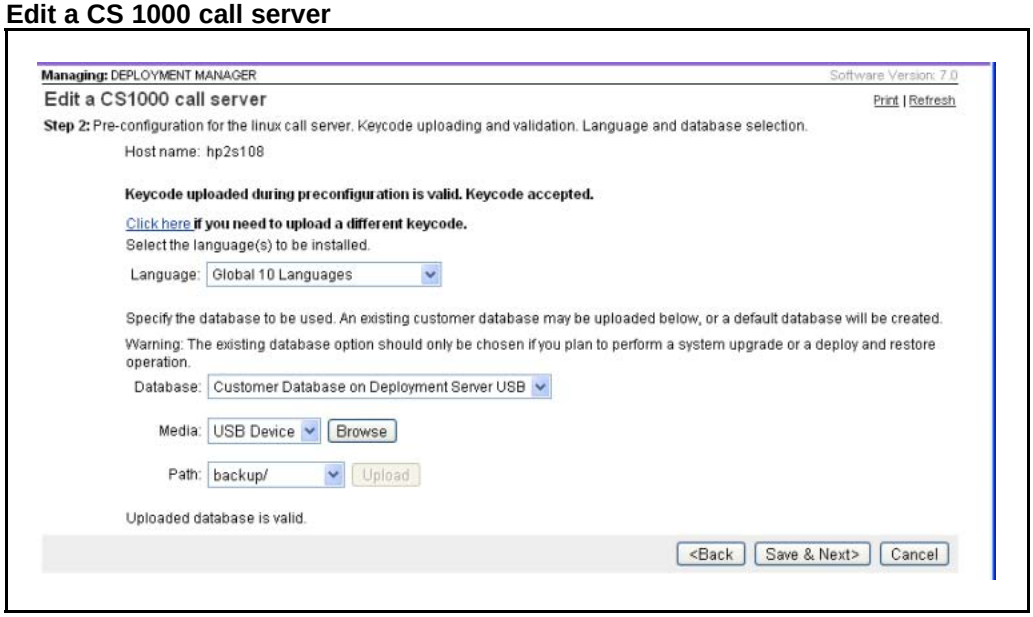
8 To change the **Media**, click **Browse**.

9 Click **Browse** to get a list of databases available on the USB device.

The pages refreshes to show the Path field.

10 To change the **Path**, choose from the list and click **Upload**, as shown in the following figure.

Figure 79
Edit a CS 1000 call server



11 Click **Save & Next**.

The Select the Alternate CS1000 Element Manager screen appears. From this screen, you can only select the Alternate CS1000 Element Manager field if it is not configured and add or remove Signaling Servers.

12 Select an **Alternate CS1000 Element Manager** from the list to add an Alternate Element Manager or change your selection.

13 In the **Add signaling servers** section, you can **Add** or **Delete** Signaling Servers.

14 Click **Finish**.

--End--

Editing a CS 1000 HS system

Edit the CS 1000 HS system and the Alternate CS 1000 HS and add or delete Signaling Servers.

Step	Action
1	On the **Deployment View** page, select **CS 1000 systems** from the **View** list on the right of the page.
2	Select the check box of the CS 1000 HS system, and click **Edit**. The Call Server information page appears.

3 Click **Next**.

The Select the Alternate High Scalability Manager page appears.

4 Select an Alternate CS1000 Element Manager HS from the list to add an Alternate Element Manager or change your selection.

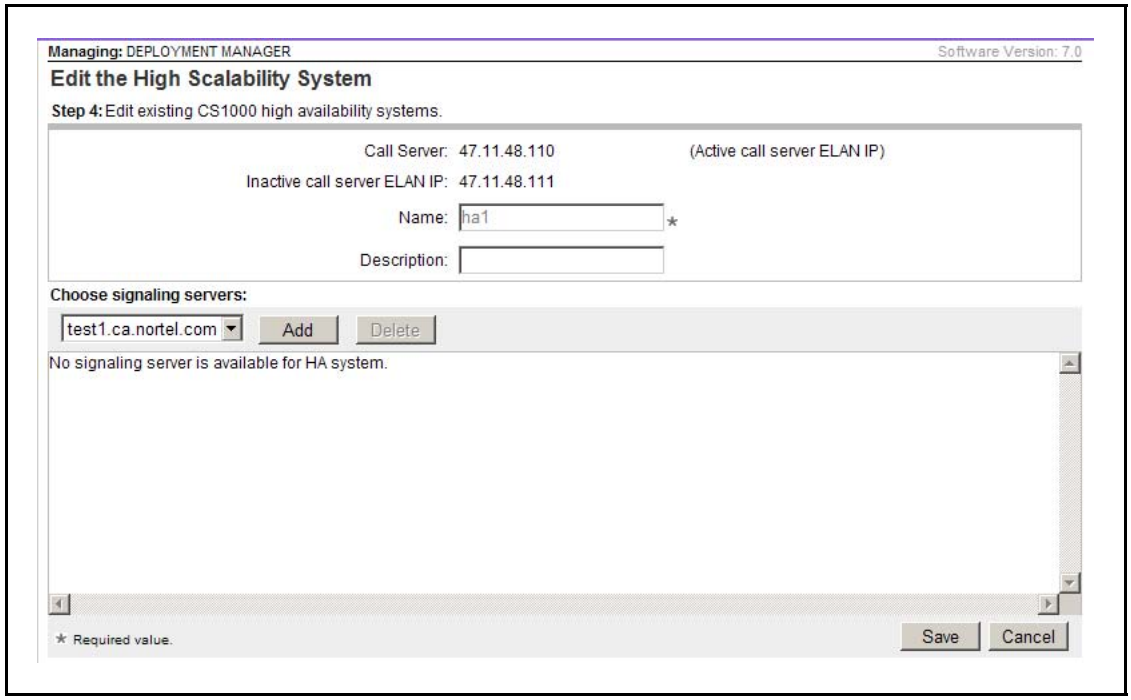
5 Click **Next**.

The Add edit, or delete CS1000 high availability systems page appears.

6 Select a High Availability system and click **Add** , **Edit** , or **Delete**.

If you select Add or Edit, the Add or Edit existing CS1000 high availability systems page appears, as shown in the following figure.

Figure 80
Add or Edit an existing CS1000 high availability system screen



7 In the **Add signaling servers** section, you can **Add** or **Delete** Signaling Servers.

8 Click **Save**.

--End--

Deleting a CS 1000 system

Use the following procedure to delete a CS 1000 system.

Step	Action
1	On the **Deployment View** page, select **CS 1000 systems** from the **View** list on the right of the page.
2	Select the check box of any CS 1000 system, and click **Delete**. The Confirmation window appears.
3	Click **Yes** to delete the selected groups or **No** to cancel.

--End--

Deleting a CS 1000 HS system

The following procedure deletes a CS 1000 HS system. To delete a single HA group, see

Step	Action
1	On the **Deployment View** page, select **CS 1000 systems** from the **View** list on the right of the page.
2	Select the check box of any CS 1000 HS system, and click **Delete**. The Confirmation window appears.
3	Click **Yes** to delete the selected groups or **No** to cancel.

--End--

Deployment Actions

This section describes the options available under Deployment Actions list. This list is context sensitive so only the actions that are available for you to perform, appear in the list. The following options can appear:

- Undeploy: Undeploy a server.
- Backup: Backup a server.
- Deploy: Deploys applications (Optional: if backup data is available, you can restore any previous configurations and data).
- Restore: Restores data for deployed applications only or can restore pre-installed and deployed applications.

Undeploying a server

Use the following procedure to undeploy.

Step	Action
1	On the **Deployment View** page, choose **Servers** from the **View** list.
2	Select the server you want to deploy.
3	From the **Deployment Actions** list, choose **Undeploy**.
4	Click **OK** at the confirmation prompt.

--End--

Performing a backup

Perform a backup.

Step	Action
1	On the **Deployment View** page, choose **Servers** from the **View** list on the right of the page.
2	Select a server from the list.
3	From the **Deployment Actions** list, choose **Backup**.
4	In the **Select backup location** field, choose from the list.
5	Click **Start Backup**.

--End--

Deploying applications on a server

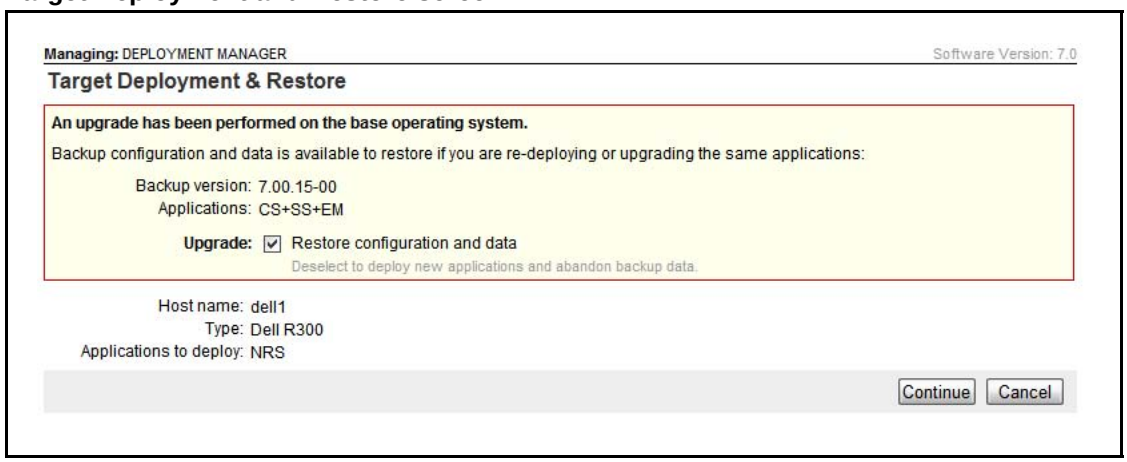
Choose Deploy when you have completed the predeployment process and the server is installed with Release 7.0 Linux Base. If you are upgrading applications and a backup exists, you can use this procedure to restore your configuration and data.

Prerequisites

- The target server must be in the Undeployed status.
- The software load version and release number must be equal to or greater than the Base version.
- The server must be in a Committed status.

Step	Action
1	On the **Deployment View** page, select **Servers** from the **View** list on the right of the page.
2	Select a server from the list.
3	From the **Deployment Actions** list, choose **Deploy**. ***Note:*** If there is no previous backup archive, the Target Deployment page appears, click **Return** to return to the Deployment View page.
4	Select the **Upgrade** check box, if you want to restore your configuration and data, as shown in the following figure.

Figure 81
Target Deployment and Restore screen



Step	Action
5	Click **Continue**.

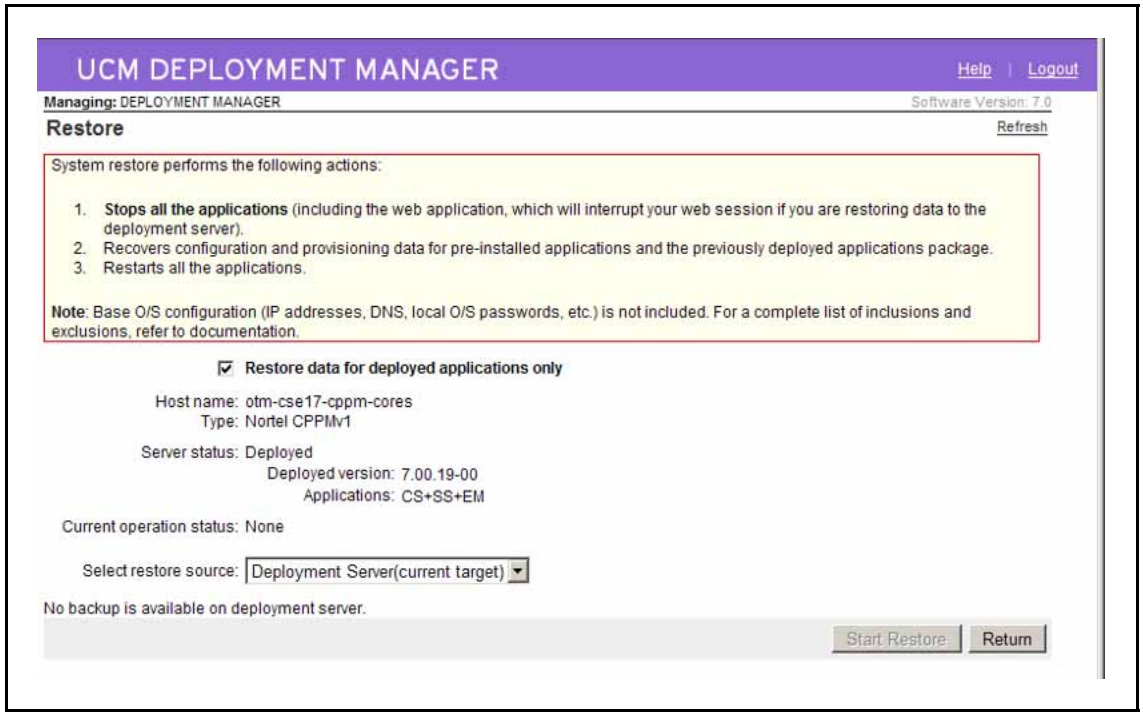
--End--

Restoring data

Restore system data.

Step	Action
1	On the **Deployment View** page, select **Servers** from the **View** list on the right of the page.
2	Select a server from the list.
3	From the **Deployment Actions** list, choose **Restore**. The restore page appears, as shown in the following figure.

Figure 82
Restore page



4 Select the check box if you want to **Restore data for deployed applications only**.

OR

Clear the check box if you want to restore pre-installed applications and deployed applications.

5 In the **Select restore source**, choose from the list.

6 Click **Start Restore**.

--End--

Backups

This section describes how to delete existing backup files. You can have a maximum of three backup files for each server and can manage your backups from this link. From UCM, click Software Deployment, Backups.

Deleting an existing backup file

Delete existing backup files on the target server to create space for new backup files.

Step	Action
1	Click **Backups** from the Navigation tree. The Backups screen appears.
2	Select the backup file to delete.
3	Click **Delete**. The backup file is deleted from the hard drive.

--End--

6.0 Deployment Targets

This section is for Release 6.0 systems. It describes how to manage and deploy application software and backup and restore system data. For Release 7.0, see “Deployment Manager” (page 101).

ATTENTION
Do not use this section for deploying application software for Release 7.0. See “Deployment View” (page 108).

Prerequisites

- Must have the Release 6.00.18 software load for your Release 6.0 target servers.

Deploy

For Release 6.0, use Deployment Manager for software application deployment from the primary security server to other Linux servers in the same security domain. The primary security server is the central repository for the software application load and deployment occurs remotely, which eliminates the need to log on to each target server.

Deploying application software to a Call Server

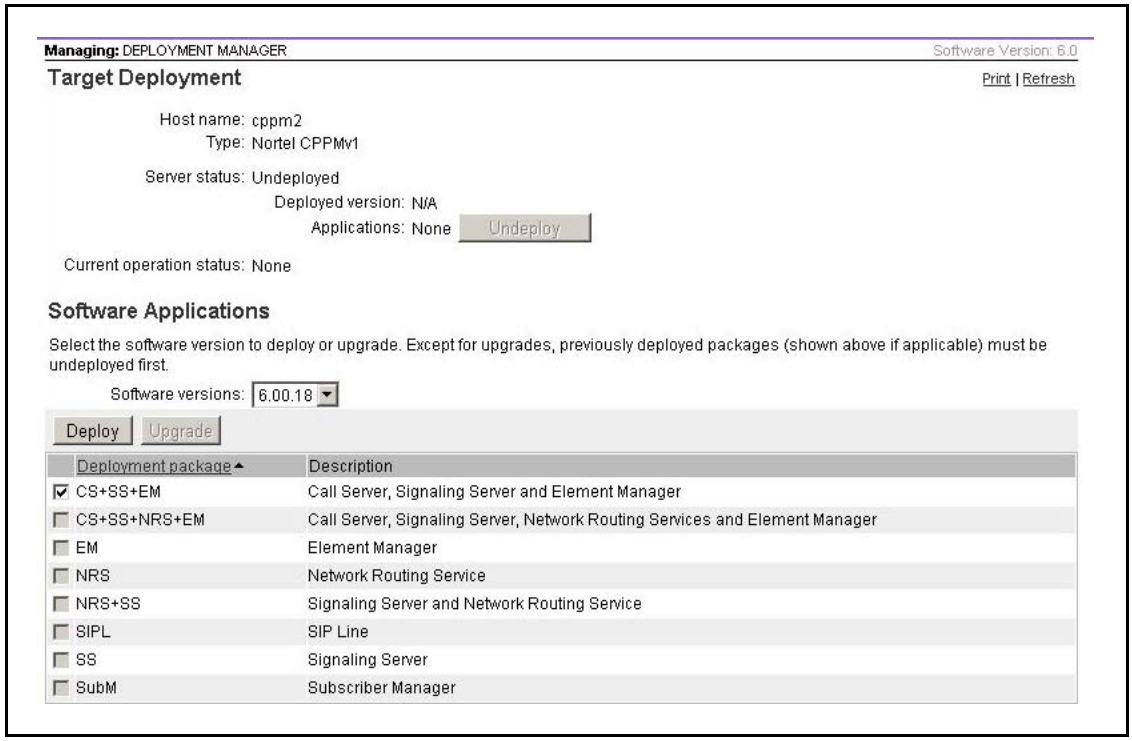
This section, for Release 6.0, describes the procedures for deploying software on an existing configuration or a new configuration for predeployment. You can also use this section to backup and restore.

Prerequisites

- The target server must be in the Undeployed status.
- Deployment Manager must have a software load that matches the Base version.

Step	Action
1	On the **Deployment Manager** page, click **6.0 Deployment Targets**.
2	Click the option button beside the Host Name of the server to deploy. **ATTENTION** The Deploy button is not available to select until the target server has a status of Undeployed.
3	Click **Deploy**. The Target Deployment page appears, as shown in the following figure.

Figure 83
Target Deployment and Software Applications



4 In the **Software versions** field, select the software version from the list.

5 Select the check box beside the Deployment package to deploy and click **Deploy**.

ATTENTION
Software applications must be undeployed first.

--End--

Removing application software

Remove applications from a previously deployed server (undeploying a server).

Prerequisites

- The server must be removed from all existing groups.

The Undeploy option is available under the following conditions:

- The Status of the server is in a configured state.
- The Predeployed Applications field must state none.
- The Base Version field must not be empty.

Step	Action
1	On the **Deployment View** page, choose **Servers** from the **View** list on the right of the page.
2	Click the option button beside the Host Name of the server from which to remove the applications.
3	From the **Deployment Actions** list, choose **Undeploy**.

--End--

Upgrading application software

Upgrade a software version or package.

Step	Action
1	On the **Deployment Manager** page, click **6.0 Deployment Targets**.
2	Click the option button beside the Host Name of the server. **ATTENTION** The Deploy button is not available to select until the target server has a status of Undeployed.
3	Click **Deploy**. The Target Deployment page appears, as shown in Figure 83 "Target Deployment and Software Applications" (page 142).
4	Select the check box beside the Deployment package to upgrade, and click **Upgrade**.

--End--

Undeploying application software

Undeploy previously deployed software packages.

Step	Action
1	On the **Deployment Manager** page, click **6.0 Deployment Targets**.
2	Click the option button beside the Host Name of the server. **ATTENTION** The Deploy button is not available to select until the target server has a status of Undeployed.

3 Click **Deploy**.

The Target Deployment page appears, as shown in Figure 83 "Target Deployment and Software Applications" (page 142).

4 In the **Software versions** field, select the software version from the list.

5 Select the check box beside the Deployment package to undeploy and click **Undeploy**.

--End--

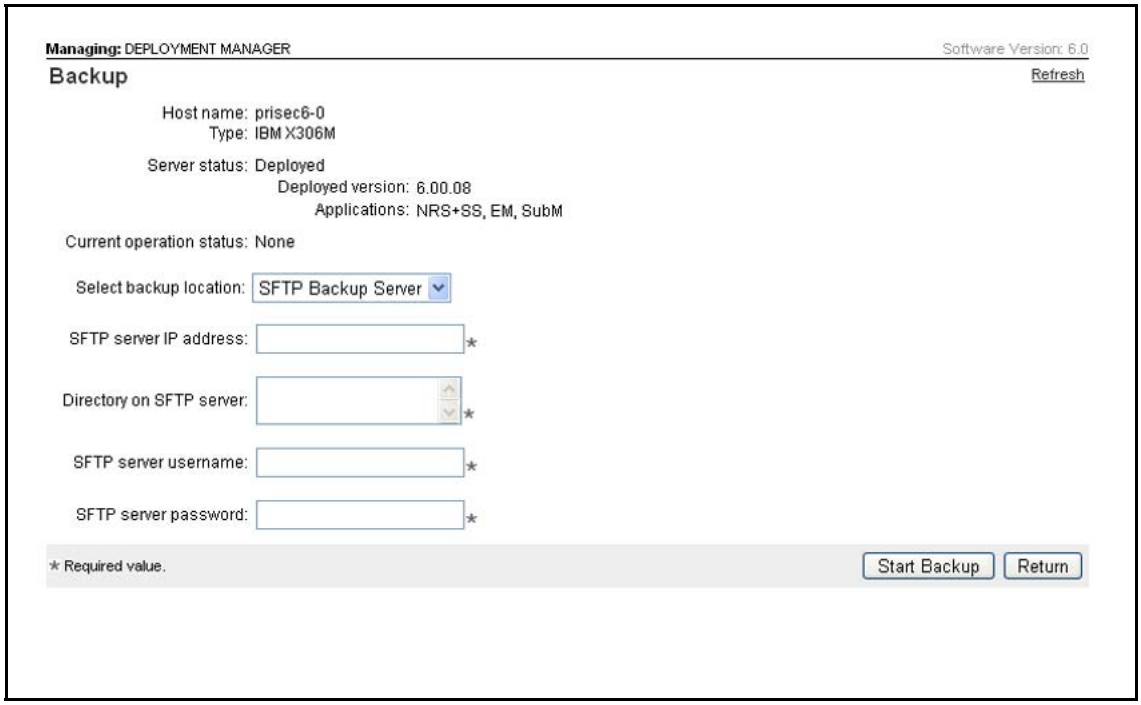
Backing up existing system data files

Backup existing system data files on the target server to free disk space before the backup.

Step	Action
1	On the **Deployment Manager** page, click **6.0 Deployment Targets**. The Deployment Targets page appears.
2	Click the option beside the server to remove existing backup files.
3	Click **Backup**. The Backup page appears.
4	In the **Select backup location** field, choose a backup location to store the backup data. Select either **Deployment Server** or **SFTP Backup Server** from the list.
5	If you choose **Deployment Server** as the backup location, proceed to Step 11 in this procedure.
6	If you choose **SFTP Backup Server** as the backup location, the Backup screen refreshes with additional Secure File Transfer Protocol (SFTP) fields, as shown in the following figure. Proceed to Step 7 in this procedure.

ATTENTION
Sufficient space must be available on the target server hard drive for the backup file. If space is not available, you must delete a previous backup file before you start. You can store a maximum of three backup files on the target server hard drive; then you must delete a backup file before you add another. For information about deleting backup files from the target server hard drive, see “Deleting an existing backup file” (page 140).

Figure 84
SFTP Backup Server window



7 In the **SFTP server IP address** field, type a value for the SFTP server IP address.

8 In the **Directory on SFTP server** field, type a value for the SFTP server directory.

9 In the **SFTP server username** field, type a value for SFTP server user name.

10 In the **SFTP server password** field, type a value for SFTP server password.

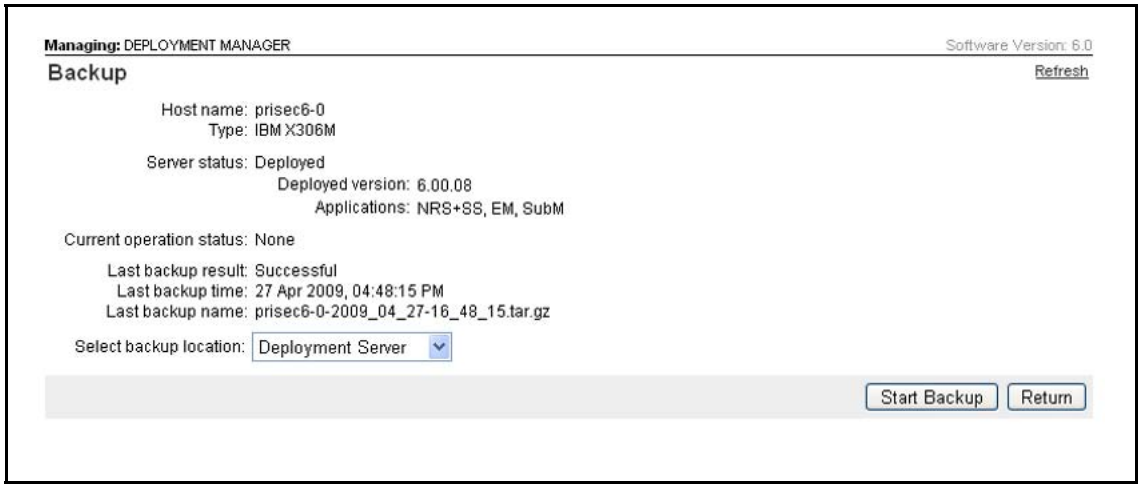
11 Click **Start Backup** to start the backup.

OR

Click **Return** to cancel the backup and return to the Deployment Targets screen.

The Backup screen displays the **Last backup result**, **Last backup time**, and **Last backup name**, as shown in the following figure.

Figure 85
Backup results window



--End--

Restoring system data

Restore system data. For more information about a system restore, see .

Step	Action
1	On the **Deployment Manager** page, click **6.0 Deployment Targets**. The Deployment Targets page appears.
2	Click the option button beside the server to restore.
3	Click **Restore**. The Restore page appears.
4	In the **Select restore source** field, select the source of the application data backup file from the list. If you select **Deployment Server (current target)** as the backup file source, proceed to Step 5 in this procedure. If you select **Deployment Server (all targets)** as the backup file source, proceed to Step 6. If you select **Client Machine** as the backup file source, proceed to Step 7. If you select **SFTP Backup Server** as the backup file source, Proceed to Step 8.
5	Select the backup file from the list of backup files stored on the current target server, and proceed to Step 12.

6 Select the backup file from the list of backup files stored on all targets in the security domain, and proceed to Step 12.

7 Type the backup file name in the **Specify restore file name** field.

OR

Click **Browse** to browse to the backup file.

Proceed to Step 12.

8 In the **SFTP server IP address** field, type a value for the SFTP server IP address.

9 In the **File path of backup on SFTP server** field, type the complete file path for the backup file.

Note: You must enter the complete file path, including the file name.

10 In the **SFTP server username** field, type a value for SFTP server user name.

11 In the **SFTP server password** field, type a value for SFTP server password.

12 Click **Start Restore** to restore the application data.

OR

Click **Return** to cancel the restore process and return to the Deployment Targets page.

--End--

Base Manager

This chapter contains information and procedures for managing specific network servers on an individual basis using Base Manager. References to the various Element Manager, Network Routing Service Manager, and Patching Manager documentation are provided. IPv6 is supported for Base Manager.

Use Base Manager to manage the base system in the following functional areas:

- Base System
  - Networking (Network Identity, DNS and Hosts, Route Table).
  - Explicit Congestion Notification
  - Date and Time
  - SSH Keys
- Software
  - Applications
  - Deployment (See “Deployment Manager” (page 101))
  - Patches
- Tools
  - Logs

Note: The server must be part of the security domain before you can perform Base Manager configuration procedures through UCM. For more details about UCM configuration of the primary, backup, and member servers, see *Unified Communications Management Common Services Fundamentals* (NN43001-116). For more information about security management, see *Security Management Fundamentals* (NN43001-604).

Navigation

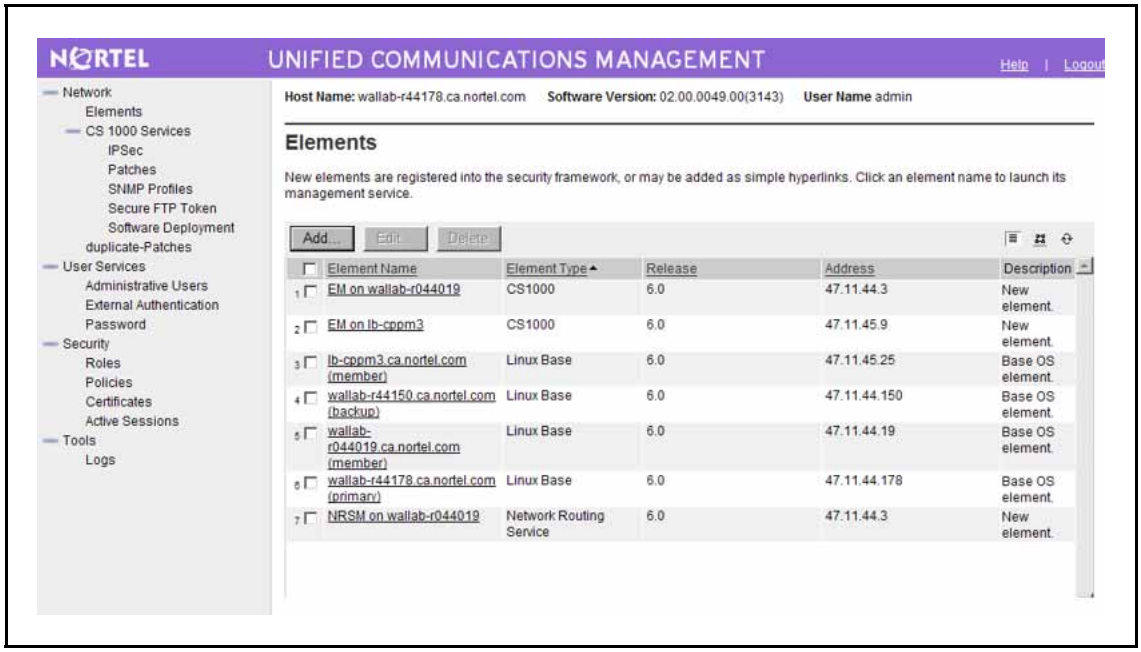
- "Accessing Base Manager through UCM" (page 150)
- "Accessing Base Manager through local logon" (page 152)
- "Deploying software in local login mode" (page 154)
- "Undeploying software in local login mode" (page 155)
- "Rebooting the server" (page 155)
- "Base system configuration using Base Manager" (page 156)
- "Regenerating SSH Keys for a UCM Member server" (page 178)
- "Software maintenance using Base Manager" (page 180)
- "View and export logs using Base Manager" (page 182)

Accessing Base Manager through UCM

Perform the following procedure to access to Base Manager through UCM.

Step	Action
1	Open the Web browser. ***Note:*** You must use Microsoft Internet Explorer 6.02600 or later.
2	Enter one of the following in the Address bar, and then press **Enter**: • Unified Communications Management (UCM) framework IP address. After you enter the UCM framework IP address, a Web page appears stating that you must access Unified Communications Management by using the Fully Qualified Domain Name (FQDN) for the UCM server. Click the link on this Web page to use the FQDN for the UCM server. • FQDN for the UCM server.
3	Click **OK** or **Yes** to accept the security windows that appear. The **UCM Login** Web page appears.
4	In the **User ID** field, enter your user ID.
5	In the **Password** field, enter your password.
6	Click **Log In**. The UCM default navigation screen appears, as shown in the following figure.

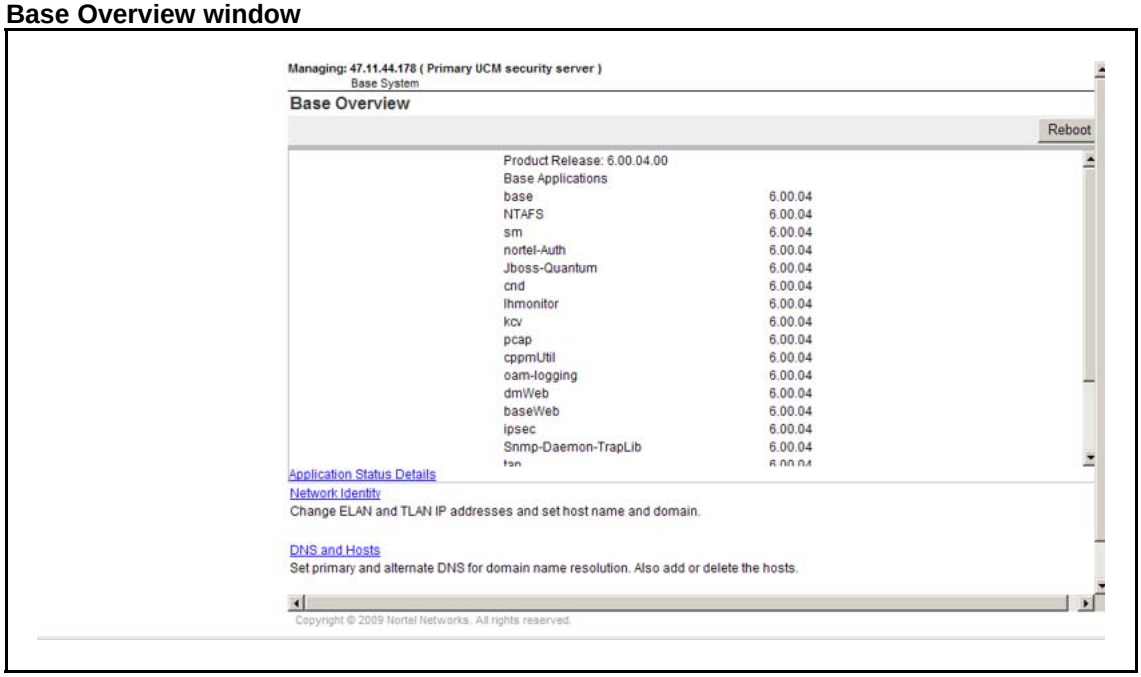
Figure 86
UCM default navigation window



7 On the **Elements** page of Unified Communications Management, under the **Element Name** column, click on an element of type Linux Base to navigate to Base Manager for that element.

The Base Overview page appears, as shown in the following figure.

Figure 87
Base Overview window



--End--

Accessing Base Manager through local logon

Perform the following procedure to log on to the server locally and access Base Manager.

Step	Action
1	Open the Web browser. ***Note:*** You must use Microsoft Internet Explorer 6.02600 or later.
2	Enter the following in the Address bar: http://<FQDN>/local-login The Server logon screen appears, as shown in the following figure.

Figure 88
Server logon window

3 In the **User ID** type, enter a value for User ID.

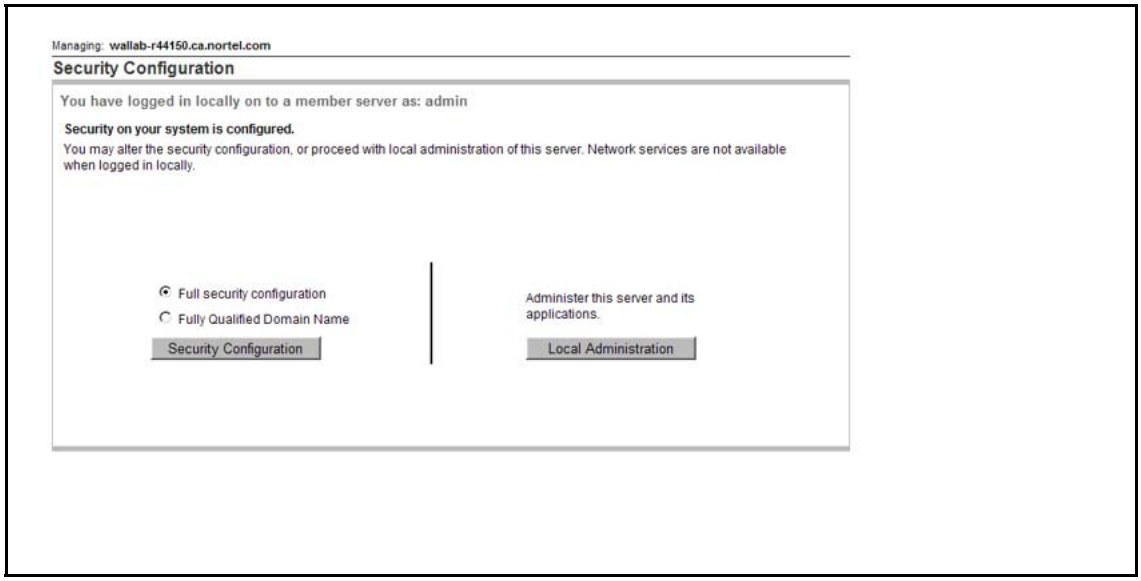
Note: You must use the **nortel** account to log on to the server locally.

4 In the **Password** field, type the password.

5 Click **Log In**.

The Security Configuration screen appears, as shown in the following figure.

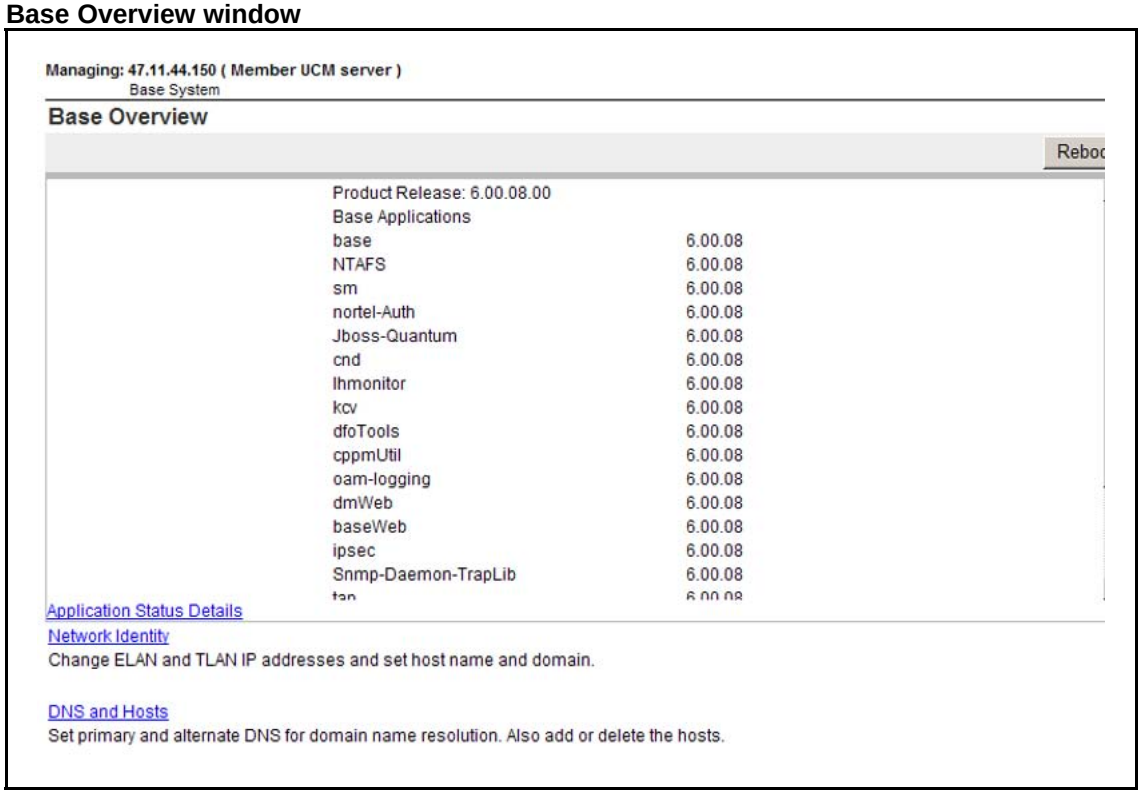
Figure 89
Security Configuration window



6 Click **Local Administration**.

Base Manager opens and the Base Overview screen appears, as shown in the following figure.

Figure 90
Base Overview window



--End--

Deploying software in local login mode

Prerequisite:

- Upload the appropriate .nai file (CS1000, IM Presence, or MAS) from the software download site to the server running the local Deployment Manager. The .nai distribution can be loaded from the local server using a USB or CF device (as appropriate) or from the client PC connected to the server.

Use local login to deploy software.

Step	Action
1	Follow the procedures in “Accessing Base Manager through local logon” (page 152).
2	From the navigation pane, click **Software**, **Deployment**. The Deployment Targets page appears.

3 Select the hostname and click **Deploy**.

Note: Previously deployed software must first be undeployed.

4 Select the check box beside the deployment package you want to **Deploy**.

--End--

Undeploying software in local login mode

Prerequisite:

- The application .nail file must first be uploaded.

Use the following procedure to undeploy a software package.

Step	Action
1	Follow the procedures in "Accessing Base Manager through local logon" (page 152).
2	From the navigation pane, click **Software**, **Deployment**. The Deployment Targets page appears.
3	Select a hostname and click **Deploy**.
4	Click **Undeploy**.

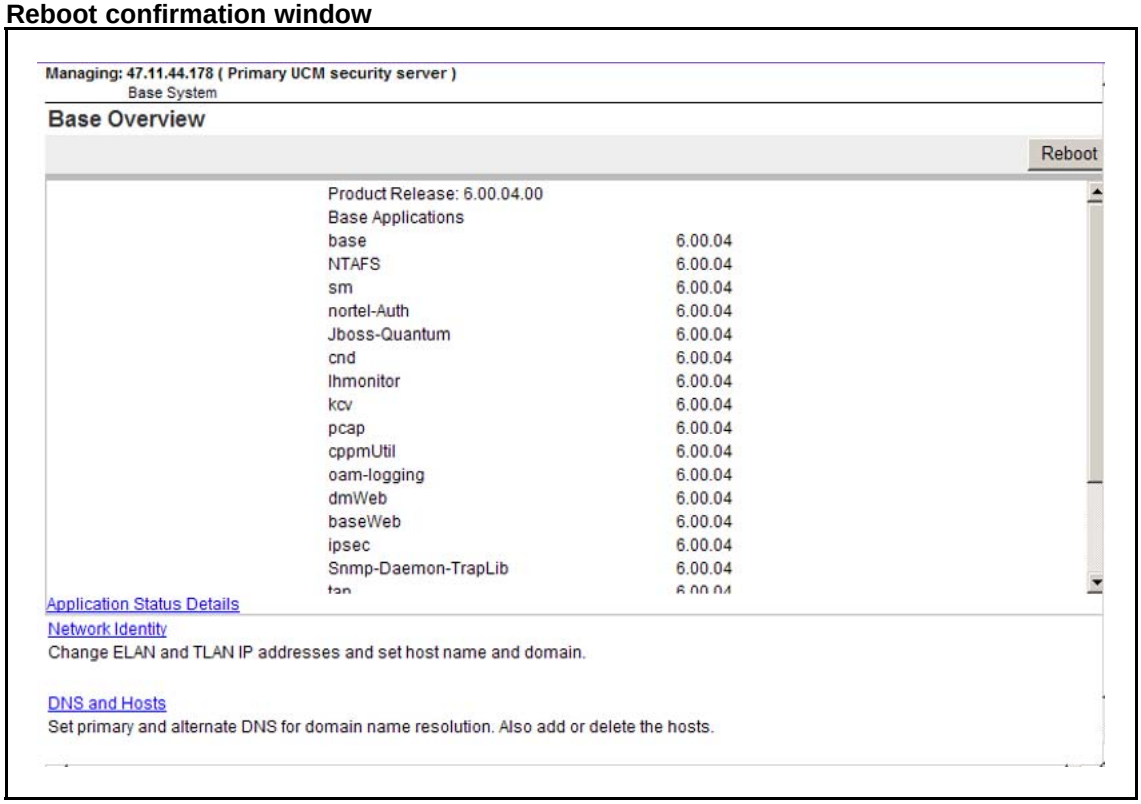
--End--

Rebooting the server

Some procedures require a server reboot for configuration changes to take effect. Perform the following procedures to reboot the server.

Step	Action
1	Log on to UCM and navigate to Base Manager. See "Accessing Base Manager through UCM" (page 150).
2	Press **Reboot**. ***Note:*** You must have a user role of System Administrator to reboot the server. If you do not have a user role of System Administrator, the Reboot button is not active. A confirmation screen appears, as shown in the following figure.

Figure 91
Reboot confirmation window



3 Press **OK** to confirm the server restart.

--End--

Base system configuration using Base Manager

You can configure networking values by using Base Manager. You can alter Telephony LAN (TLAN) and Embedded LAN (ELAN) values to edit the network identity, or add or delete hosts. You can add or delete routes to update route tables.

Use Base Manager to configure date and time values. Set system values or configure automatic date and time values using network time servers.

You can also use Base Manager to enable or disable Explicit Congestion Notification (ECN).

Editing network identity

Perform the following procedure to manually edit values for ELAN and TLAN.

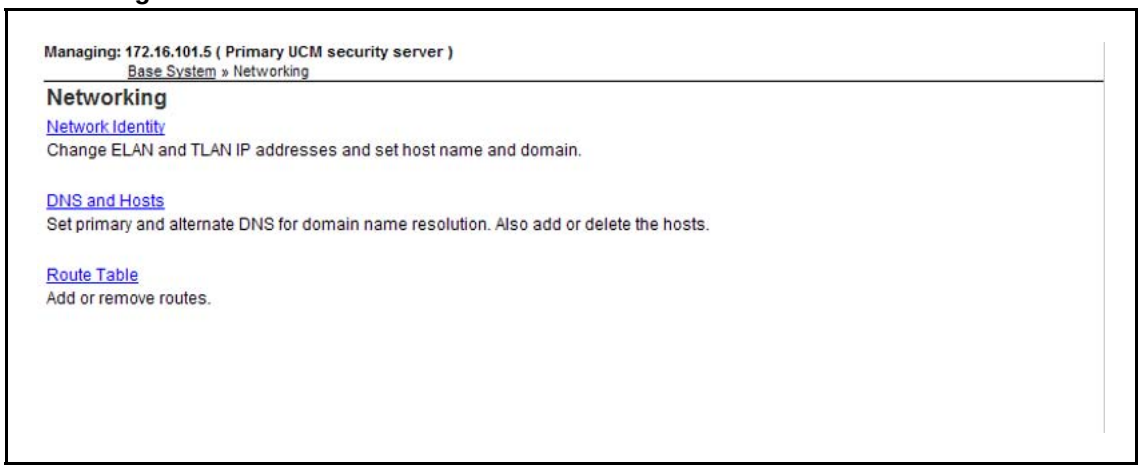
Note 1: You cannot change the FQDN or host name of the primary or backup server using Base Manager; you must use CLI commands.

Changing the FQDN or host name can have serious implications for the network. Consult *Unified Communications Management Common Services Fundamentals* (NN43001-116) before you attempt to change the FQDN or host name.

Note 2: After you edit the network identity, you must manually restart the server for the changes to take effect.

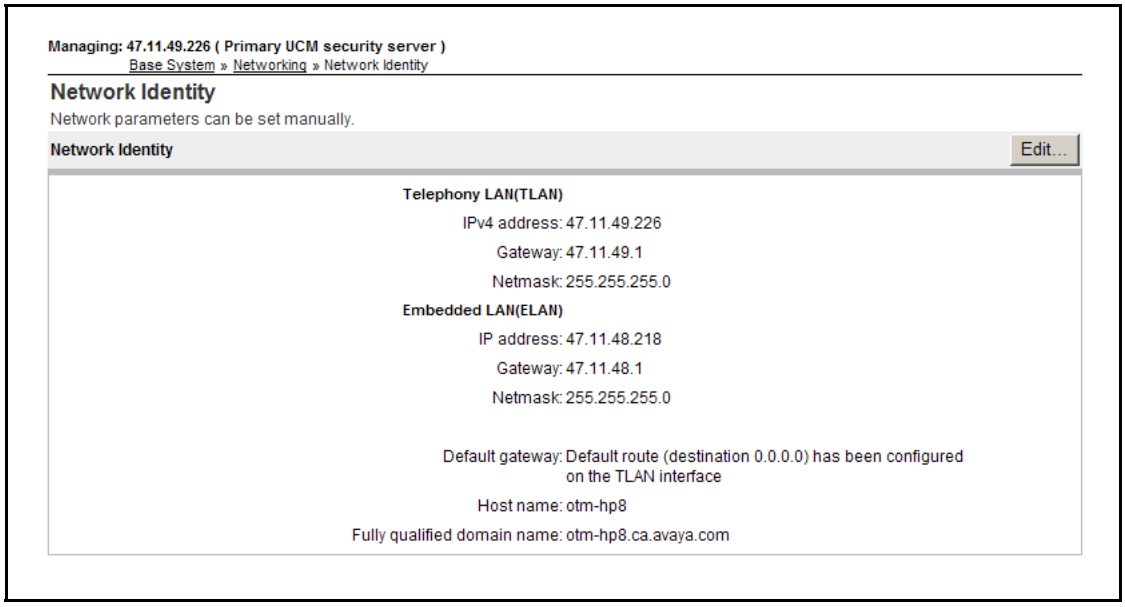
Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see "Accessing Base Manager through UCM" (page 150). **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see "Accessing Base Manager through local logon" (page 152).
2	In the navigation pane, select **Networking**. The Networking screen appears, as shown in the following figure.

Figure 92
Networking window



Step	Action
3	In the Networking screen, click **Network Identity**. The Network Identity screen appears, as shown in the following figure.

Figure 93
Network Identity window

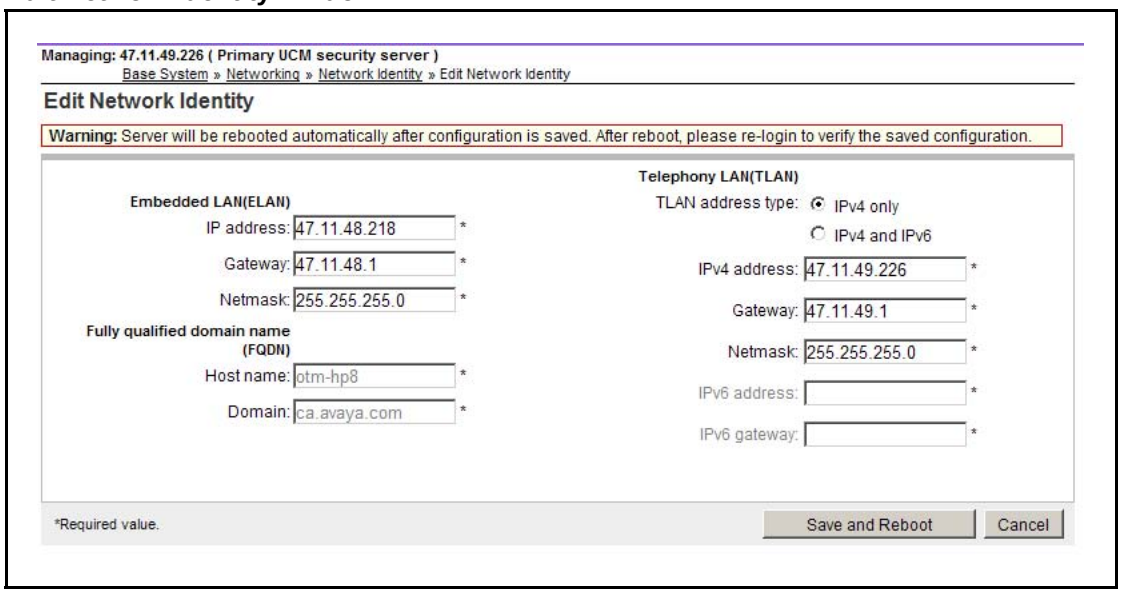


Note: If the TLAN IP address is not the default gateway value, a warning appears that indicates that the default gateway value is an IP address other than the TLAN IP address.

4 Click **Edit**.

The Edit Network Identity screen appears, as shown in the following figure.

Figure 94
Edit Network Identity window



5 In the **Embedded LAN (ELAN)** section, complete the following:

- **IP address:** enter a value for the ELAN IP address.
- **Gateway:** enter a value for ELAN gateway.
- **Netmask:** enter a value for ELAN netmask.

6 In the **Fully Quality Domain Name (FQDN)** section, complete the following:

- **Host name:** enter a value for host name.
- **Domain:** enter a domain value.

7 **Telephony LAN (TLAN)** section, complete the following:

- **TLAN address type:** click **IPv4 only** or **IPv4 and IPv6**.
- **IPv4 address:** enter a value.
- **Gateway** enter a value for TLAN gateway.
- **Netmask** enter a value for TLAN netmask.

If you selected IPv4 and IPv6 as the TLAN address type, complete the following two fields:

- **IPv6 address:** enter a value for the IPv6 address.
- **IPv6 gateway:** enter a value for the IPv6 gateway.

8 Click **Save and reboot** to save your configuration changes and restart the server. After restarting, log on to verify the saved configuration.

OR

Press **Cancel** to discard your changes and return to the Network Identity screen.

--End--

DNS and Hosts

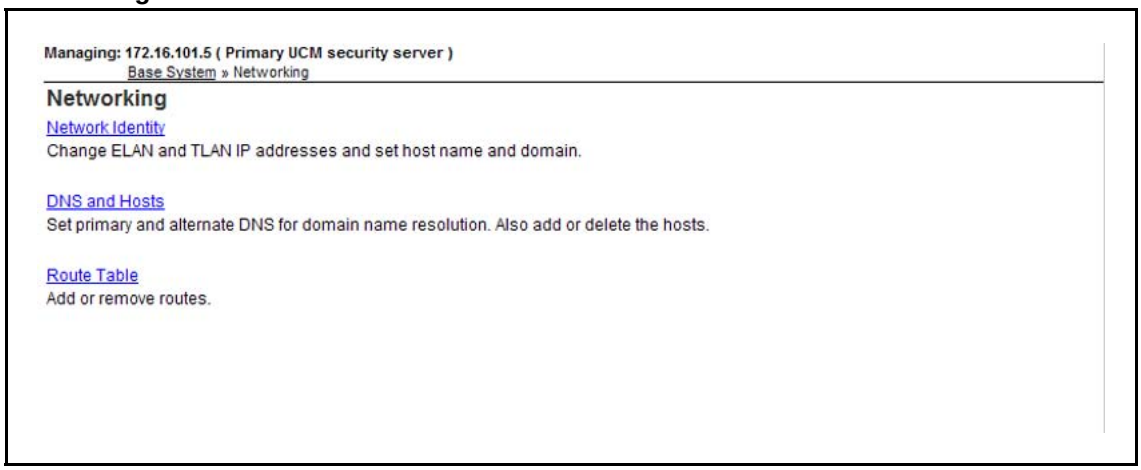
Perform the following procedures to add a new host and to remove an existing host.

Adding a host

Perform the following procedure to add a host value to the host table.

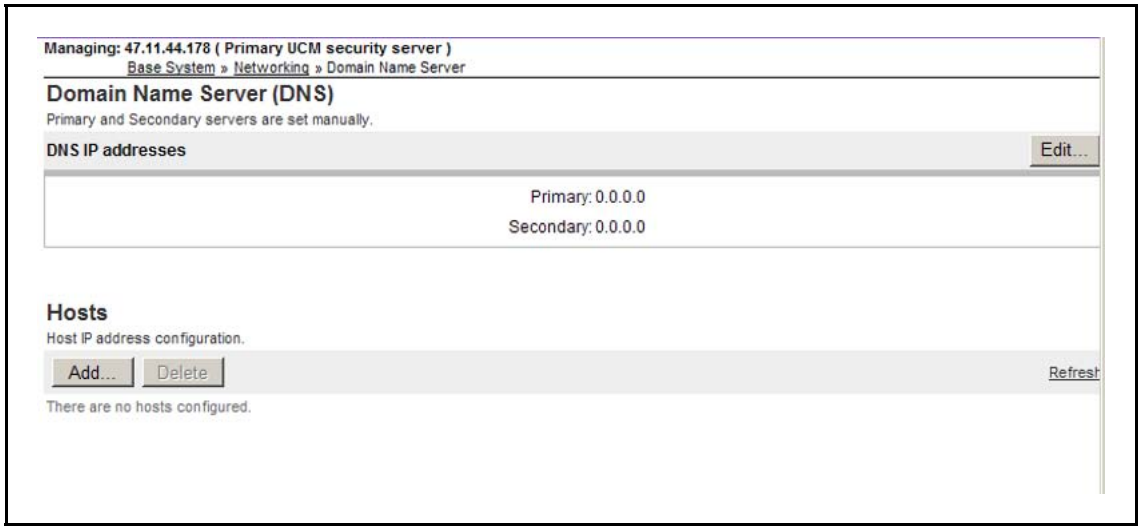
Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see “Accessing Base Manager through UCM” (page 150). **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see “Accessing Base Manager through local logon” (page 152).
2	In the navigation pane, select **Networking**. The Networking screen appears, as shown in the following figure.

Figure 95
Networking window



3	In the Networking screen, select **DNS and Hosts**. The Domain Name Server (DNS) screen appears, as shown in the following figure.

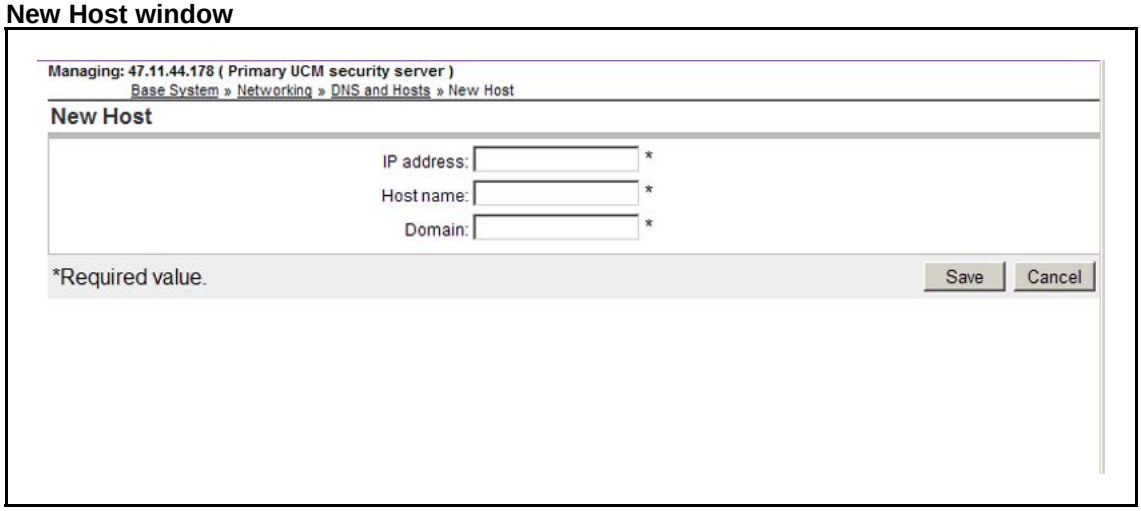
Figure 96
Domain Name Server (DNS) window



4 Click **Add**.

The New Host screen appears, as shown in the following figure.

Figure 97
New Host window



5 In the **IP address** field, enter a value for IP address.

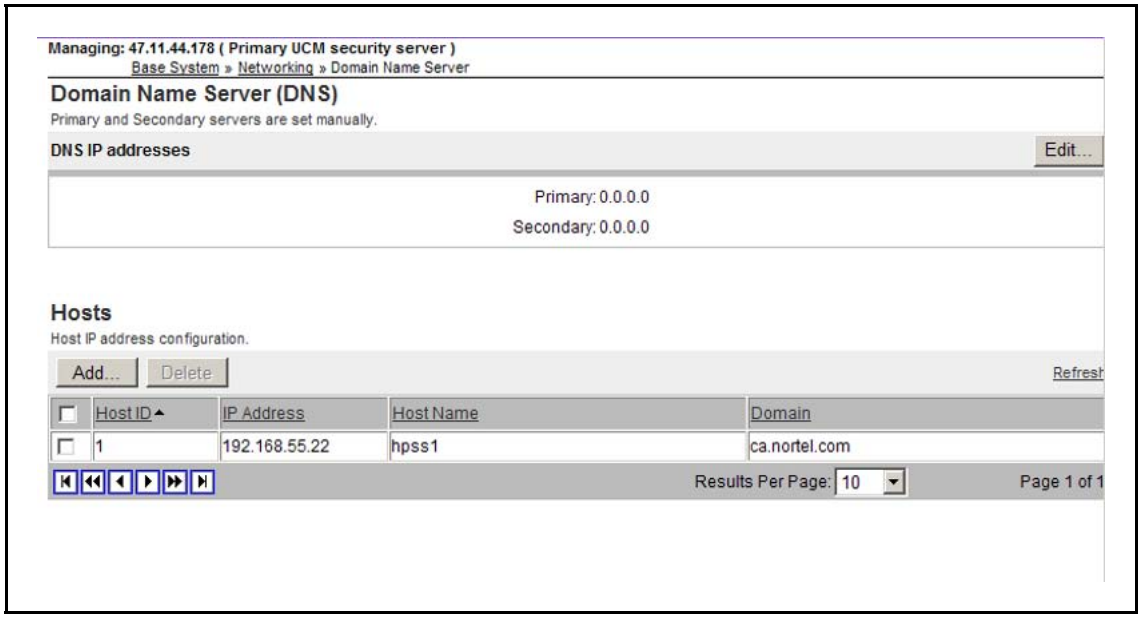
6 In the **Host name** field, enter a value for host name.

7 In the **Domain** field, enter a value for Domain.

8 Click **Save**.

The Domain Name Server (DNS) screen displays the new host, as shown in the following figure.

Figure 98
Domain Name Server (DNS) host added



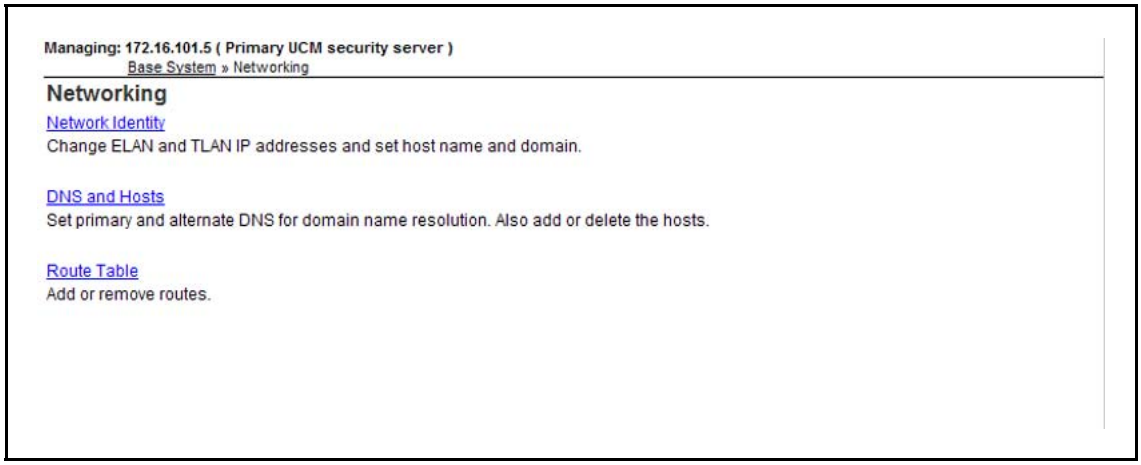
--End--

Deleting a host

Perform the following procedure to delete a host value from the host table.

Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see "Accessing Base Manager through UCM" (page 150). **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see"Accessing Base Manager through local logon" (page 152).
2	In the navigation pane, select **Networking**. The Networking screen appears, as shown in the following figure.

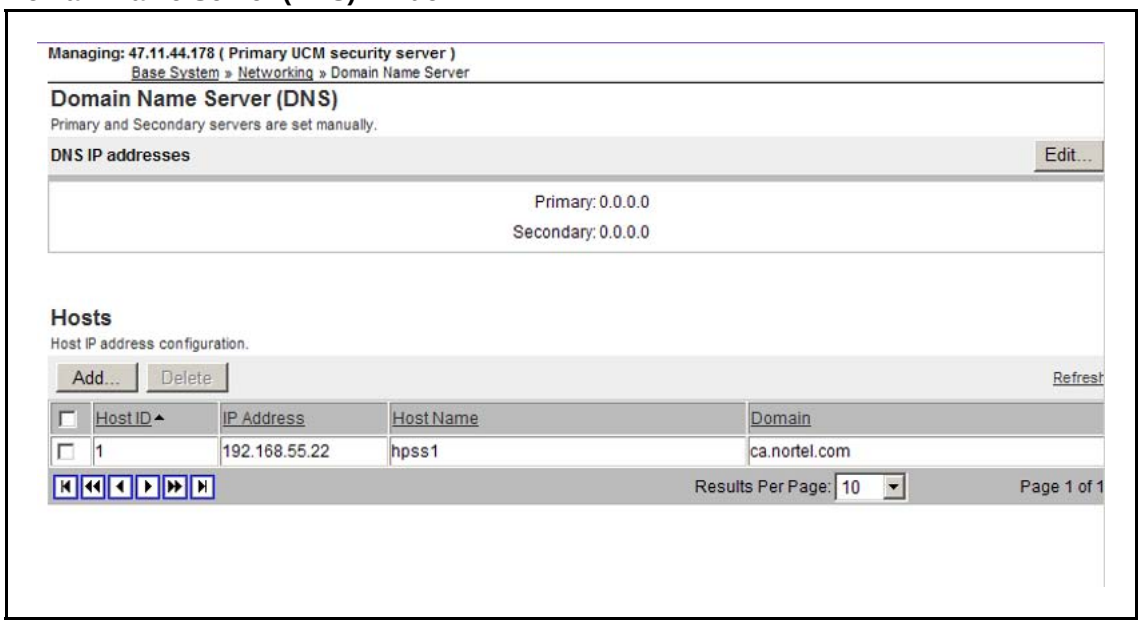
Figure 99
Networking window



3 In the Networking screen, select **DNS and Hosts**.

The Domain Name Server (DNS) screen appears, as shown in the following figure.

Figure 100
Domain Name Server (DNS) window



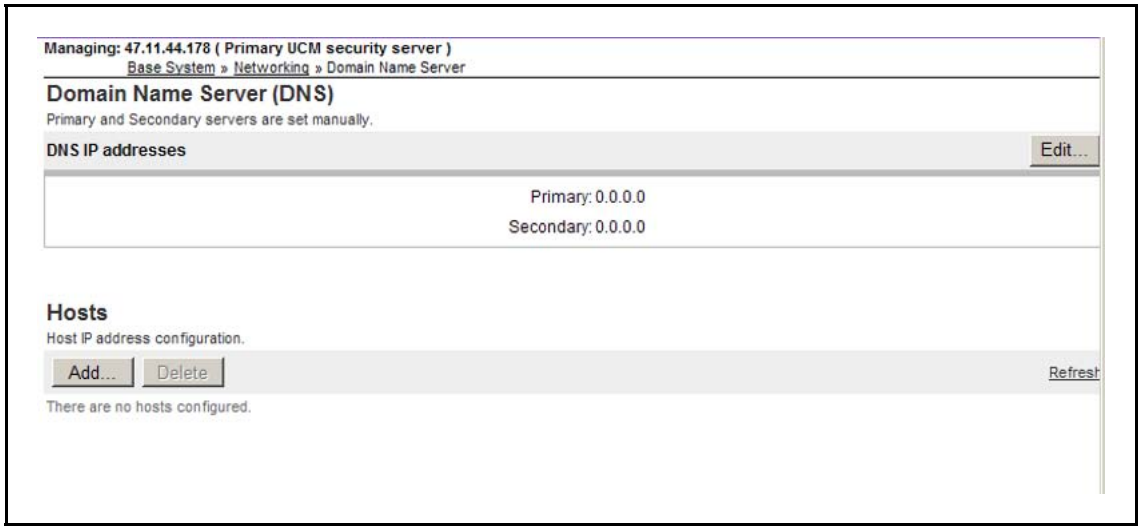
4 Select the host that you want to delete.

The Delete button becomes active.

5 Click **Delete**.

The Domain Name Server (DNS) screen appears and the host is removed, as shown in the following figure.

Figure 101
Domain Name Server (DNS) host removed



--End--

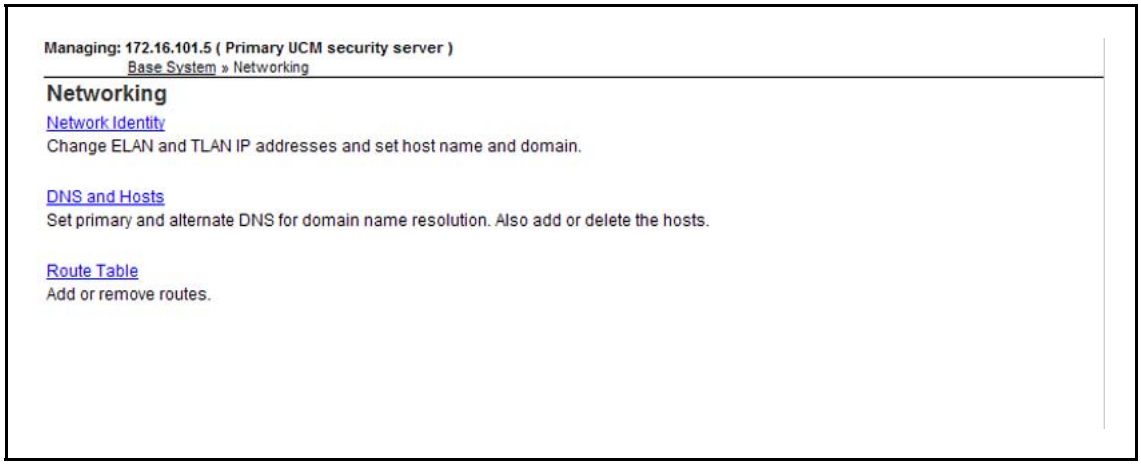
Adding a route entry
Deleting a route entry

Perform the following figure to delete an entry from the routing table.

Note: All routes configured in Base Manager have a Tag value of Manual. Routes with other Tag values are inserted by applications; these routes should only be modified or deleted by configuring the application. Do not use Base Manager to delete a route inserted by an application; this can lead to a malfunction in the application.

Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see "Accessing Base Manager through UCM" (page 150). **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see"Accessing Base Manager through local logon" (page 152).
2	In the navigation pane, select **Networking**. The Networking screen appears, as shown in the following figure.

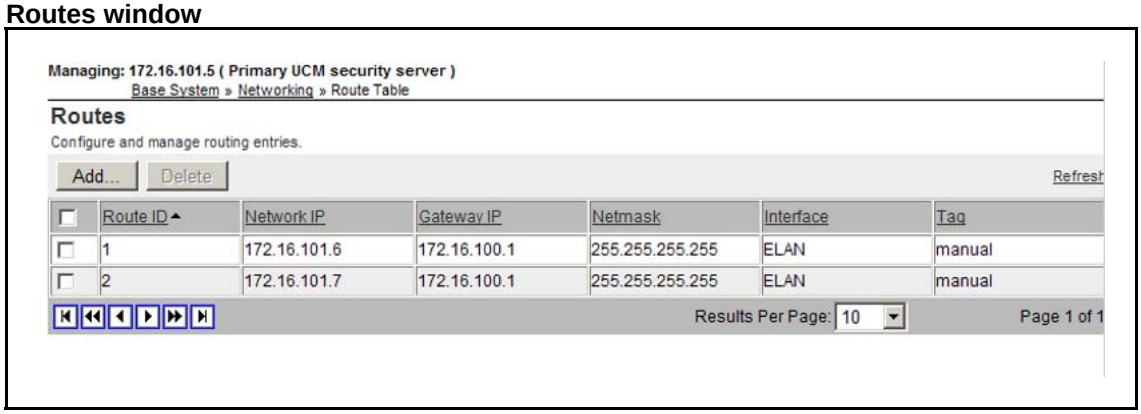
Figure 102
Networking window



3 In the Networking screen, select **Route Table**.

The Routes screen appears, as shown in the following figure.

Figure 103
Routes window

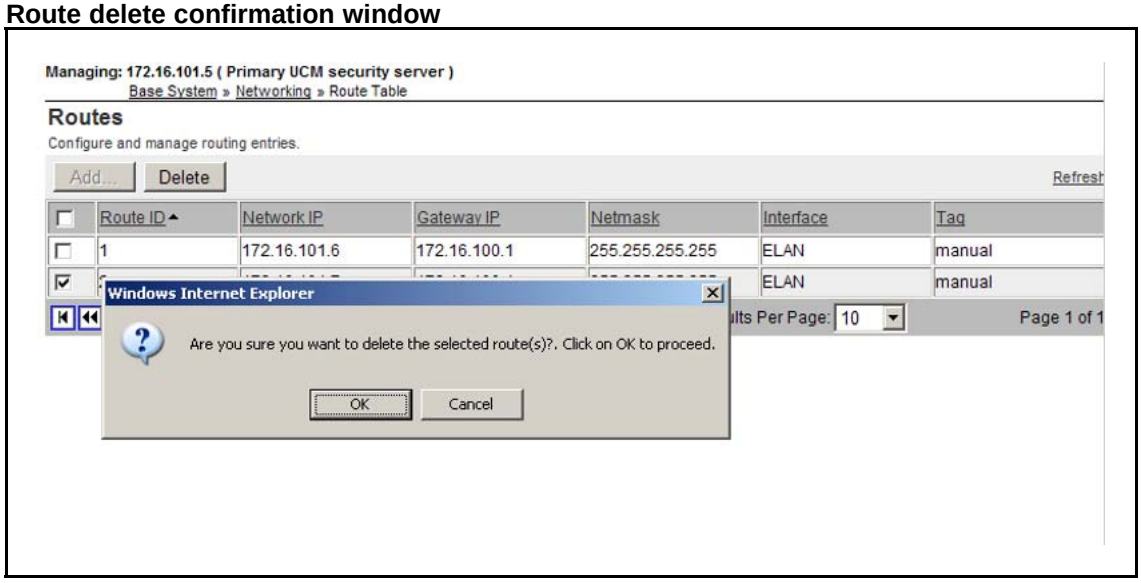


4 Select the route that you want to delete.

5 Click **Delete**.

The Route delete confirmation screen appears, as shown in the following figure.

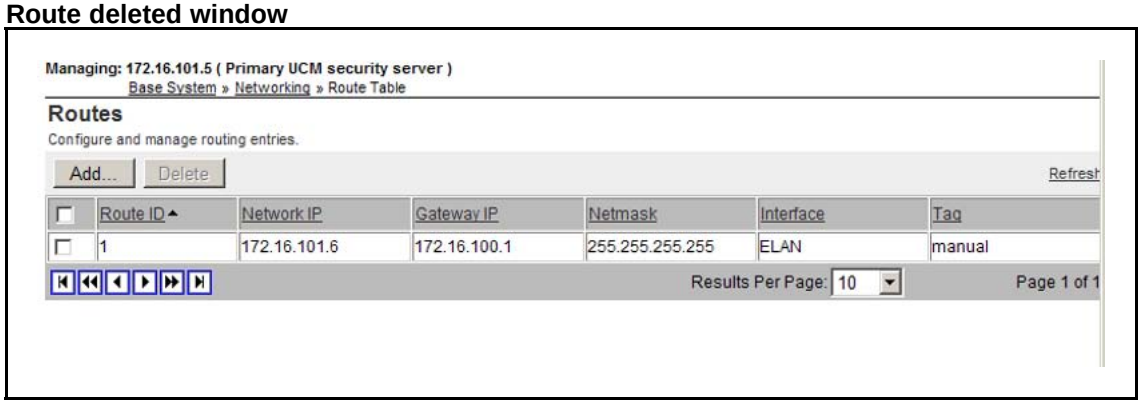
Figure 104
Route delete confirmation window



6 Click **OK**.

The route is deleted, as shown in the following figure.

Figure 105
Route deleted window



--End--

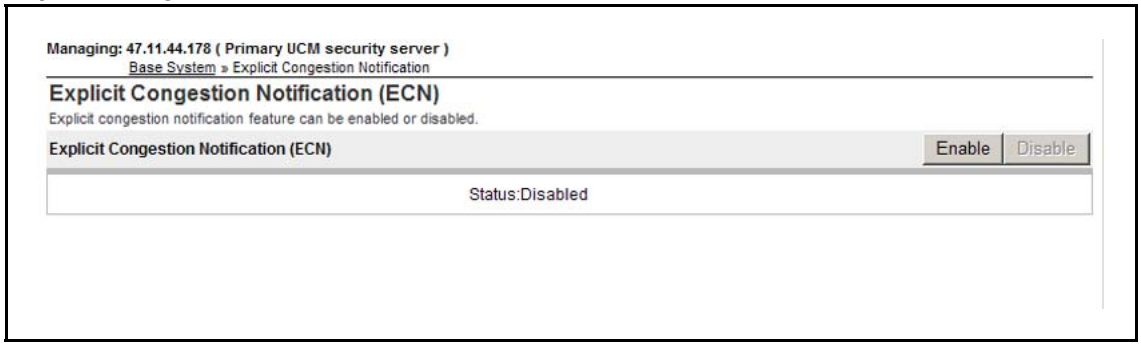
Configuring Explicit Congestion Notification

Explicit Congestion Notification in the Internet Protocol allows the server and a router to exchange notifications in cases of network congestion. If the data network is relatively poor the Linux server can be given higher priority network routing treatment by enabling the explicit network congestion setting.

Note: The routers in the network infrastructure must also support the explicit network congestion feature.

Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see "Accessing Base Manager through UCM" (page 150). **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see"Accessing Base Manager through local logon" (page 152).
2	In the navigation pane, select **Explicit Congestion Notification**. The ECN screen appears, as shown in the following figure.

Figure 106
Explicit Congestion Notification window



3	Press **Enable** to enable Explicit Congestion Notification. **OR** Press **Disable** to disable Explicit Congestion Notification.

--End--

Date and time configuration

The following section contains the procedures to manually configure system date and time value and to synchronize the data and time with network time servers.

The NTP client running on the Linux element obtains time updates by polling an NTP server. The polling interval ranges from 64 to 1024 seconds. After a restart of the element or after NTP synchronization configuration, the initial polling interval is 64 seconds. As the clock stabilizes the interval doubles until it reaches the maximum of 1024 seconds. The polling interval decreases if the clock is not stable; the polling interval increases if the clock cannot be reached. For a newly installed system it can take an additional 15 minutes (approximately) for the clock to stabilize the first time synchronization occurs.

After the clock stabilizes, there can be situations where the NTP clock source time changes. In these situations you can use the Sync Now feature in Base Manager to force an immediate time synchronization, rather than wait as long as 1024 seconds for the next poll to occur.

Configuring system date and time

Note 1: Internally there is no way to distinguish the Sync Now request failure caused by initial configuration having just been performed from other rare error conditions (such as NTP software not responding). Any errors from the Sync Now operation are ignored.

Note 2: You can configure a maximum of 11 external clock source IP addresses for the primary NTP server; you can configure a maximum of 10 IP addresses for the secondary NTP server.

If you configure NTP parameters synchronization is done automatically; you do not need to use the Sync Now feature.

System date and time configuration

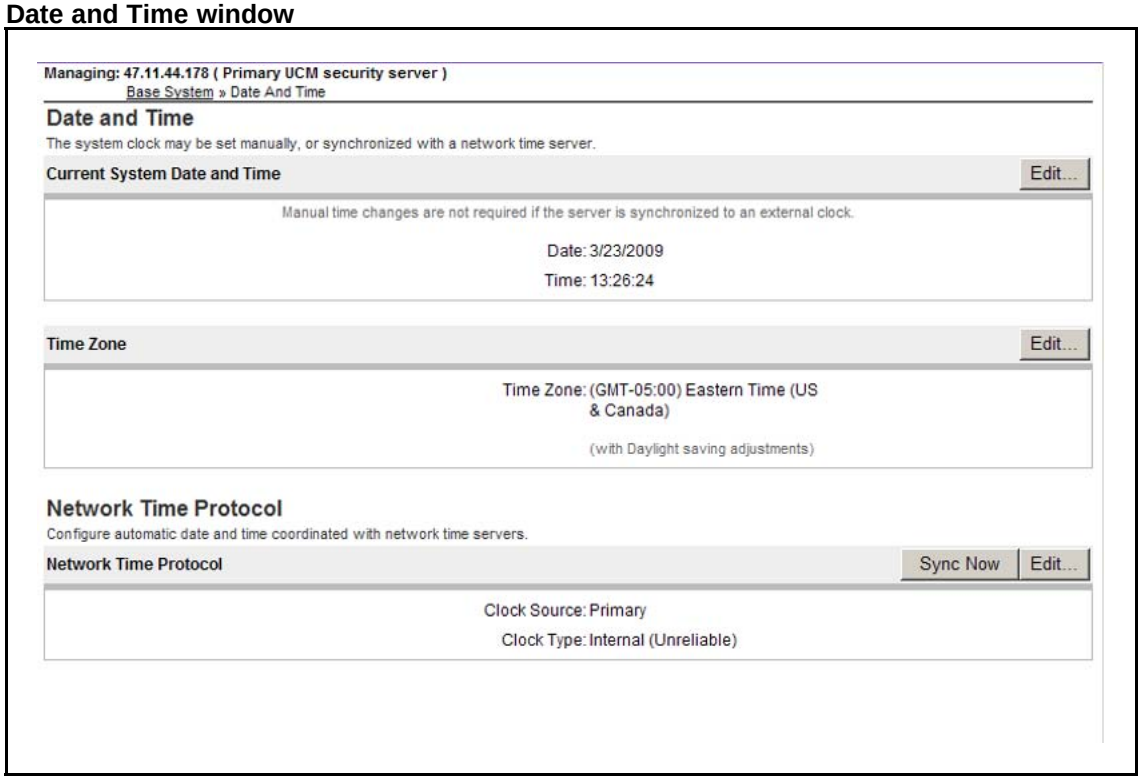
Perform the following procedure to manually configure system values for date and time.

Prerequisites

You must log on using a role from the systemadmin or timeadmin access groups to perform date and time configuration.

Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see “Accessing Base Manager through UCM” (page 150). **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see“Accessing Base Manager through local logon” (page 152).
2	In the navigation pane, select **Date and Time**. The date and Time screen appears, as shown in the following figure.

Figure 107
Date and Time window

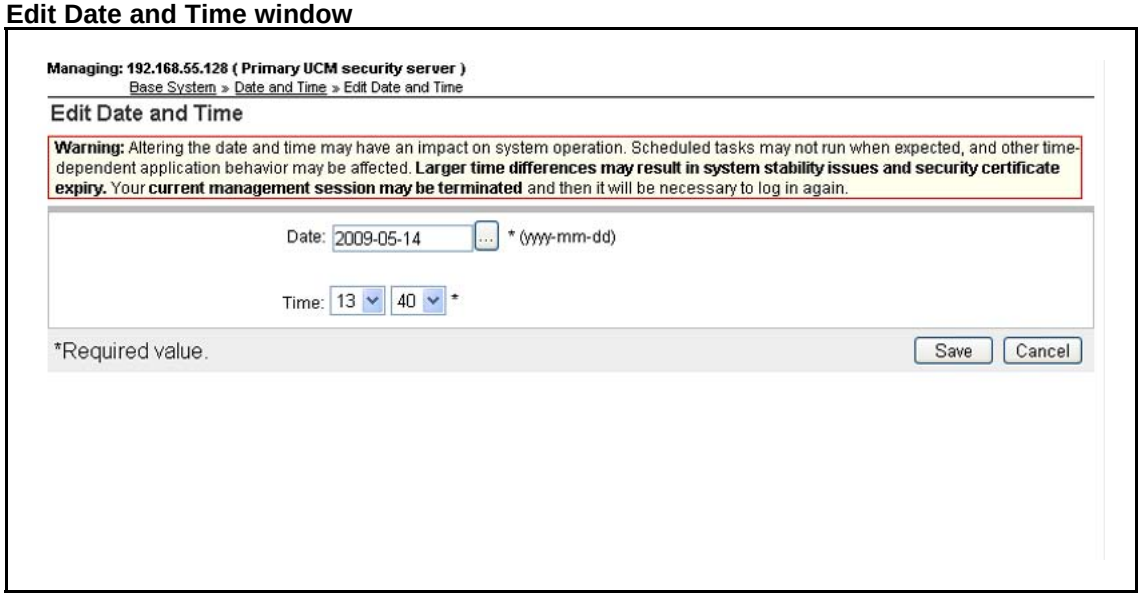


3 Navigate to the **Current System Date and Time** section.

4 Click **Edit**.

The Edit Date and Time screen appears, as shown in Figure 108 "Edit Date and Time window" (page 169).

Figure 108
Edit Date and Time window



5 In the **Date** box, enter the date in the format yyyy-mm-dd.

WARNING
If you modify the date and time to a future value, your session expires and the initial Base Manager screen displays.

OR

Press the Browse (...) button to select the date from a calendar.

6 In the **Time** lists, select values for hours (hh) and minutes (mm).

7 Click **Save** to save your configuration changes.

OR

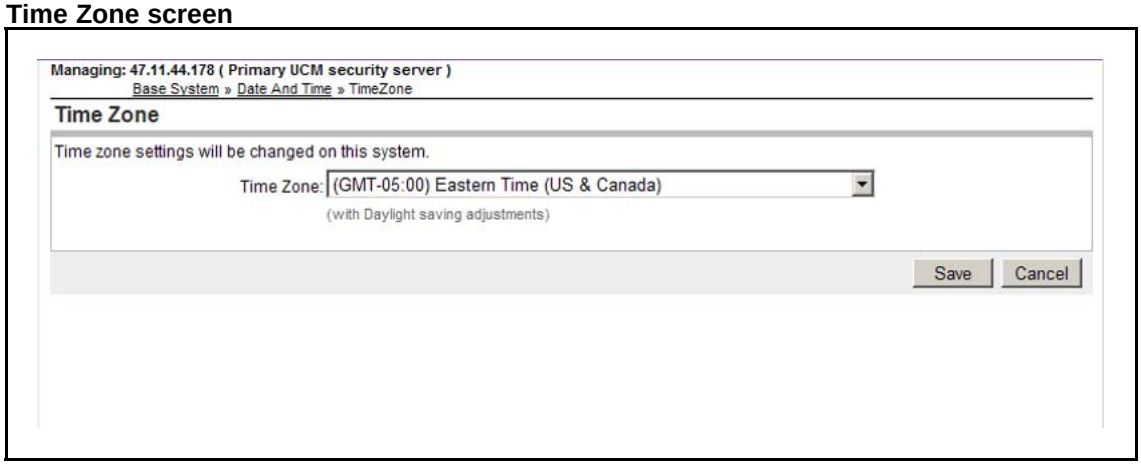
Press **Cancel** to discard your changes and return to the Date and Time screen.

8 Navigate to the **Time Zone** section.

9 Click **Edit**.

The Time Zone screen appears, as shown in the following figure.

Figure 109
Time Zone screen



10 In the **Time Zone** list, select a value for Time Zone.

11 Click **Save** to save your configuration changes.

OR

Press **Cancel** to discard your changes and return to the Date and Time screen.

--End--

Synchronizing date and time with network time servers

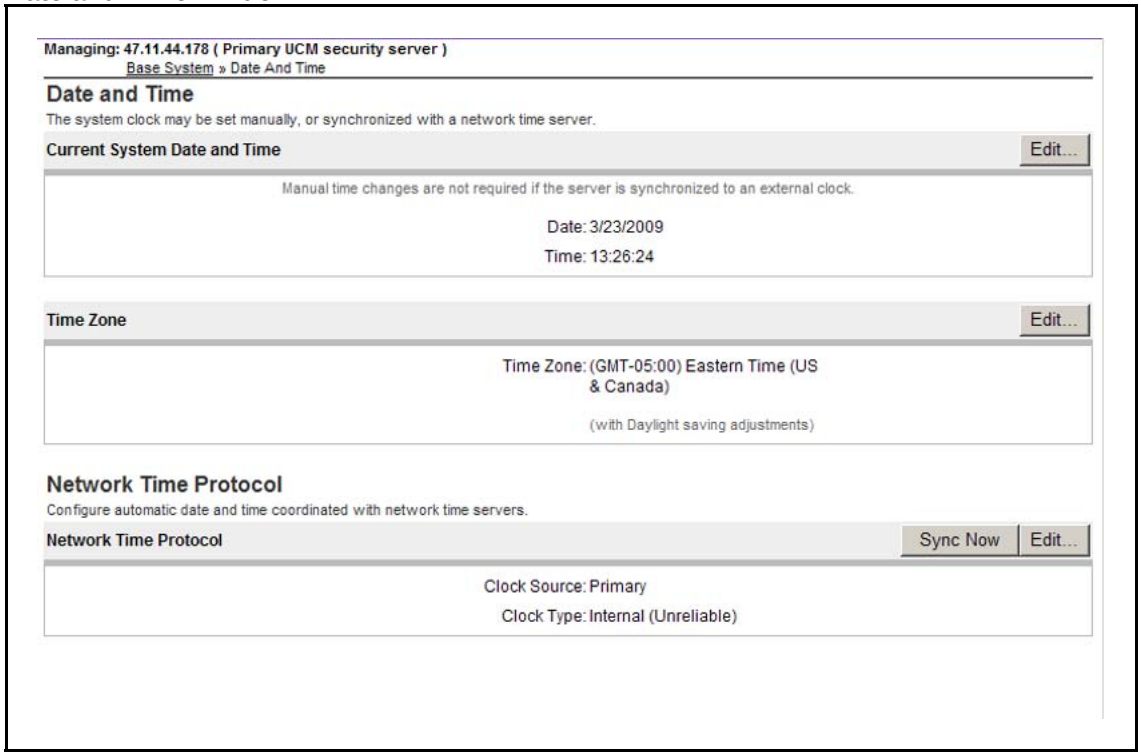
Prerequisites

You must log on using a role from the systemadmin or timeadmin access groups to perform date and time configuration.

Perform the following procedure to synchronize system date and time values with network time servers.

Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see “Accessing Base Manager through UCM” (page 150). **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see“Accessing Base Manager through local logon” (page 152).
2	In the navigation pane, select **Date and Time**. The date and Time screen appears, as shown in Figure 110 "Date and Time window" (page 171).

Figure 110
Date and Time window



3	Navigate to the **Network Time Protocol** section.

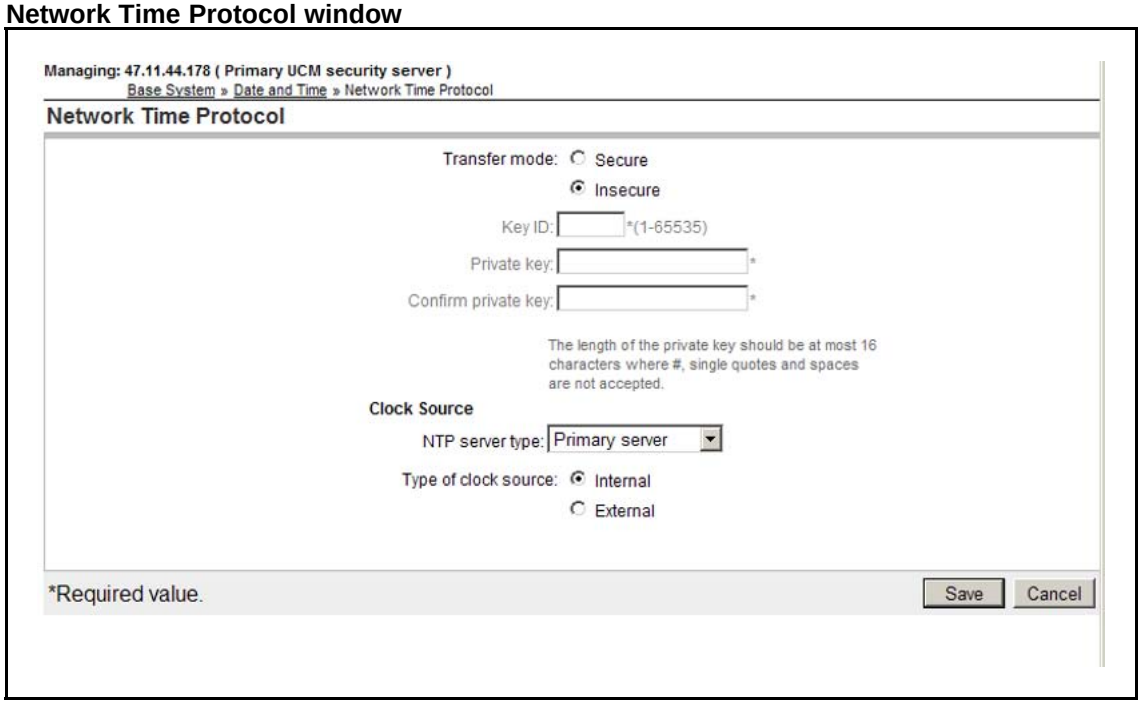
4 If you want to force an immediate time synchronization with the NTP server click **Sync Now**.

The time is synchronized with the NTP server and the procedure ends at this point.

5 Click **Edit**.

The Network Time Protocol screen appears, as shown in Figure 111 "Network Time Protocol window" (page 172).

Figure 111
Network Time Protocol window



6 Perform "Configuring NTP transfer mode" (page 173)

7 If you are configuring the clock source for a primary NTP server, perform "Configuring the clock source for a primary server" (page 173).

8 If you are configuring the clock source for a secondary NTP server, perform "Configuring the clock source for a secondary server" (page 175).

9 If you are configuring the clock source for a server that is not a clock source, perform "Configuring a server that is not a clock server" (page 177).

--End--

Configuring NTP transfer mode

Configure NTP to operate using a secure or insecure transfer mode. If you choose a secure transfer mode you must also provide a key ID and private key.

Prerequisites

You must log on using a role from the systemadmin or timeadmin access groups to perform date and time configuration.

Step	Action
1	Navigate to the Transfer mode section.
2	If you want an insecure transfer mode select the **Insecure** option. Proceed to Step 7 in "Synchronizing date and time with network time servers" (page 170). **OR** If you want a secure transfer mode select the **Secure** option.
3	In the **Key ID** field, enter a value for key ID.
4	In the **Private key** field, enter a value for private key.
5	Proceed to Step 7 in "Synchronizing date and time with network time servers" (page 170).

--End--

Configuring the clock source for a primary server

Configure the clock source for a primary server.

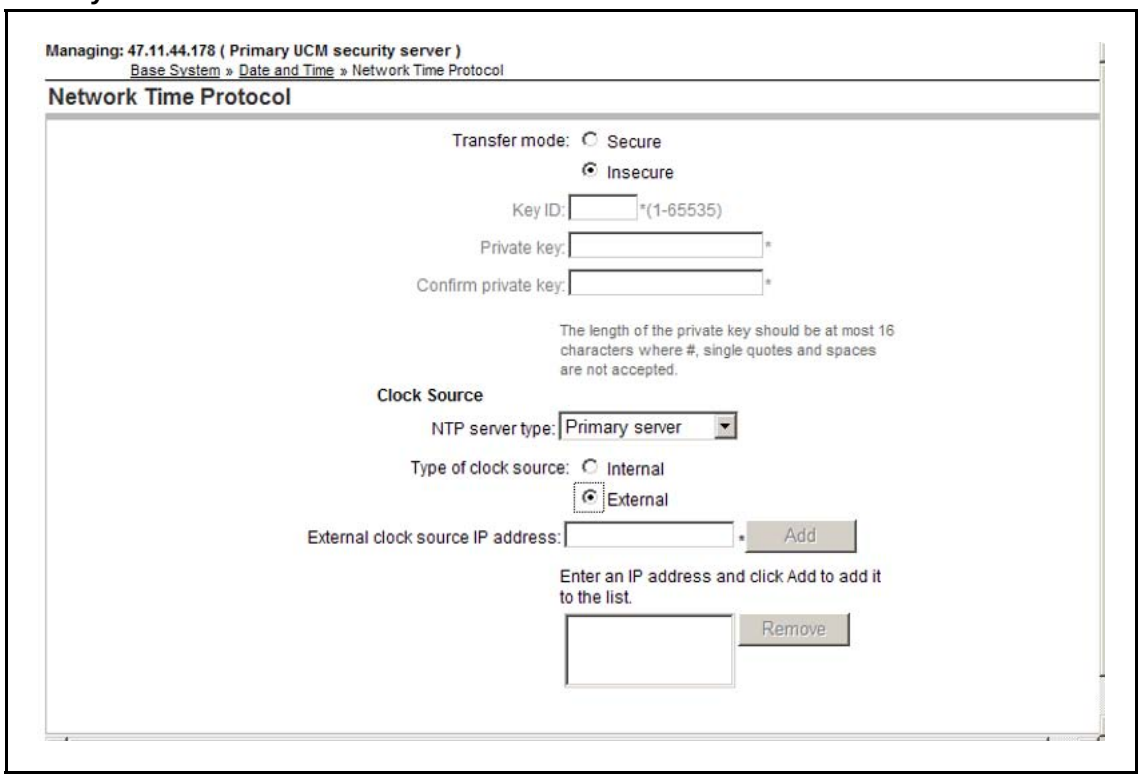
Prerequisites

You must log on using a role from the systemadmin or timeadmin access groups to perform date and time configuration.

Step	Action
1	Navigate to the Clock Source section.
2	Select **Primary** in the **NTP server type** list.
3	In the type of clock source list, select **Internal**, if you want an internal clock source.
4	In the type of clock source list, select **External**, if you want an external clock source.

If you select an external clock source, additional fields appear on the screen, as shown in the following figure.

Figure 112
Primary server clock source window

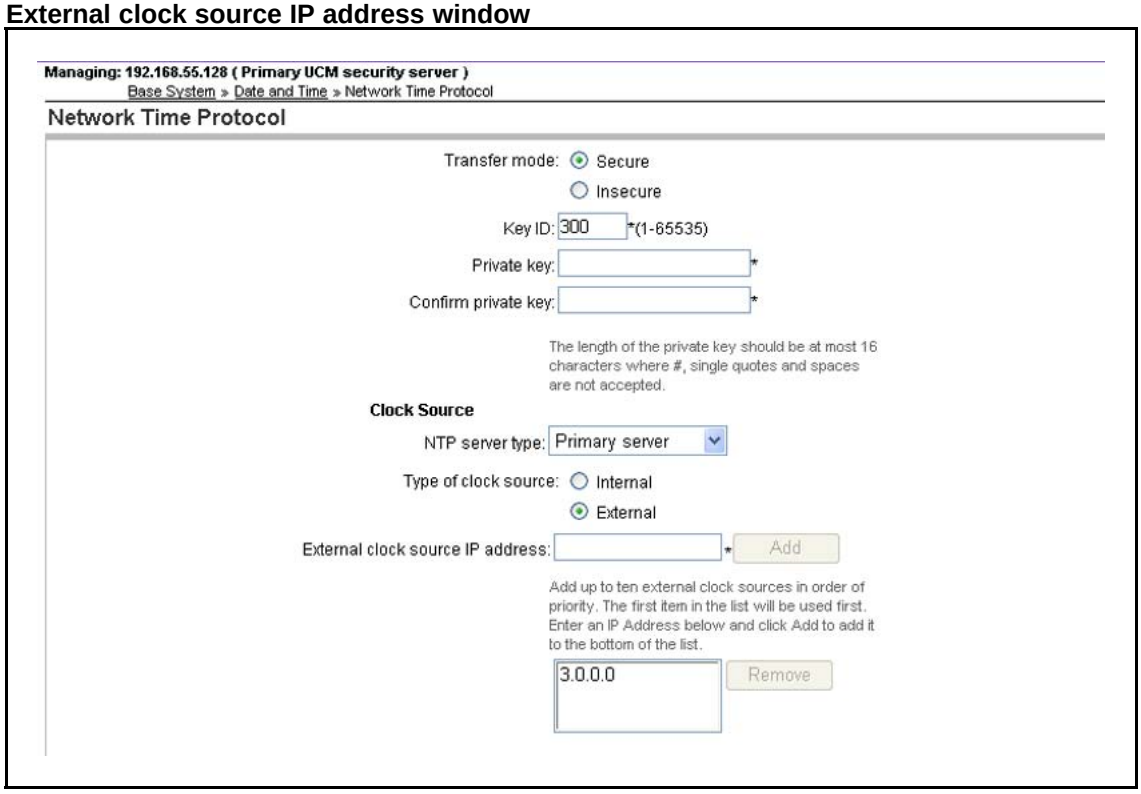


5 In the **External clock source IP address** field, type a value for the external clock source IP address.

6 Click **Add**.

The value is added to the list of IP addresses, as shown in the following figure.

Figure 113
External clock source IP address window



7 If you want to remove a value from the IP address list, highlight the value and click **Remove**.

8 Click **Save** to save the clock source configuration.

OR

Click **Cancel** to return to the Date and Time screen.

--End--

Configuring the clock source for a secondary server

Configure the clock source for a secondary server.

Prerequisites

You must log on using a role from the systemadmin or timeadmin access groups to perform date and time configuration.

Step	Action
1	Navigate to the Clock Source section.
2	Select **Secondary** in the **NTP server type** list.

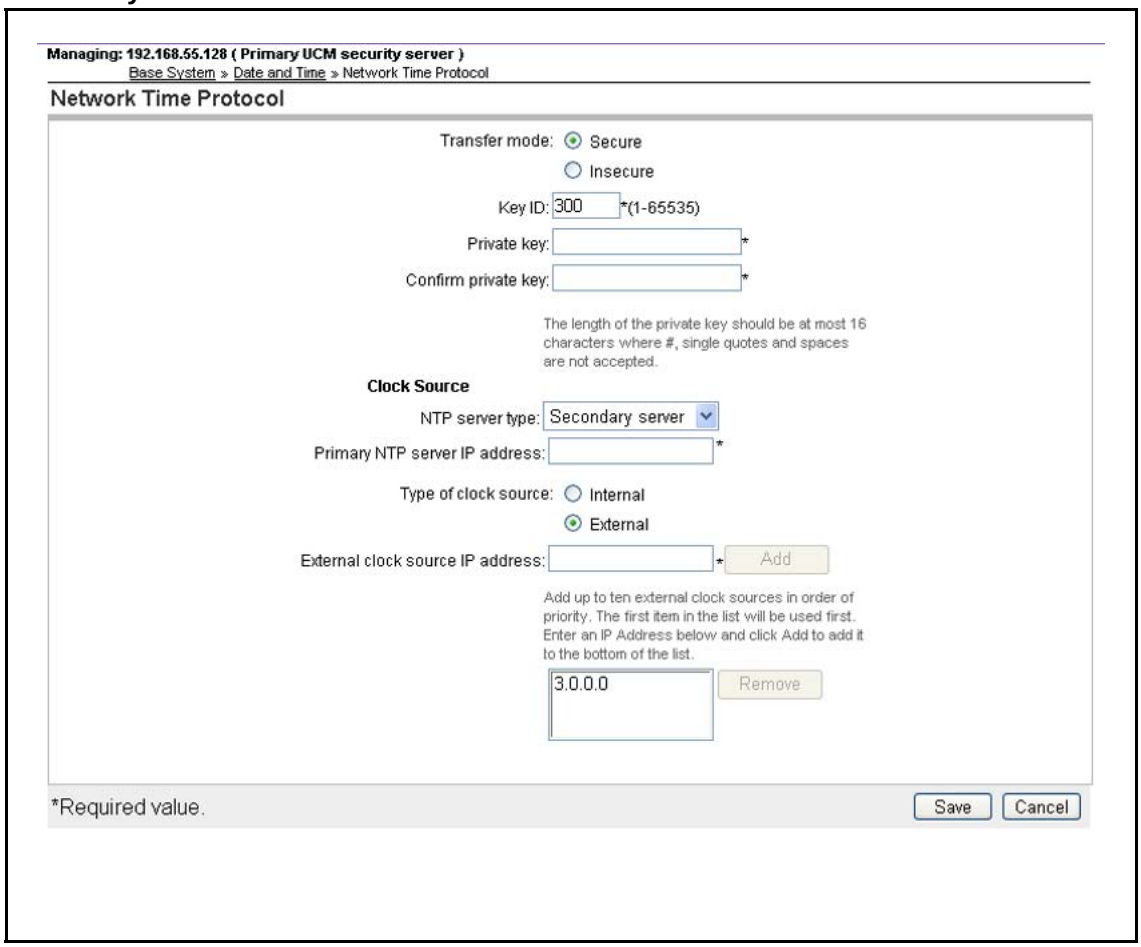
3 In the **Primary NTP server IP address** field, type a value for the IP address of the primary NTP server.

4 In the Type of clock source list, select **Internal**. if you want an internal clock source.

5 In the Type of clock source list, select **External**. if you want an external clock source.

If you select an external clock source, additional fields appear on the screen, as shown in the following figure.

Figure 114
Secondary server clock source window

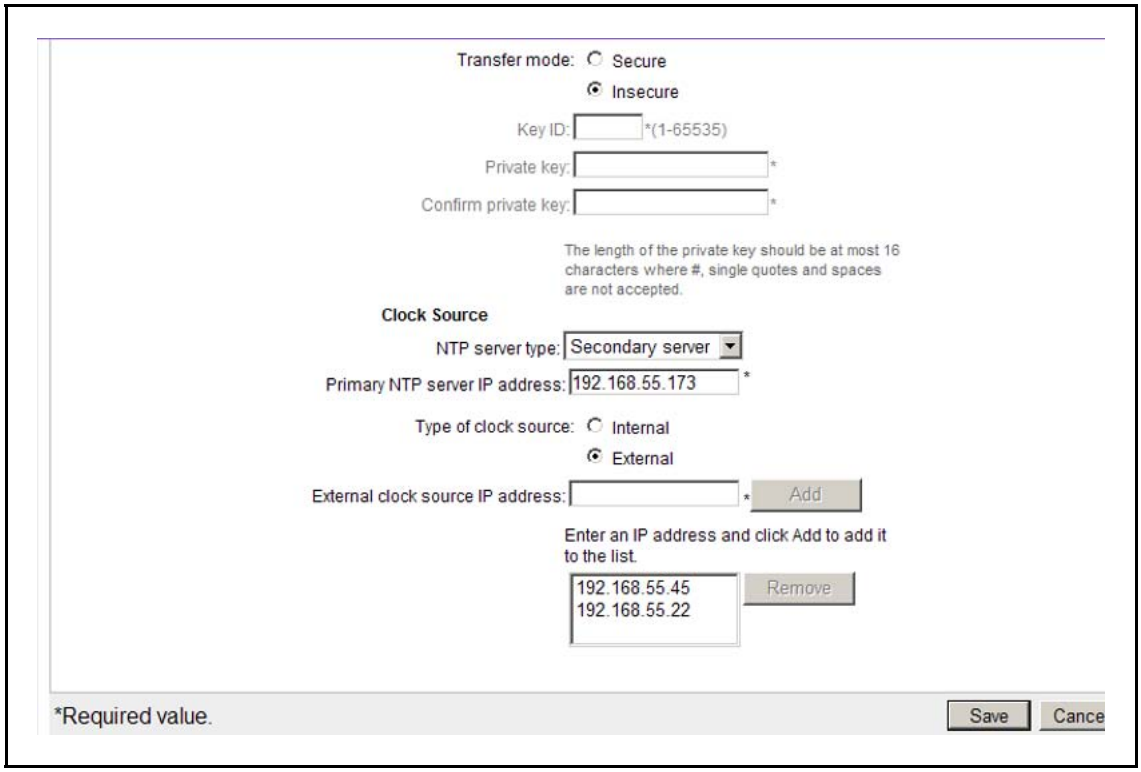


6 In the **External clock source IP address** field, type a value for the external clock source IP address.

7 Click **Add**.

The value is added to the list of IP addresses, as shown in the following figure.

Figure 115
External clock source IP address (secondary server) window



8 If you want to remove a value from the IP address list, highlight the value and click **Remove**.

9 Click **Save** to save the clock source configuration.

OR

Click **Cancel** to return to the Date and Time screen.

--End--

Configuring a server that is not a clock server

Configure the clock source for a server that is not a clock server.

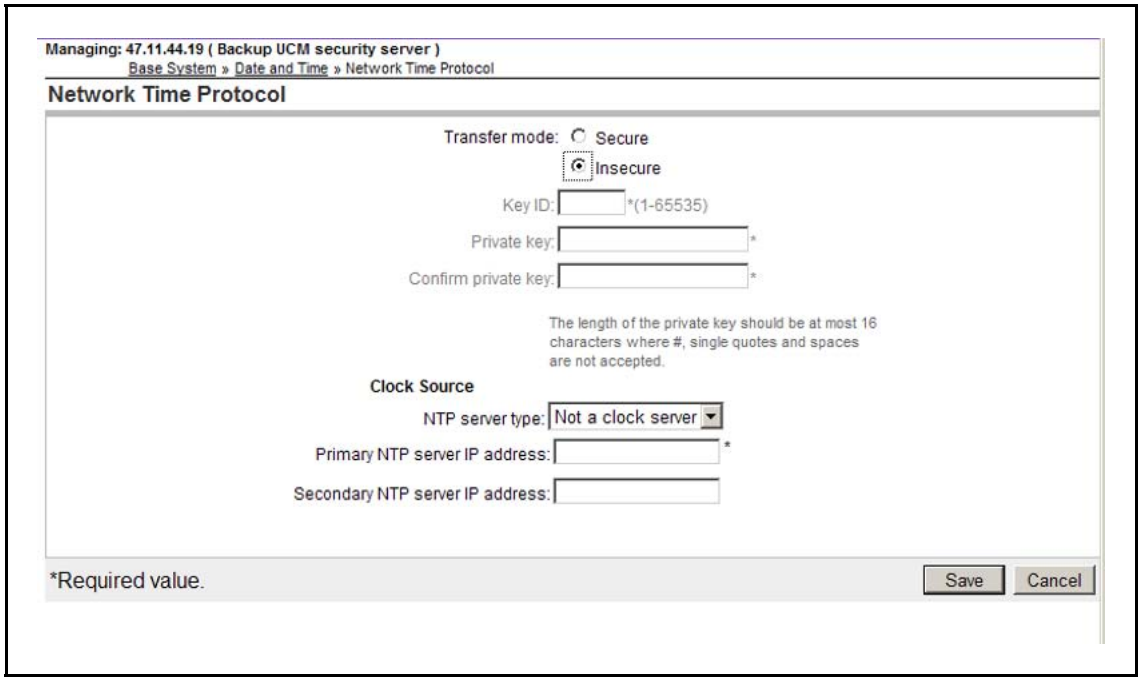
Prerequisites

You must log on using a role from the systemadmin or timeadmin access groups to perform date and time configuration.

Step	Action
1	Navigate to the Clock Source section.
2	Select **Not a clock server** in the **NTP server type** list.

The clock source fields appear, as shown in the following figure.

Figure 116
Clock source fields for a server that is not a clock server



3 In the **Primary NTP server IP address** field type a value for the IP address of the primary NTP server.

4 In the **Secondary NTP server IP address** type a value for the IP address of the secondary NTP server.

Note: Use of a secondary NTP server is optional.

5 Click **Save** to save the clock source configuration.

OR

Click **Cancel** to return to the Date and Time screen.

--End--

Regenerating SSH Keys for a UCM Member server

SSH Keys

Use “Regenerating SSH Keys for a UCM Member server” (page 178) to regenerate the SSH host keys.

Note: SSH key regeneration is only available for Member UCM servers. The option to regenerate SSH keys is not available for Primary UCM and Backup UCM servers.

SSH Key regeneration

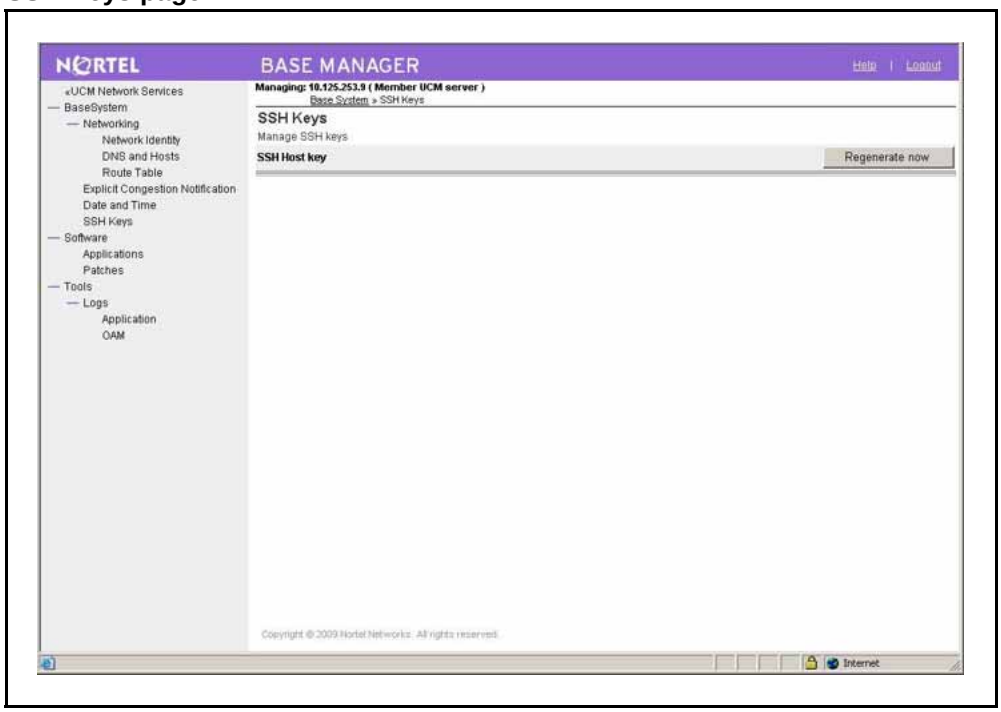
Use “Regenerating SSH Keys for a UCM Member server” (page 178) to regenerate the SSH keys for a UCM Member server.

Prerequisites

You must log on using a role from the Security Administrator access group to perform SSH key regeneration.

Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see “Accessing Base Manager through UCM” (page 150). **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see “Accessing Base Manager through local logon” (page 152).
2	In the navigation pane, select **SSH Keys**. The SSH Keys page appears, as shown in Figure 117 "SSH Keys page" (page 179).

Figure 117
SSH Keys page



3 Click **Regenerate now**.

The following message displays on the SSH Keys page:

The SSH host key has been successfully regenerated.

If the regeneration is not successful, the following message displays on the SSH Keys page:

SSH host key regeneration failed.

If you attempted to regenerate the keys on a server that is not a Member server, the following message displays on the SSH Keys page:

SSH host key regeneration only allowed on (Member UCM server).

--End--

Software maintenance using Base Manager

Stopping or restarting applications can impact system operations. It may be desirable to gracefully idle down the system or transfer operations to other redundant devices before stopping or restarting. Restarting or stopping an application can affect other systems, as in the case of network wide virtual office or branch office. Restarting or stopping an application can also cause some applications to issue alarms or generate logs.

There are operational impacts and interactions among applications. Before you stop an application it may be necessary to stop dependent applications. The following table provides a list of interactions among applications.

Table 6
Applications and dependencies

Application	Impact
Base - all	Impacts base and all Nortel applications.
Jboss	Impacts all management applications. ***Note:*** The web session is disrupted if you restart Jboss.
SNMP	Affects the ability of other applications to send traps.
Database server	Impacts most applications (CS, SS, PD, SIPL, NRS, SubM, EM).
Signaling Server	Impacts TPS, CSV, VTRK, and PD.
Virtual Trunk (VTRK)	Impacts SS applications.
Connection Service (CSV)	Impacts TPS.
Terminal Proxy Server (TPS)	Can be stopped independently.

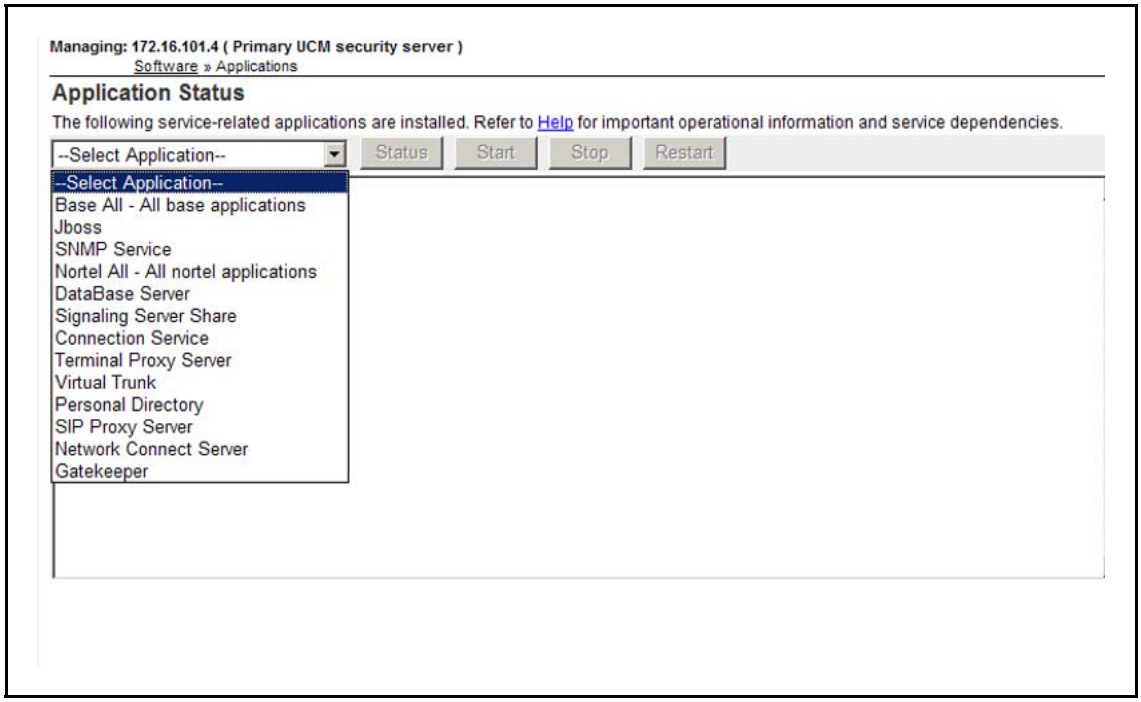
Application	Impact
Personal Directory (PD)	Can be stopped independently.
SIP Proxy server	Can be stopped independently.
Gatekeeper	Can be stopped independently.
Network Connect Server	Can be stopped independently.
Nortel - all	Impacts all higher level applications (all related to call processing).

Managing application status

Perform the following procedure to view the status of installed applications and to start, stop, or restart the applications.

Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see “Accessing Base Manager through UCM” (page 150). **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see“Accessing Base Manager through local logon” (page 152).
2	In the navigation pane, select **Software**, **Applications**. The Application Status screen appears, as shown in the following figure.

Figure 118
Application Status window



3 Select an application from the application list.

Note 1: If you select **Base All** you can only perform the status operation. If you select **Jboss** you can only perform status and restart operations. For all other applications status, start, stop, and restart operations are valid.

Note 2: For start, stop, and restart operations, a confirmation message is displayed when you select the operation.

4 Click **Status** to display the status of the application.

5 Click **Start** to start the application.

6 Click **Stop** to stop the application.

7 Click **Restart** to restart the application.

--End--

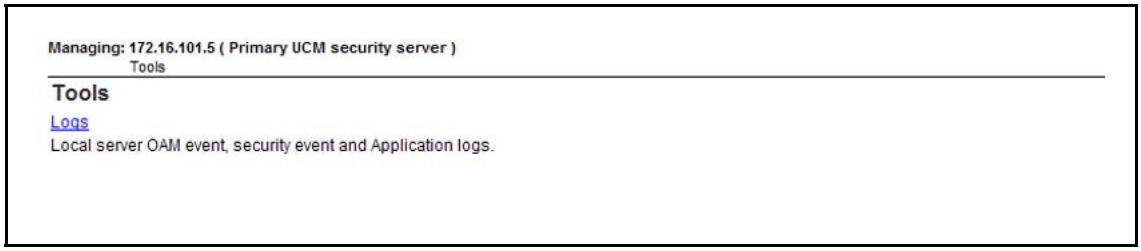
View and export logs using Base Manager

Base Manager provides access to logs generated by installed applications. You can view the logs or you can export the logs to a file which can be saved locally.

Viewing application logs

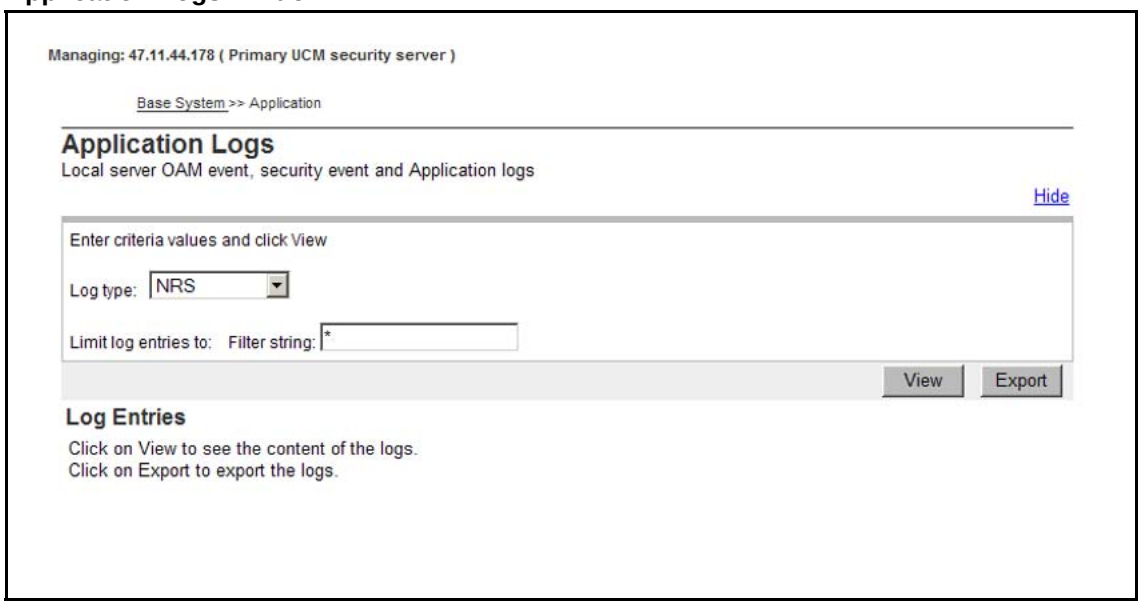
Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see . **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see.
2	In the navigation pane. select **Tools**, The Tools screen appears, as shown in the following figure.

Figure 119
Tools window



3	In the Tools window, click **Logs**. The Application Logs screen appears, as shown in the following figure.

Figure 120
Application Logs window



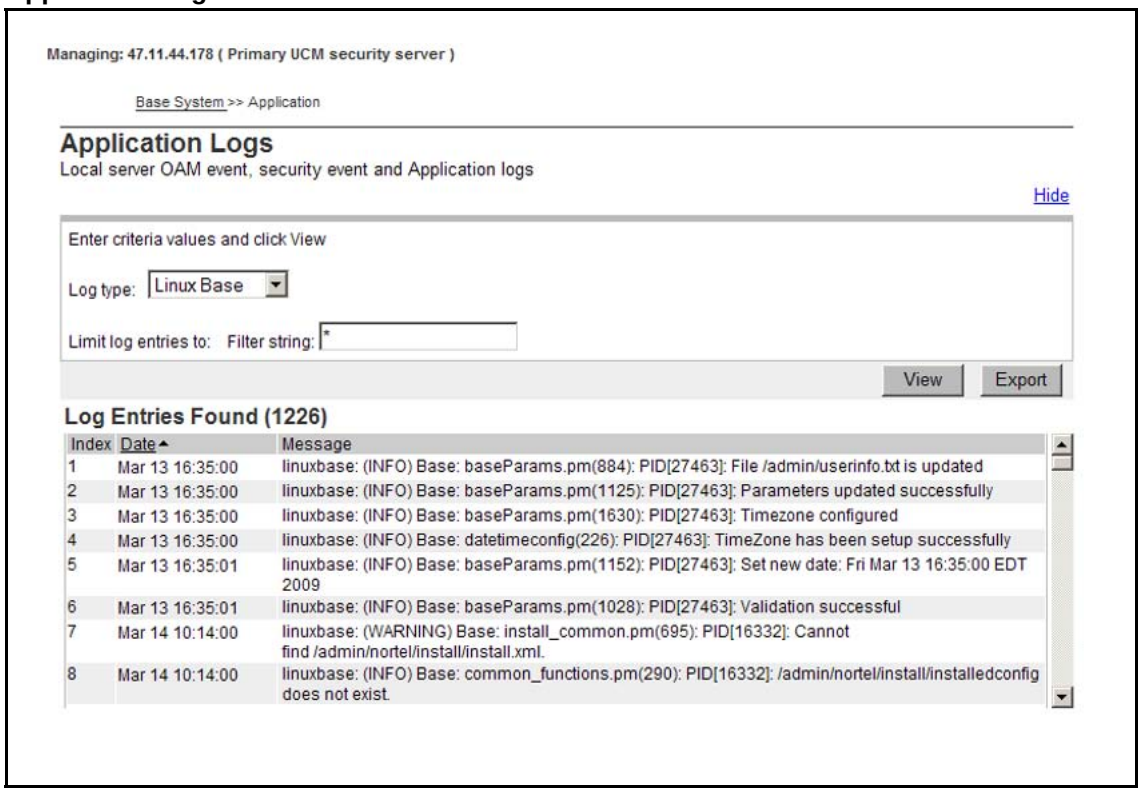
4	In the **Log type** list, select an application log type.

5 In the **Limit log entries to: Filter string** box, enter a character string to limit the log entry search. If you leave the **Limit log entries to: Filter string** blank, the search returns all log entries.

6 Press **View**.

The application log entries appear, as shown in the following figure

Figure 121
Application Logs - search results window



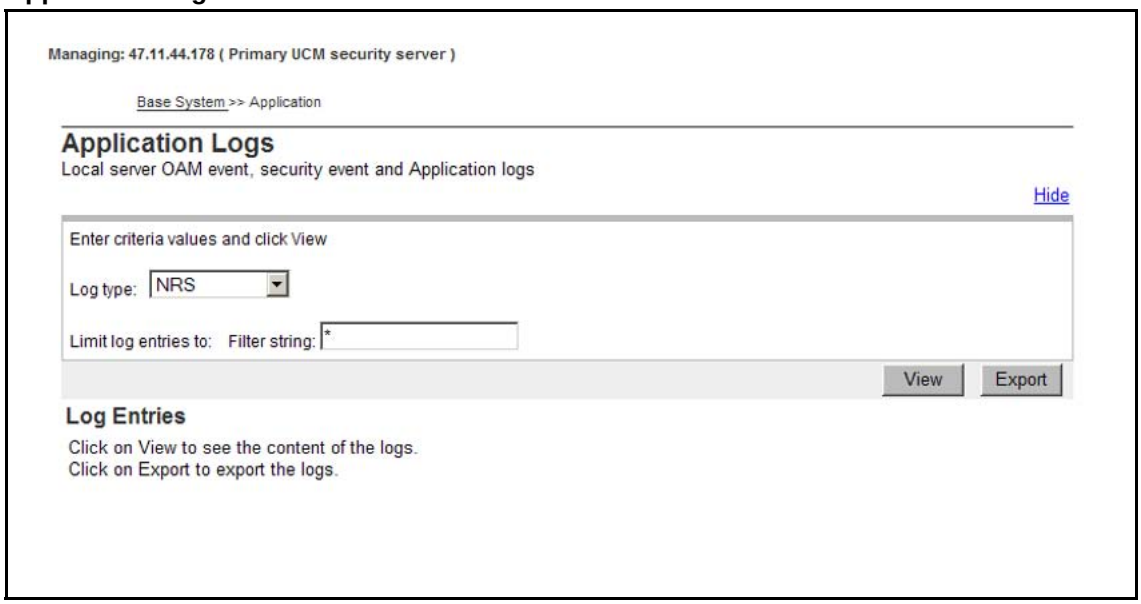
--End--

Exporting application logs

Step	Action
1	Log on to UCM and navigate to Base Manager. For details about logging on to UCM and accessing Base Manager, see . **OR** Log on to the target server locally and navigate to Base Manager. For details about logging on to the target server locally and accessing Base Manager, see.
2	In the navigation pane. select **Tools**, **Logs**, **Application**.

The Application Logs screen appears, as shown in the following figure.

Figure 122
Application Logs window



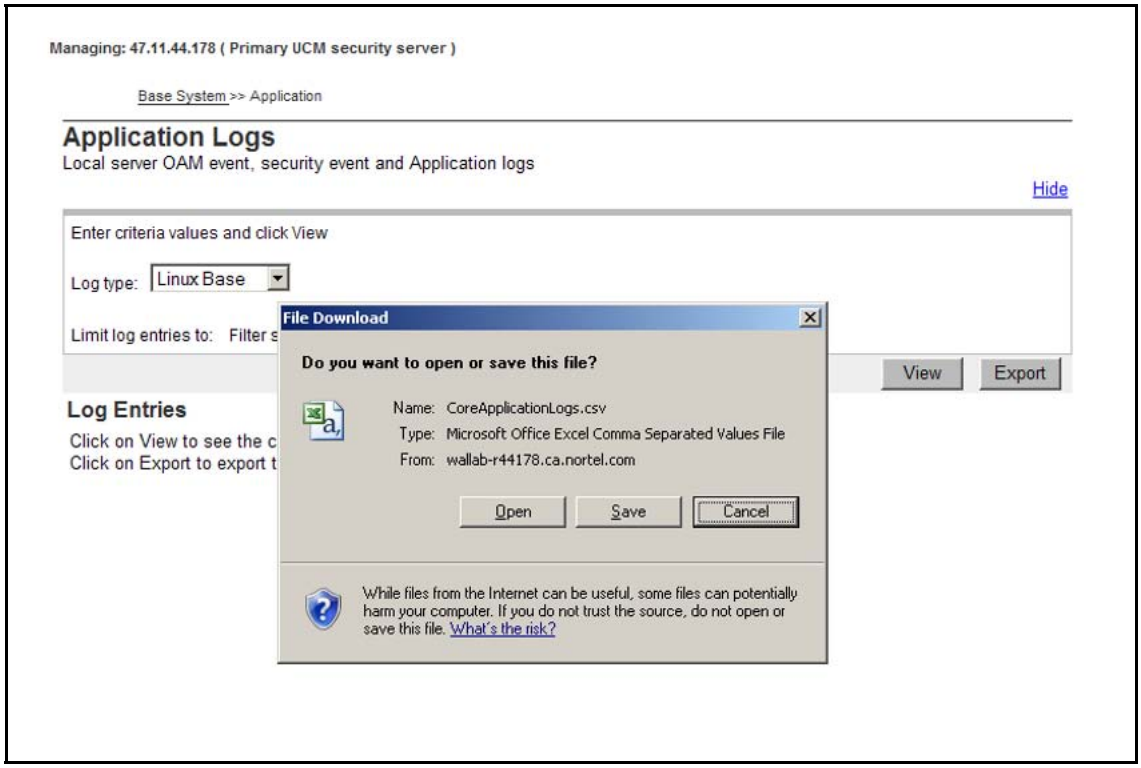
3 In the **Log type** list, select an application log type.

4 In the **Limit log entries to: Filter string** box, enter a character string to limit the log entry search. If you leave the **Limit log entries to: Filter string** blank, the search returns all log entries.

5 Press **Export**

. A file download prompt appears, as shown in the following figure.

Figure 123
Application Logs - file download prompt window



6 Press **Open** to open a file that contains the application log entries.

OR

Press **Save** to save the application logs entries file locally.

--End--

Disaster recovery

This chapter describes the prerequisites and procedures for Nortel Linux system disaster recovery on a Server. For more information about disaster recovery, see “Disaster recovery” (page 32).

Navigation

- “Prerequisites ” (page 187)
- “Performing disaster recovery for Nortel Linux Base ” (page 187)
- “Changing Linux Base passwords” (page 191)

Prerequisites

- You must have a system backup file stored on a USB device or SFTP server. Use “Backing up existing system data files” (page 144) to perform a system back up to an external SFTP or USB source.

Performing disaster recovery for Nortel Linux Base

Perform the following procedure to perform disaster recovery for a Nortel Linux Base on a Server.

Step	Action
1	Connect to the Server using the serial console or using the keyboard and video monitor (kvm).
2	Insert the Linux Base installation media. The installation media is either a DVD, USB, or CF card depending on your hardware platform.

WARNING
If using a Linux Base DVD on a COTS server, only insert the DVD in the drive during the Linux Base installation (this does not apply to Server cards). Normally the DVD auto-ejects after the Linux Base installation is complete. If the Linux Base DVD is accidentally left in the DVD drive after installation and a system restart occurs, the system will boot into the installation program. This can be interpreted as a hung system. If this occurs, eject the DVD and restart the system.

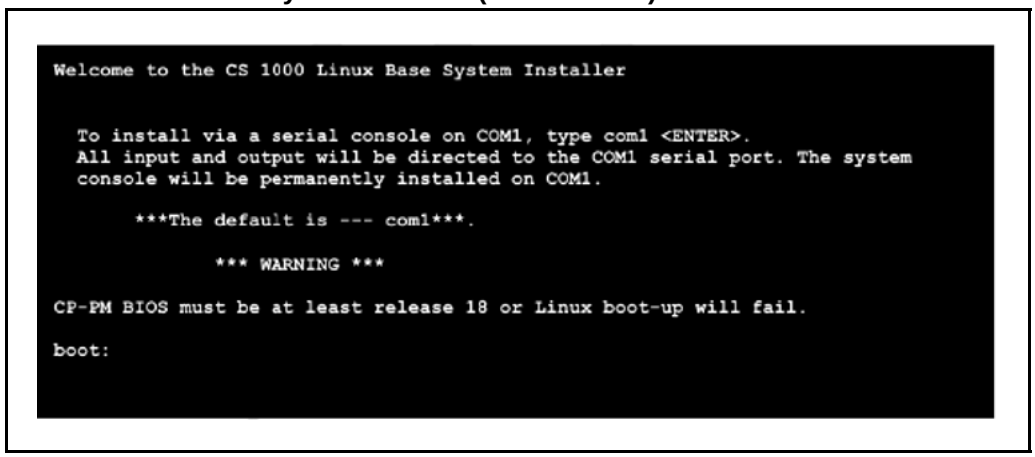
3 Restart the server.

Note: For Server cards, re-seat the card to ensure a successful restart.

When the server boots up, the CS 1000 Linux Base System Installer window appears.

For Server cards, the CS 1000 Linux Base System Installer window appears, as shown in the following figure.

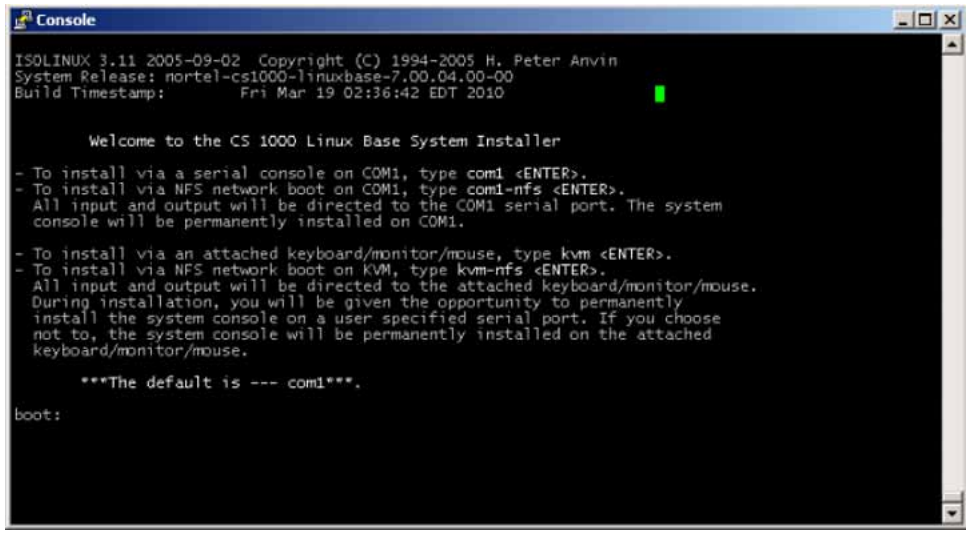
Figure 124
CS 1000 Linux Base system installer (Server cards)



OR

For COTS servers, the CS 1000 Linux Base System Installer window appears, as shown in the following figure.

Figure 125
CS 1000 Linux Base system installer (COTS server)



4 Type **com1** or press **Enter** to install using a serial console on COM1.

OR

Type **kvm** to install using an attached keyboard and video monitor.

WARNING
If you log on to the COM1 port, make sure that **Caps Lock** is turned off before you log on.

The disaster recovery procedure uses steps in the new and upgrade Linux Base procedures, as referenced in the following steps.

5 If you are attempting a disaster recovery and the following screen appears, the disk is more than likely new, corrupted, or has been formatted. Proceed to follow the procedures in Step 6 from “Installing a new Linux Base” (page 53).

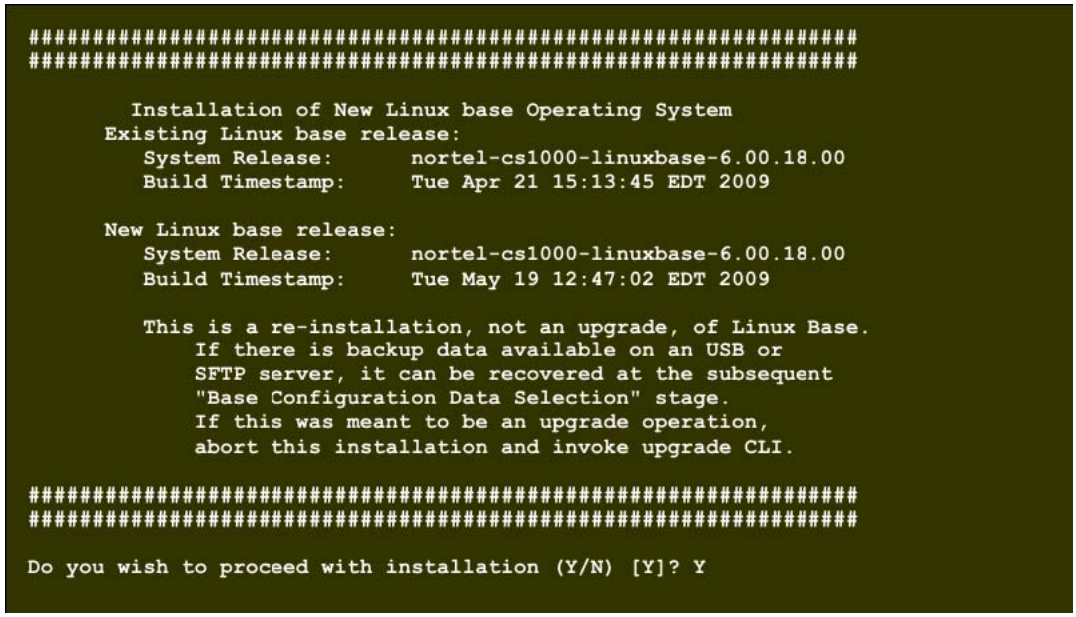
Figure 126
CS 1000 Linux Base installer confirmation screen

OR

If you are attempting a disaster recovery and the following screen appears, the disk information is retrievable from the existing /admin partition. If the data stored in the /admin partition is not corrupt and you trust the content, proceed to follow the procedures in Step 7 from “Upgrading Linux Base ” (page 85).

ATTENTION
If you are attempting to recover a server that has been upgraded from Communication Server 1000 Release 6.0 and does not have the latest backup data (either USB or SFTP), perform a backup data restore during the Linux Base installation. Performing a restore ensures a graceful reregistration to the UCM Security Domain and UCM Deployment Manager. During the Linux Base installation, select Option 2 or 3 at the Base Configuration Data Selection screen, as shown inStep 8 from “Upgrading Linux Base ” (page 85).

Figure 127
CS 1000 Linux Base system installer confirmation window



Note: The disaster recovery process is not complete until you perform an application deployment and a patch deployment.

--End--

Changing Linux Base passwords

Perform the following procedure to change the Nortel Linux Base passwords for the root or nortel accounts.

Prerequisites

- Ensure you have physical access to the system.
- Ensure you have access to the serial COM port of the Linux server.
- Ensure you have the Linux Base installation media.
  - — USB 2.0 memory stick for CP DC and CP MG cards
  - — DVD for COTS Servers
  - — RMD for Server cards

Step	Action
1	Insert the Linux Base installation media.

2 Restart the system.

3 If you connect to the server through the COM1 console, type **recovery-com1** in the CS 1000 Linux Base system installer screen and press **Enter**.

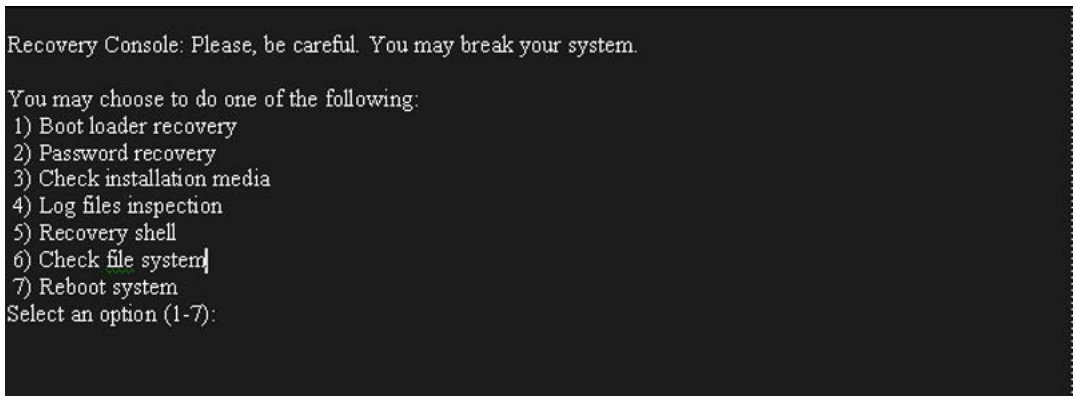
OR

If you connect to the server using a keyboard and video monitor (kvm) type **recovery-kvm** in the CS 1000 Linux Base system installer screen, and press **Enter**.

> ***Note:*** If you connect to the IBM x3350 server with a terminal for setup, the server does not function with the serial cable that was previously shipped with the ISP 1100 or other COTS platforms. The IBM x3350 server requires the new NTRX26NPE6 9 pin female to 9 pin female null modem cable. For a picture of the null modem cable, see Figure 177 "NTRX26NPE6 9 pin female to 9 pin female null modem cable" (page 250).

The Recovery Console menu appears, as shown in the following figure.

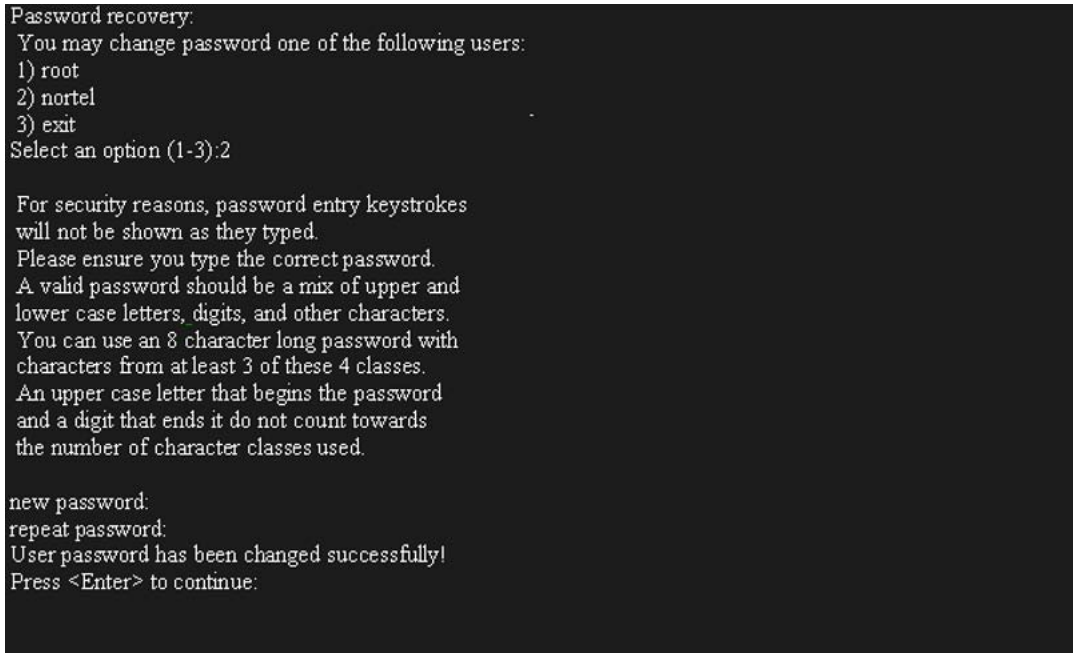
Figure 128
Recovery Console window



4 Select option 2 for password recovery and press **Enter**.

The Password recovery screen appears, as shown in the following figure.

Figure 129
Password recovery window



5 Type the option number for the password that you want to change, and press **Enter**.

6 Enter the new password. For password creation guidelines, see "Password creation guidelines" (page 32).

7 Reenter the new password.

8 Press **Enter**.

--End--

Appendix Hardware platforms

The Linux Base is supported on various hardware platforms. For more information on the supported hardware platforms, see“Supported hardware platforms” (page 17).

ATTENTION
Instructions to install a Commercial off-the-shelf (COTS) server is not included in this document. Detailed installation instructions can be found in the documentation shipped with the server.

This section contains general instructions to install a Server. This section also includes instructions to connect all types of servers to the ELAN and TLAN subnets of a CS 1000 system and to connect a maintenance terminal to each type of Server.

Navigation

- “Creating a bootable RMD for Linux Base installations” (page 196)
- “Hardware installation checklist” (page 201)
- “CP PM card” (page 202)
- “CP DC card” (page 217)
- “CP MG card” (page 217)
- “Dell R300 server” (page 219)
- “HP DL320 G4 server” (page 228)
- “IBM x306m server” (page 239)
- “IBM x3350 server” (page 249)

Configuring the privilege level for Windows Vista or Windows 7

If you are using Windows Vista or Windows 7. configure the privilege level to run as administrator prior to creating a bootable RMD for Linux installations

Step	Action
1	Open a Web browser window and navigate to www.nortel.com.
2	Navigate to **Support & Training**, **Software Downloads**.
3	Navigate to the **utilities** folder.
4	Right-click on **syslinux.exe** and select **Properties**.
5	Click the **Compatibility** tab.
6	In the **Privilege level** section, select the **Run this program as administrator** check box.
7	Click **Apply** and click **OK** to exit the syslinux properties window.
8	You can now proceed to "Creating a bootable RMD for Linux Base installations" (page 196).

--End--

Creating a bootable RMD for Linux Base installations

Linux Base installation requires the following bootable Removable Media Device (RMD):

- CP PM require a Compact Flash (CF) card.
- CP DC and CP MG require a USB memory stick.

ATTENTION
To ensure that the latest boot loader is installed on the media boot sector, use a clean disk and repeat the steps in this procedure for every new software load.

Prerequisites

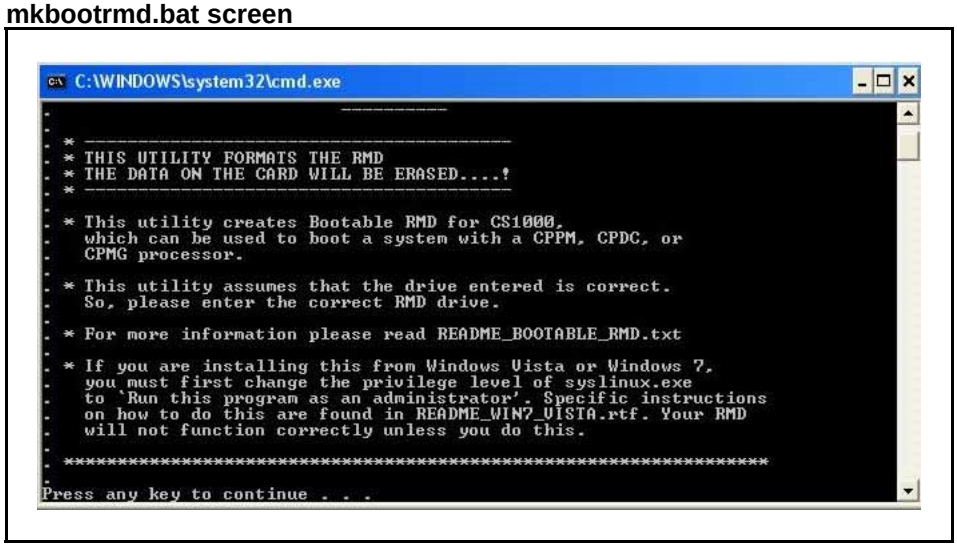
- You must have a Compact Flash (CF) card or USB 2.0 memory stick with a capacity of at least 2 GB.
- You must use the correct bootable device for your hardware type:
  - CP PM requires a Compact Flash (CF) card.
  - CP DC and CP MG requires a USB memory stick.

    Note: The N0220961 USB memory stick is supported for Communication Server 1000 Release 7.0. Not all USB memory sticks are supported.

- If you are using Windows Vista or Windows 7, you must configure the Privilege Level, see "Configuring the privilege level for Windows Vista or Windows 7" (page 195).

Step	Action
1	Open a Web browser window and navigate to www.nortel.com.
2	Navigate to **Support & Training**, **Software Downloads**.
3	Select the correct software load zip file for the server platform.
4	Create a temporary folder
5	Download the software load zip file.
6	Extract all of the files in the software load zip file to the newly created temporary folder. The following folders appear in the temporary folder: • baseapps • extra • license • pre-configs • relnotes • scripts • utilities
7	Navigate to the **utilities** folder.
8	Double-click the **mkbootrmd.bat** file and press any key to continue, as shown in the following figure.

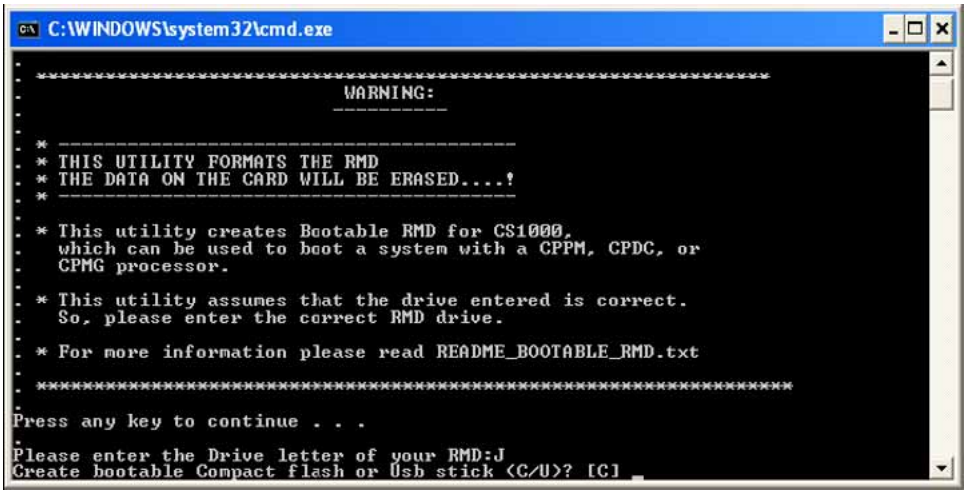
Figure 130
mkbootrmd.bat screen



9	At the prompt, **Please enter the Drive letter of your RMD**, type a drive letter, as shown in the following figure.

10 At the prompt, **Create bootable Compact flash or USB stick**, select either **C** for Compact Flash or **U** for USB device, as shown in the following figure.

Figure 131
Select bootable media screen



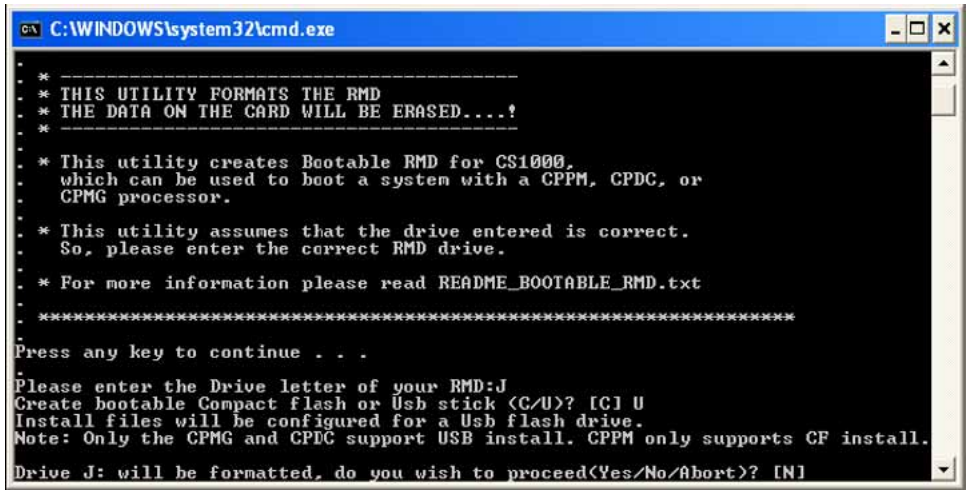
ATTENTION
If the USB memory stick is selected, some additional files are copied to overwrite the files for a Compact Flash installation, the following message appears, Configuring for USB install. The same is also true if the Compact Flash is selected; however, the additional files are copied to overwrite the files for a USB stick.

11 Select **Yes** if you want to proceed.

OR

Select **No** to return to the drive selection screen, or **Abort** to exit the utility without making changes to the selected drive, as shown in the following figure.

Figure 132
Confirmation screen



ATTENTION
USB 2.0 memory stick is the only media supported for CP MG and CP DC. USB 1.0 and 1.1 are not supported. USB and CF have the same size requirements.

12 Copy the distribution image from the temporary folder to your installation media. You must always reformat your installation media using mkbootrmd.bat before you copy the distribution image from the temporary folder to your installation media.

ATTENTION
- Do not unzip the software load zip file directly to the installation media.
- Do not copy the contents of the temporary folder to the installation media without first running mkbootrmd.bat.
- Do not copy the contents of the temporary folder to the installation media without first running mkbootrmd.bat.
- Do not copy the contents of the temporary folder to an installation USB if mkbootrmd.bat was most recently run selecting the CF option.
- Do not copy the contents of the temporary folder to an installation CF if mkbootrmd.bat was most recently run selecting the USB option

--End--

ATTENTION
If you do not select the correct bootable device for your hardware type (as described in the preceding Prerequisites), you must repeat the procedures in “Creating a bootable RMD for Linux Base installations” (page 196); otherwise, you receive error messages, as shown in the following table.

Table 7
Error messages when using the incorrect bootable device

Error condition:	Error message:
If a USB is created as a bootable Compact Flash by mistake and com1-nfs install is used on a CP DC or CP MG, and the error message appears on the COM port console.	---------- Networking Device ---------- You have multiple network devices on this system. Which would you like to install through? eth - Intel Corporation Unknown device 5045 eth0 - Intel Corporation Unknown device 5049 eth1 - Intel Corporation Unknown device 5041 OK || Identify || Back
If a USB is created as a bootable Compact Flash by mistake and com1 install is used on a CP DC or CP MG, and the error message appears on the COM port console.	----- Error Downloading kickstart file -------- Unable to download the kickstart file. Please modify the kickstart parameter below or press Cancel to proceed as an interactive installation. hd:hdc1:/ks_cppm.cfg OK || Cancel
If a Compact Flash is created as a bootable USB by mistake and com1-nfs install is used on a CP PM, the user would see slow message output, a messy display, and the error message appears on the COM port console after IP input.	---- Deployment Target booting error ---- Unable to access files on Deployment Server. Check the connection from the Deployment Server (e.g. ping) If it is reachable from the Deployment Server, check: 1. Does the data network block NFS traffic? 2. Is this target ’Committed’ in the Deployment Manager servers view? 3. Is NFS ’enabled’ in the Deployment Manager servers view? If it is not reachable from Deployment Server, check: 1. ELAN/TLAN in the Deployment Manager view are not interchanged. 2. Valid IP settings are provided. 3. A valid Deployment Server TLAN IP Address is provided. 4. The physical cable connectivity of your ELAN/TLAN interfaces. 5. Ensure that proper TLAN routing on data

Error condition:	Error message:
	network is enabled. Please press OK to proceed to reboot. OK
If a Compact Flash is created as a bootable USB by mistake and com1 install is used on a CP PM, the user would see slow message output, a messy display, and the error message appears on the COM port console after IP input.	------- Error downloading kickstart file ------ Unable to download the kickstart file. Please modify the kickstart parameter below or press Cancel to proceed as an interactive installation. hd:sdb1:/ks_usb.cfg OK || Cancel

Hardware installation checklist

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

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

Table 8
Installation checklist

Have you:
Received all server equipment and peripherals? **For a COTS server:** • installation accessories for rack-mounting the server • AC-power cord • a DTE-DTE null modem cable (supplied) • NTE90672: Linux Signaling Server software DVD for COTS servers **For a CS 1000M Server cards (NTDW66 CP PM and NTDW54 CP DC)** • NTM427CBE6: CP PM Signaling Server Linux Upgrade kit (CP PM only), which includes — NTDW6102E5: CP PM Signaling Server Hard Drive kit (Linux OS preloaded) — NTM42703: 2 GB Compact Flash (CF) with Linux software, 2 GB blank CF — NTDW6109E6: 1 GB DDR SO-DIMM memory upgrade • NTAK19ECE6: 2 port SDI Cable assembly kit

Have you:
• NTDW69AAE5: Large System Cabling kit • a DTE-DTE null modem cable (supplied) ***Note:*** Save the packaging and packing materials in case you must ship the equipment or peripherals.
Made sure the area meets all environmental requirements?
Checked for all power requirements?
Verify the CP PM hardware meets all required specifications (2GB ram, 40GB hard drive, CP PM BIOS version 18 or higher)?
Checked for correct grounding facilities?
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)
Prepare 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?

CP PM card

The Common Processor Media Card is a Server card that you can deploy as a VxWorks Call Server, a Linux Base Signaling Server, or a Linux Base Co-resident Call Server and Signaling Server (Co-res CS and SS).

The CP PM card is available in multiple variants:

- a single slot card for CS 1000E systems (NTDW61)
- a double-slot card for CS 1000M systems (NTDW66)
- a single slot metal faceplate for CS 1000E systems (NTDW99)

Note: The CP PM version 2 card provides an updated hardware design, BIOS, and boot manager. The CP PM version 2 card is available in multiple variants: a single slot metal faceplate card for CS 1000E systems (NTDW99CAE6) and a double slot card for CS 1000M systems (NTDW66CAE6). The CP PM version 2 cards do not require a BIOS update to support Linux.

Nortel Linux Base requires CP PM servers to meet criteria for disk size, memory size, and BIOS version. Perform the following procedures to determine CP PM disk size, CP PM memory size, and CP PM BIOS version, and to upgrade the CP PM BIOS version.

Determining CP PM disk size

Perform the following procedure to determine the CP PM disk size.

Step	Action
1	Connect to the CP PM server remotely by using SSH or locally by using a serial port.

ATTENTION
The Nortel NTAK19EC cabling kit is required to connect a maintenance terminal to the serial port of a CP PM or CP DC card as follows.

- 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 required to connect the 25-pin DB connector to a 9-pin serial port on the maintenance terminal

2	Log on to the CP PM server in a systemadmin role.
3	Issue the Linux hdparm command: The disk size appears as shown in the following figure.

Figure 133
CP PM disk size

```
[root@davecppm3 dev]# /sbin/hdparm -I /dev/hda
/dev/hda:
ATA device, with non-removable media
Model Number: ST940815A
Serial Number: 5LX09DNH
Firmware Revision: 3.ALD
Standards:
Used: ATA/ATAPI-6 T13 1410D revision 2
Supported: 6 5 4 3
Configuration:
Logical max current
cylinders 16383 65535
heads 16 1
sectors/track 63 63
--
CHS current addressable sectors: 4128705
LBA user addressable sectors: 78140160
LBA48 user addressable sectors: 78140160
device size with M = 1024*1024: 38154 MBytes
device size with M = 1000*1000: 40007 MBytes (40 GB)
Capabilities:
LBA, IORDY(can be disabled)
bytes avail on r/w long: 4 Queue depth: 1
:
:
```

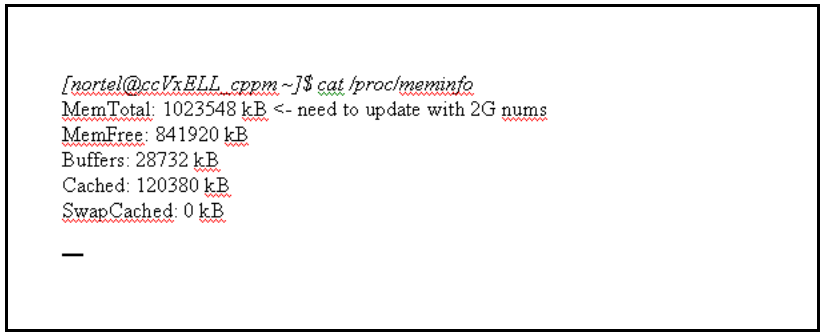
--End--

Determining CP PM memory size

Perform the following procedure to determine the CP PM memory size.

Step	Action
1	Connect to the CP PM server remotely by using SSH or locally by using a serial port.
2	Log on to the CP PM server.
3	Issue the Linux command to read the /proc/meminfo file. The command and results appear in the following figure.

Figure 134
CP PM memory size



--End--

BIOS methods

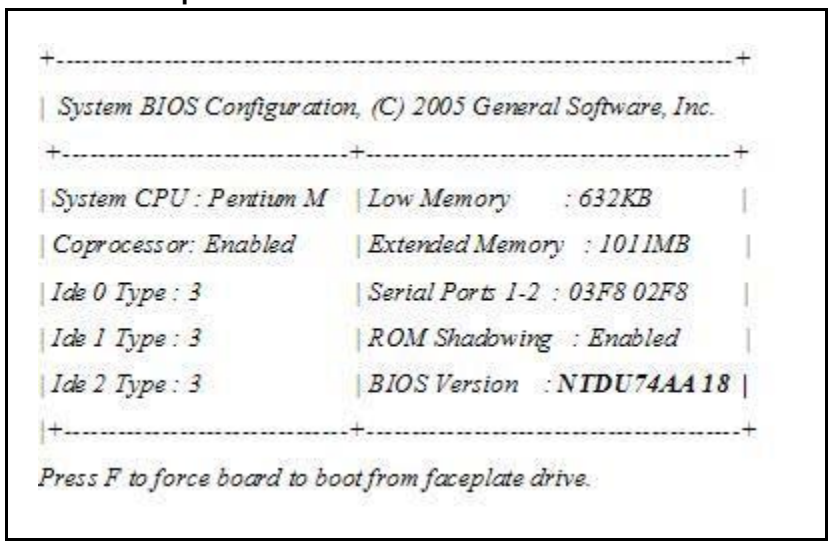
This section provides the procedures for determining and upgrading the CP PM BIOS.

Determining CP PM BIOS Method 1

Determine the CP PM BIOS Method 1.

Step	Action
1	Power up the CP PM hardware.
2	Observe the CP PM BIOS output in the bootup screen, as shown in the following figure.

Figure 135
CP PM boot up window



3	If the BIOS needs to be updated, see

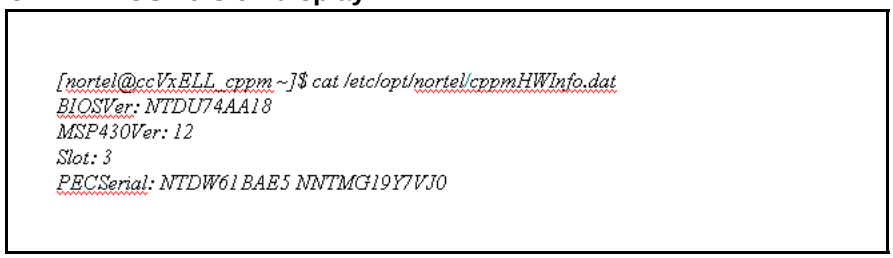
--End--

Determining CP PM BIOS Method 2

Determine the CP PM BIOS Method 2.

Step	Action
1	Connect to the CP PM server remotely by using SSH or locally by using a serial port.
2	Log on to the CP PM server.
3	Type the Linux command to read the cppmHWInfo.dat file in the /etc/opt/nortel/base folder. The BIOS version appears as shown in the following figure.

Figure 136
CP PM BIOS version display



--End--

Upgrading the CP PM BIOS

Upgrade the BIOS on a CP PM server.

Prerequisites

- You must have a bootable Removable Media Device (RMD) Compact Flash (CF).

  Note: CP PM version 2 cards (NTDW99CAE6, NTDW66CAE6) do not require a BIOS update to support Linux. CP PM version 2 cards provide an updated hardware design, BIOS, and boot manager.

Step	Action
1	Connect to serial port 1 on the CP PM server.

2 Insert the Linux Base installation CF card into the faceplate CF slot.

3 Power on the system.

Once the initial boot and memory check completes, the CP PM initial boot screen appears.

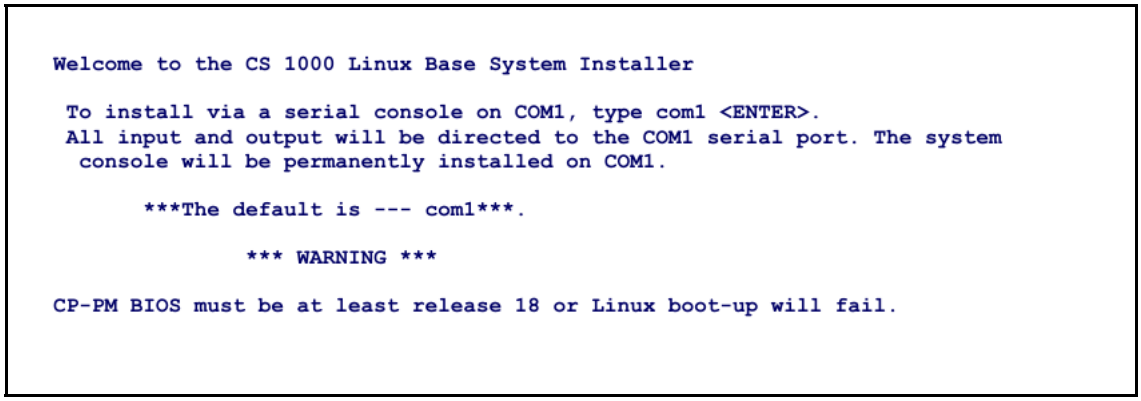
4 Press the **F** key to boot from the Linux Base installation faceplate CF card.

5 Press ENTER to direct the input and output to COM1.

> ***Note:*** For CP PM version 2 cards, press F to load the boot manager. Select Faceplate RMD, and press Enter to boot from the Linux Base installation media.

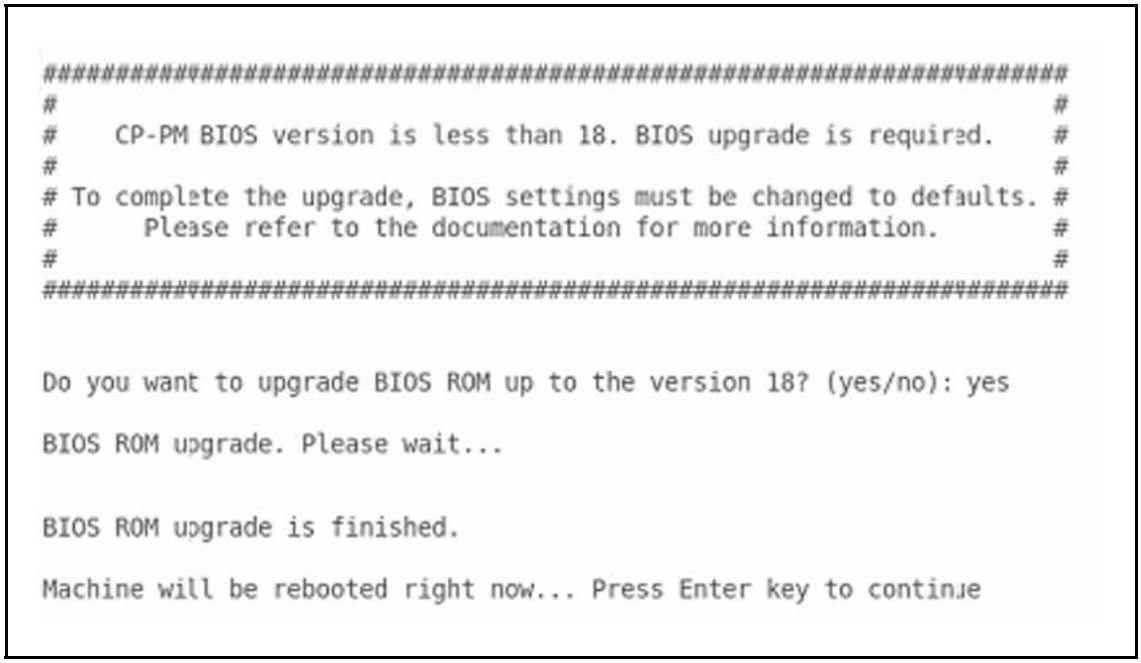
The CS 1000 Linux Base system installer (CP PM server) screen appears, as shown in the following figure.

Figure 137
CS 1000 Linux Base system installer (CP PM server)



For CP PM version 1 cards, if the BIOS version is lower than 18, the BIOS upgrade screen appears, as shown in the following figure.

Figure 138
CP PM BIOS upgrade window



6 Type **yes** to proceed with the automatic upgrade.

7 Verify that the BIOS upgrade is finished.

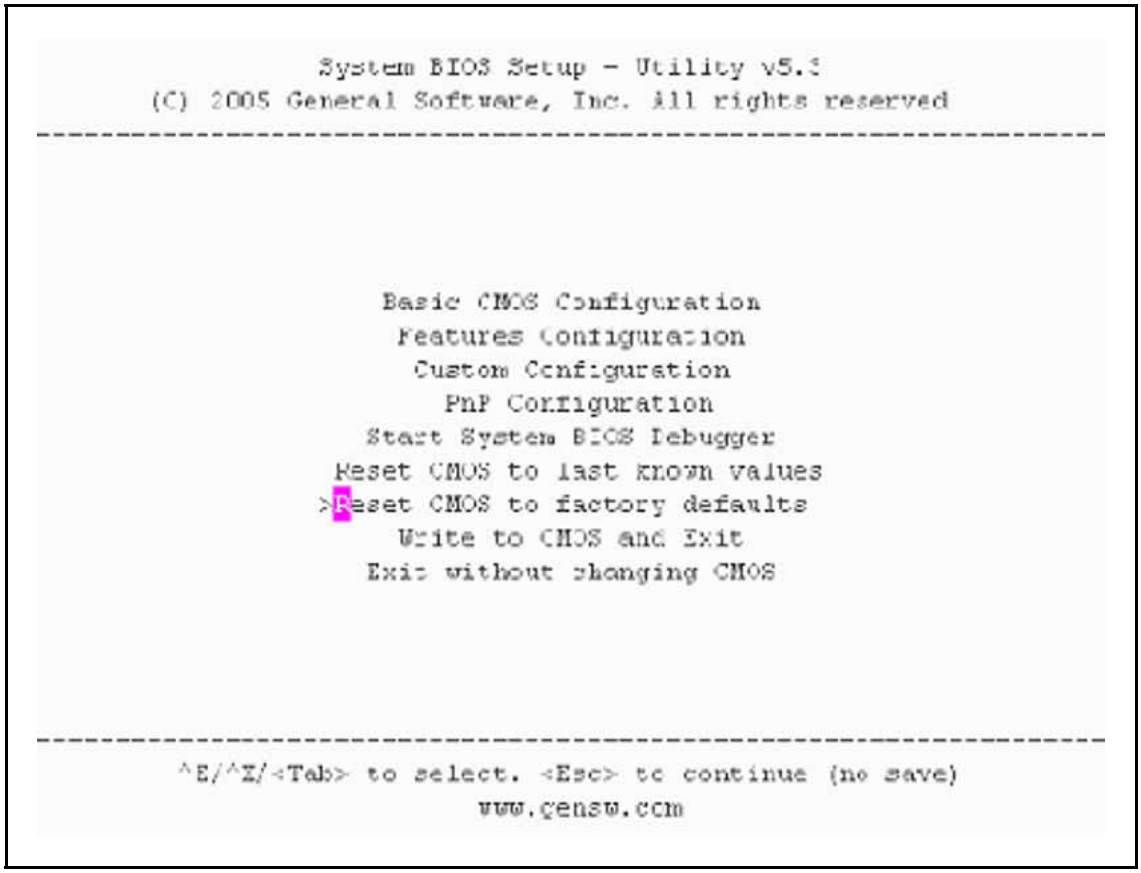
8 Press **F** to restart the server.

9 During the restart memory check, press **Ctrl c** to access the CP PM BIOS setup menu.

> ***Note:*** If you miss the timing to press Ctrl c you must restart the system and try again. The Linux Base installation software displays a warning if you do not reset the CP PM BIOS to factory defaults.

The CP PM BIOS setup screen appears, as shown in the following figure.

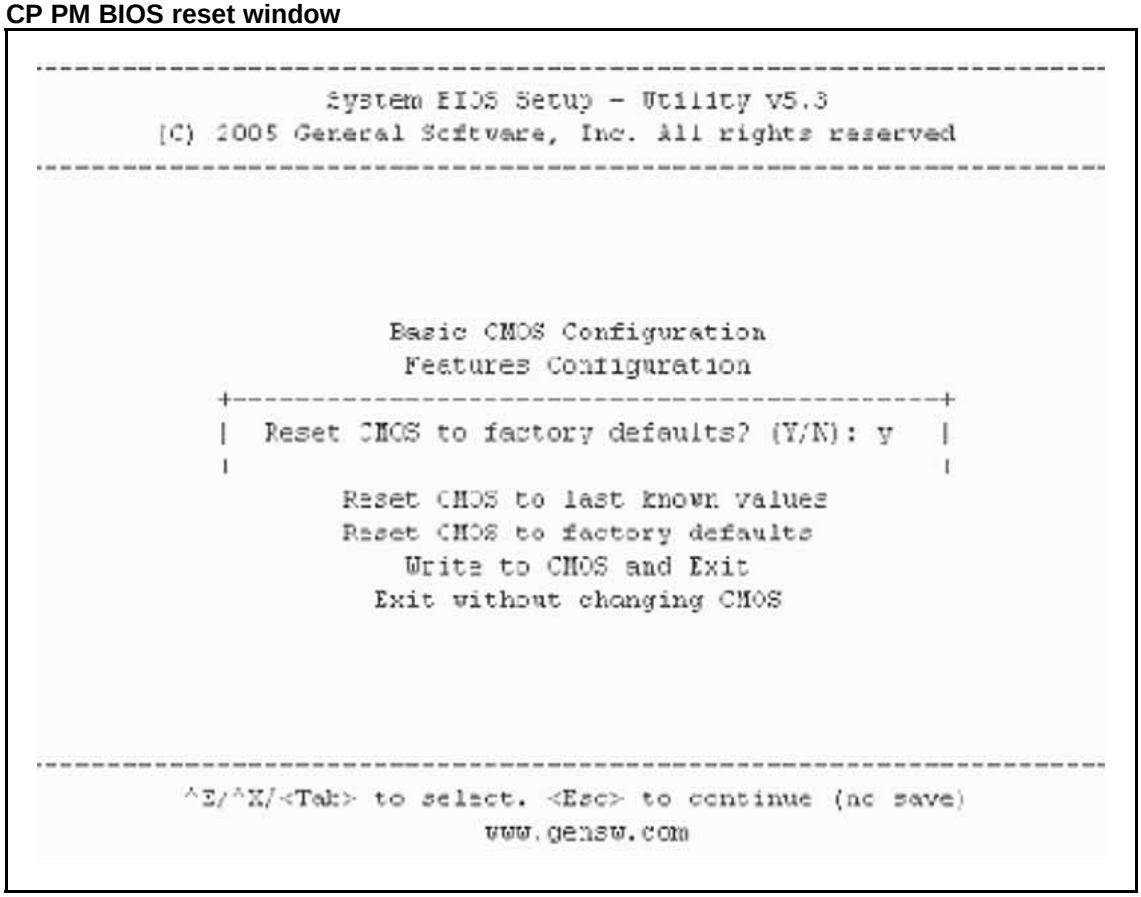
Figure 139
CP PM BIOS setup window



10 Select **Reset CMOS to factory defaults** from the menu.

The CP PM BIOS reset screen appears, as shown in the following figure.

Figure 140
CP PM BIOS reset window



11 Press **y** to reset CMOS to factory defaults.

12 The system restarts. After initial boot, the CP PM initial boot screen appears and the new BIOS version is displayed. Verify the BIOS version is 18. You can now press the F key to boot from the faceplate CF card and proceed with the Linux Base software installation.

Note: For CP PM version 2 cards, press F to load the boot manager. Select Faceplate RMD, and press Enter to boot from the Linux Base installation media.

--End--

CP PM Signaling Server

This section contains instructions to install and connect the NTDW61BAE5 and NTDW66AAE5 models of the CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000E and CS 1000M system, respectively.

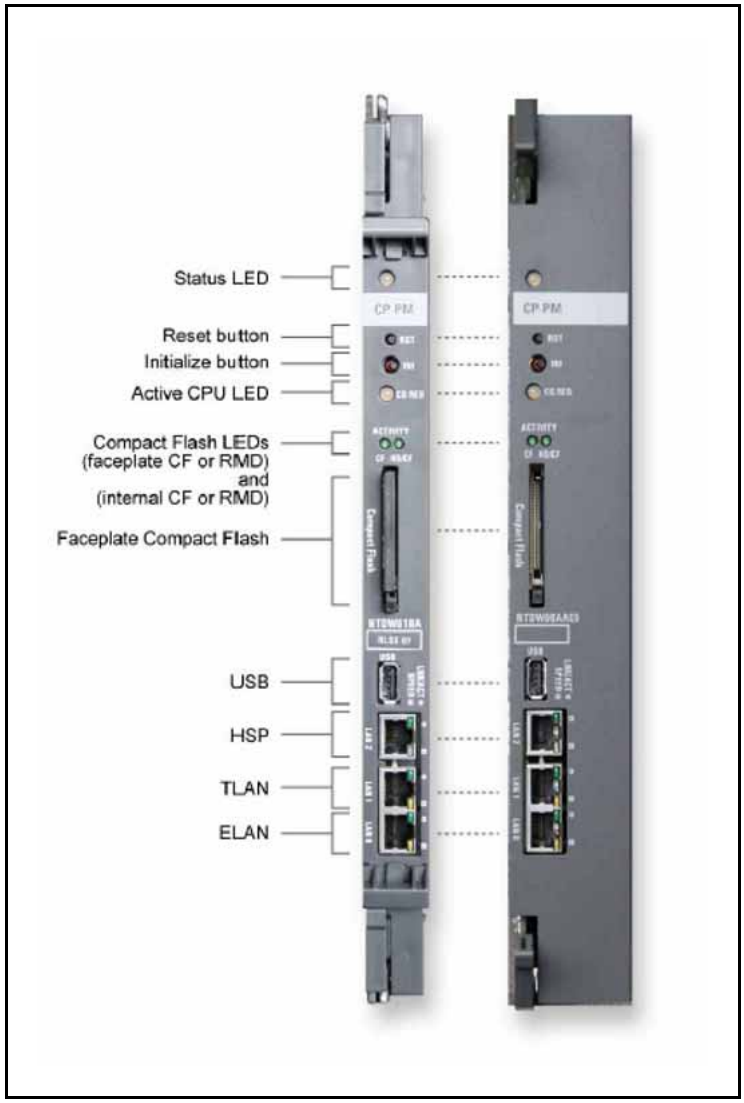
The CP PM Signaling Server is a circuit card and therefore is not mounted in a rack. This section also contains instructions to connect a maintenance terminal to the CP PM Signaling Server.

The NTDW61BAE5 model of the CP PM Signaling Server is designed for use in a CS 1000E system. It is inserted into a slot of the Media Gateway (MG 1000E or MG 1000B). The Media Gateway also hosts the Gateway Controller that has Ethernet ports for connecting to the ELAN and TLAN subnets of your CS 1000 system. However, it is common in a CS 1000E system for the Call Server to connect to the Gateway Controller through the ELAN port. If the Call Server does not connect to the Gateway Controller through this port, the NTDW61BAE5 model of the CP PM Signaling Server uses it to connect to the ELAN subnet of the CS 1000E system. If the Call Server uses the Gateway Controller ELAN port, the CP PM Signaling Server connects directly to the ELAN and TLAN Ethernet switches from the faceplate ELAN and TLAN Ethernet ports.

The NTDW66AAE5 model of the CP PM Signaling Server is designed for use in a CS 1000M system. 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 CP PM Signaling Server to connect to the ELAN and TLAN subnets of your CS 1000 system.

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

Figure 141
Faceplates of the CP PM server



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

Installation in a Nortel CS 1000E system

The NTDW61BAE5 model of the CP PM Signaling Server is designed for use in a CS 1000E system. The first task that must be performed is to install the hard drive shipped with the server.

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

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

Connecting a CP PM Signaling Server

Perform the following procedure to connect a 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 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 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 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 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 CP PM Signaling Server to the ELAN and TLAN subnets of the CS 1000 system. • If you have a CS 1000E system, perform “Connecting a CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000E system” (page 214). • If you have a CS 1000M system, perform “Connecting a CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000M system ” (page 215).

4 Configure the baud rate for the serial port on the Signaling Server to 9600 bits per second.

Note: The CP PM Signaling Server ships with the serial port configured to 9600 bits per second.

To verify or change the baud rate on a CP PM Signaling Server, see "Changing the baud rate on a CP PM Signaling Server" (page 216).

5 Configure the connected maintenance terminal.

--End--

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

Perform the following procedure to connect a CP PM Signaling Server (model NTDW61BAE5) 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 Gateway Controller. — Insert the end of one customer supplied 25-cm RJ-45 CAT5 Ethernet cable 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 Gateway Controller ELAN Ethernet port. • if the CS 1000 Call Server is connected to the Gateway Controller — 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 Gateway Controller — Insert the end of one customer supplied 25-cm RJ-45 CAT5 Ethernet cable 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 Gateway Controller TLAN Ethernet port.

- if the Call Server is connected to the Gateway Controller

— 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 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.

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

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

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

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 1000M UEM. You installed this ELAN port at the back of the UEM when you installed the Signaling Server in the UEM.
2	Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the ELAN Ethernet switch.
3	Insert the end of another RJ-45 CAT5 Ethernet cable (not supplied) into the TLAN network interface port (TLAN port) on the back of the CS 1000M UEM. You installed this TLAN port at the back of the UEM when you installed the Signaling Server in the UEM.

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

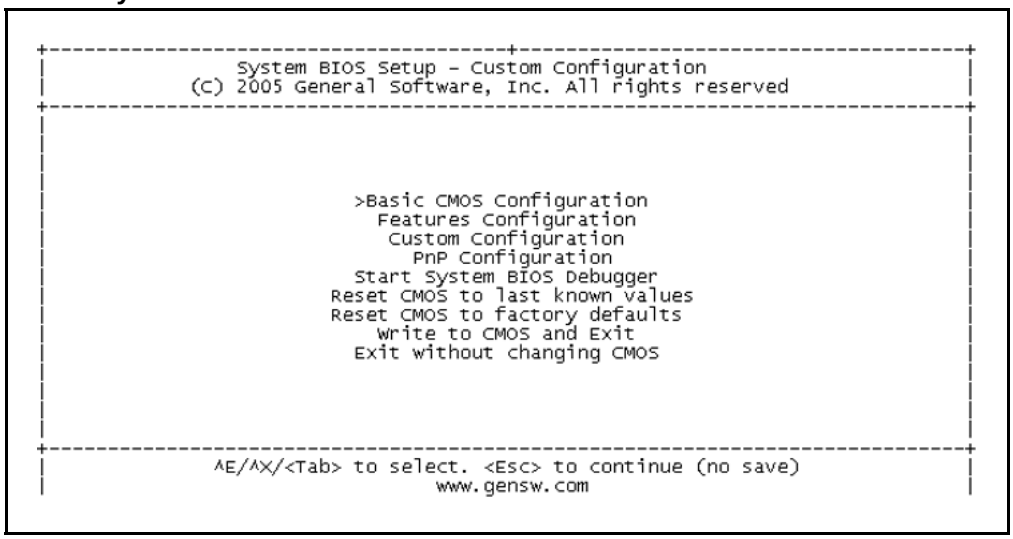
--End--

Changing the baud rate on a CP PM Signaling Server

Perform this procedure to verify or change the baud rate on a 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 CP PM System BIOS Menu screen appears.

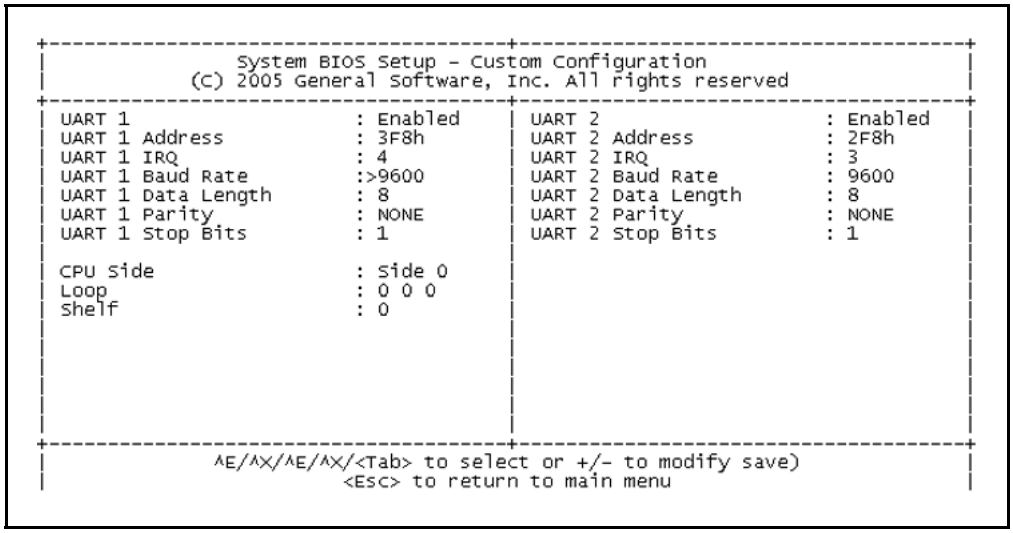
Figure 142
CP PM System BIOS menu



3 Navigate to **Custom Configuration** and select the option.

The Custom Configuration screen appears.

Figure 143
CP PM Customer Configuration



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

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

--End--

CP DC card

The Common Processor Dual Core (CP DC) server is a dual core platform required for many of the new applications such as Media Application Services (MAS) and CS 1000 SIP Trunk Bridge. It can also be used for Co-Res CS and SS systems up to approximately 800 users with a Media Gateway Card.

CP MG card

The CP MG card functions as a Server and the Gateway Controller while occupying slot zero in a chassis, cabinet and MG 1010.

- CP MG 32: This hardware is a combination Server and a Gateway Controller with 32 DSPs. It frees up a slot and is used in a Co-Res CS

and SS mode for cost effective solution for Branch Offices under 100 users.

- CP MG 128: This hardware is a combination Server and a Gateway Controller with 128 DSPs. It frees up a slot and is the standard solution for Co-Res CS and SS systems for up to approximately 800 users and for Branch Offices.

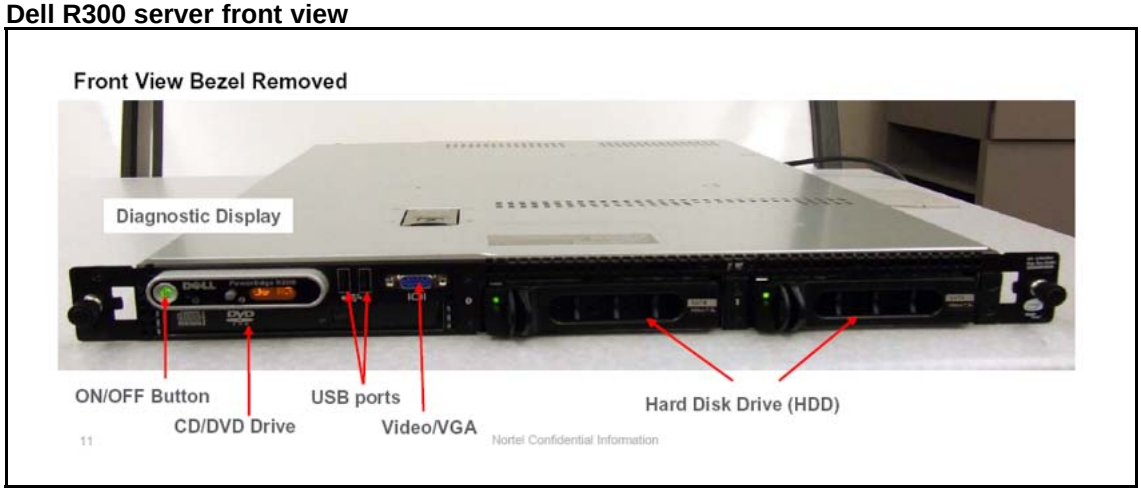
Dell R300 server

The Dell R300 server provides the following features:

- Intel Xeon (quad-core) processor
- Two 80 GB SATA Hard drives (1 configured)
- Four 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

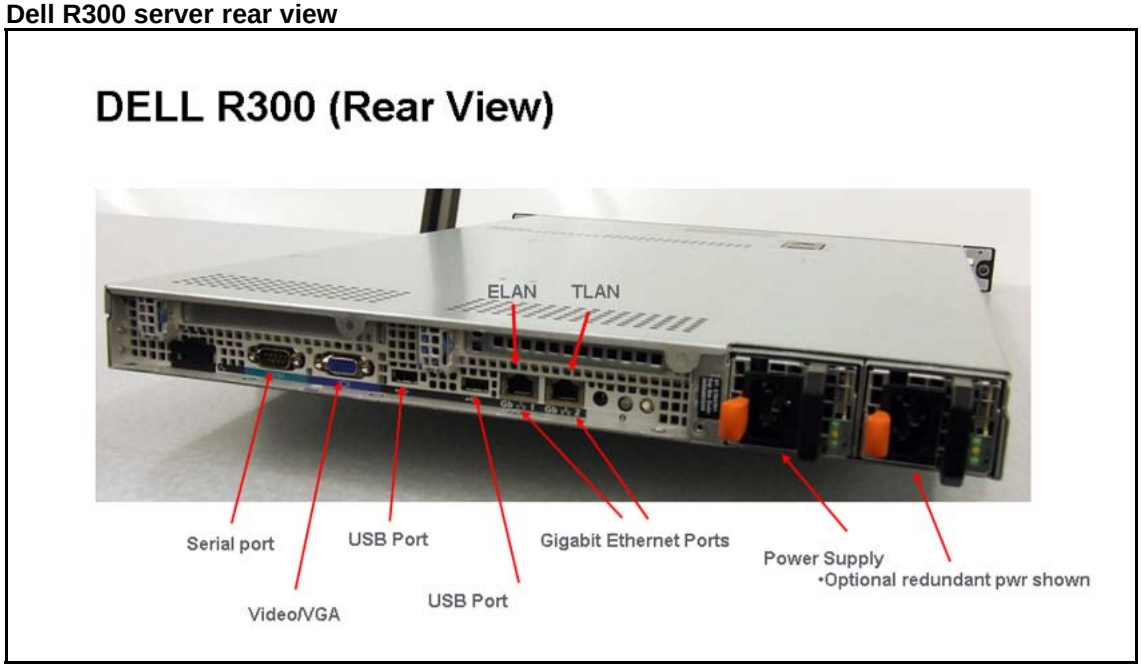
The following figure shows the front view of the Dell R300 server.

Figure 144
Dell R300 server front view



The following figure shows the rear view of the Dell R300 server.

Figure 145
Dell R300 server rear view

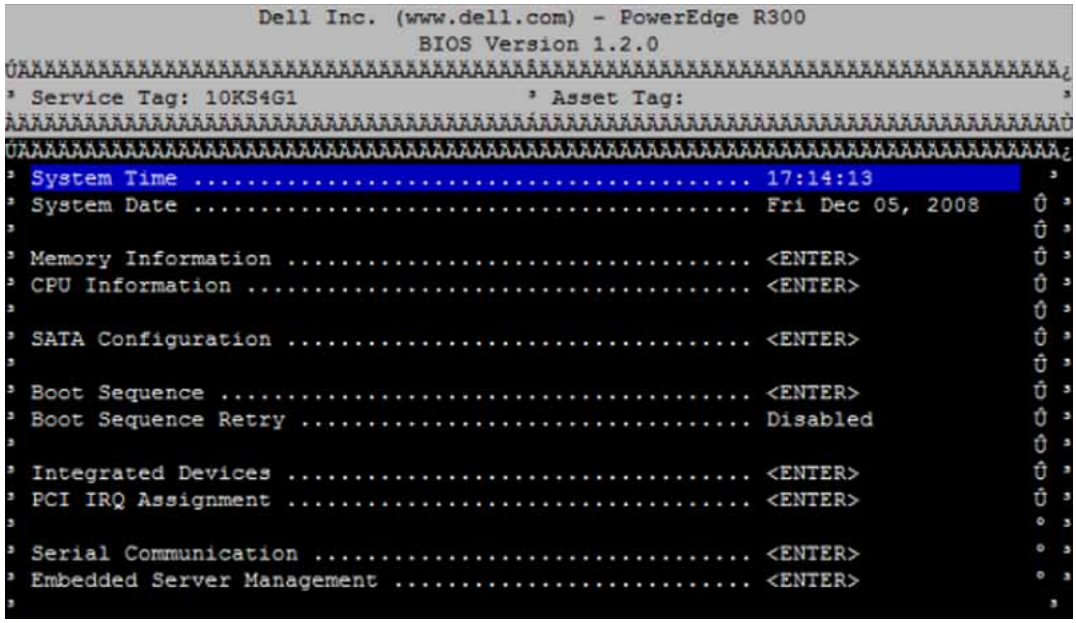


Configuring the COM1 serial port on a Dell R300 server

Perform the following procedure to configure the COM1 serial port.

Step	Action
1	Press **F2** to navigate to the BIOS configuration main menu screen using a Keyboard Video Monitor (KVM) terminal. **OR** Press **ESC-2** to navigate to the BIOS configuration main menu screen using the console terminal. The BIOS configuration main menu screen appears, as shown in Figure 146 "BIOS configuration main menu window" (page 221).

Figure 146
BIOS configuration main menu window



2 In the BIOS configuration main menu screen, select **Serial Communication** and press **Enter** to continue. The Serial Communication screen appears.

3 In the Serial Communication line, type **On with Console Redirection through COM1**.

4 In the External Serial Connector line, type **COM1**.

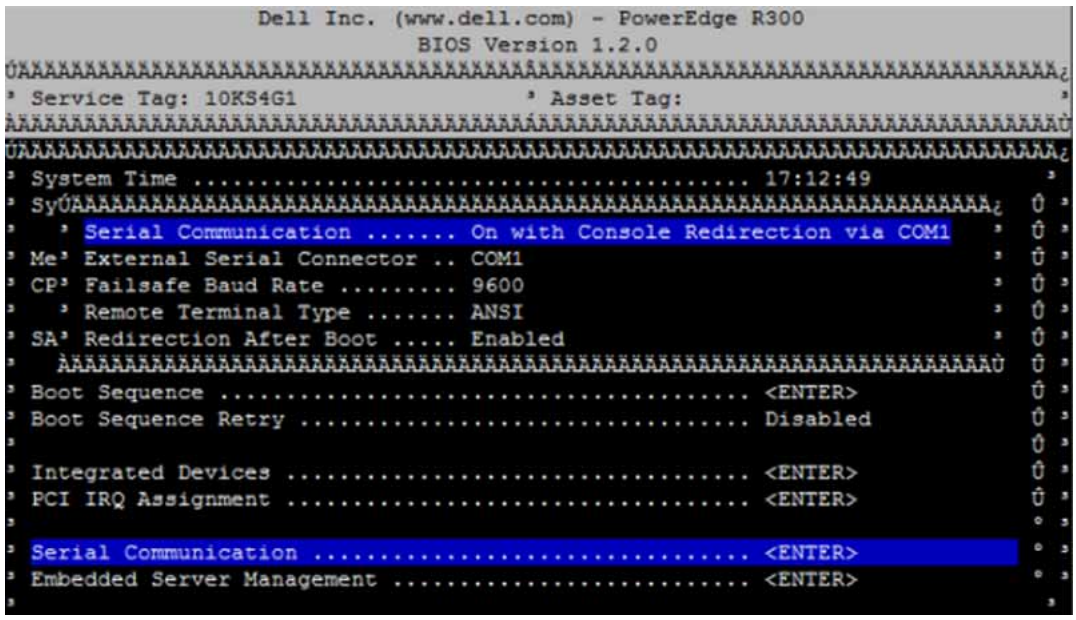
5 In the Failsafe Baud Rate line, type **9600**.

6 In the Remote Terminal Type line, type **Remote Terminal Type**.

7 In the Redirection After Boot line, type **Enabled**.

The Serial Communication screen containing the correct values appears in Figure 147 "Serial Communication window" (page 222).

Figure 147
Serial Communication window



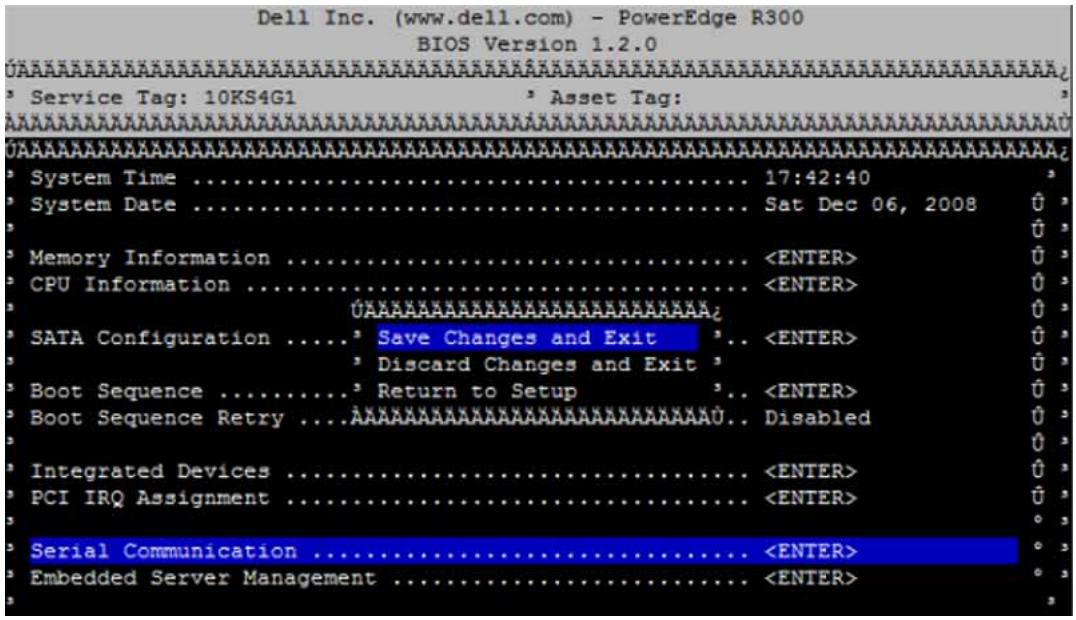
8 Press **Esc** to return to the BIOS configuration main menu.

In the BIOS configuration main menu screen you can perform other changes or you can exit and save the changes you made.

9 If you want to exit and save your changes, press **Esc**.

A prompt to save changes appears, as shown in Figure 148 "Save changes and exit window" (page 223).

Figure 148
Save changes and exit window



10 Select **Save Changes and Exit**, and then press **Enter**.

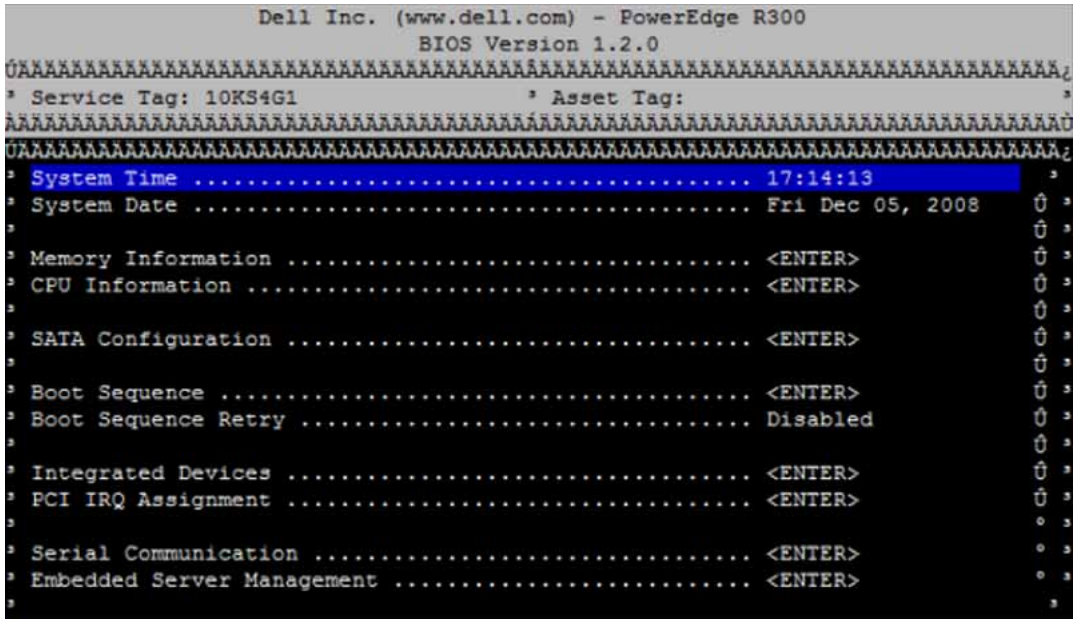
--End--

Setting the BIOS password for the Dell R300 server

Perform the following procedure to set the BIOS password.

Step	Action
1	Press **F2** to navigate to the BIOS configuration main menu screen using a Keyboard Video Monitor (KVM) terminal. **OR** Press **ESC-2** to navigate to the BIOS configuration main menu screen using the console terminal. The BIOS configuration main menu screen appears, as shown in Figure 149 "BIOS configuration main menu window" (page 224).

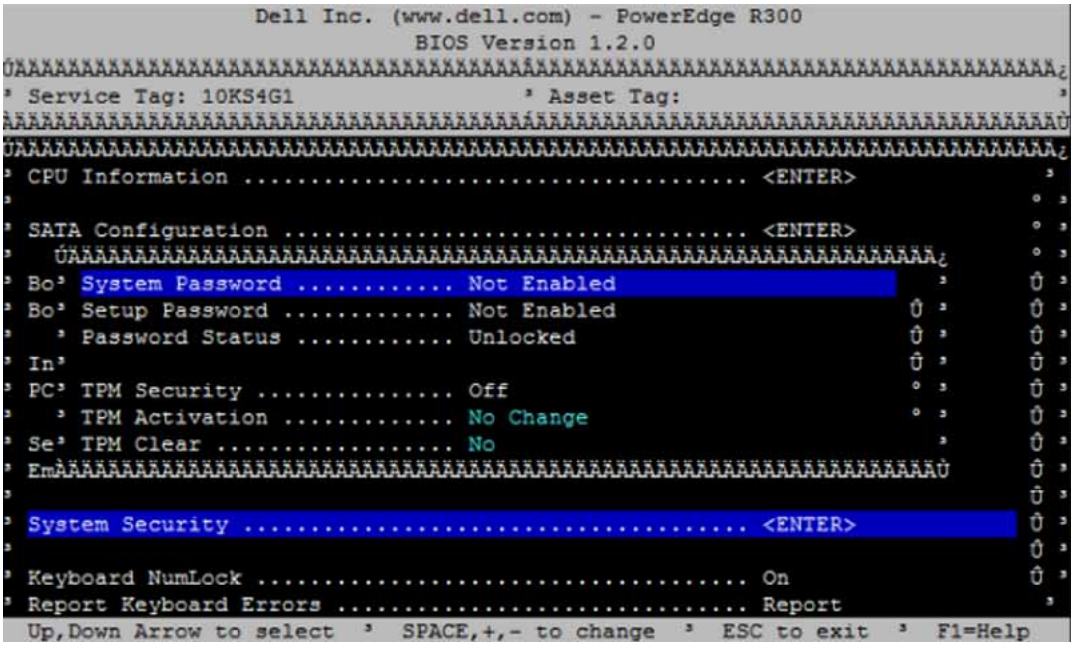
Figure 149
BIOS configuration main menu window



2 In the main menu screen, select **System Security** and press **Enter**.

The System Security menu appears, as shown in Figure 150 "System Security menu" (page 225).

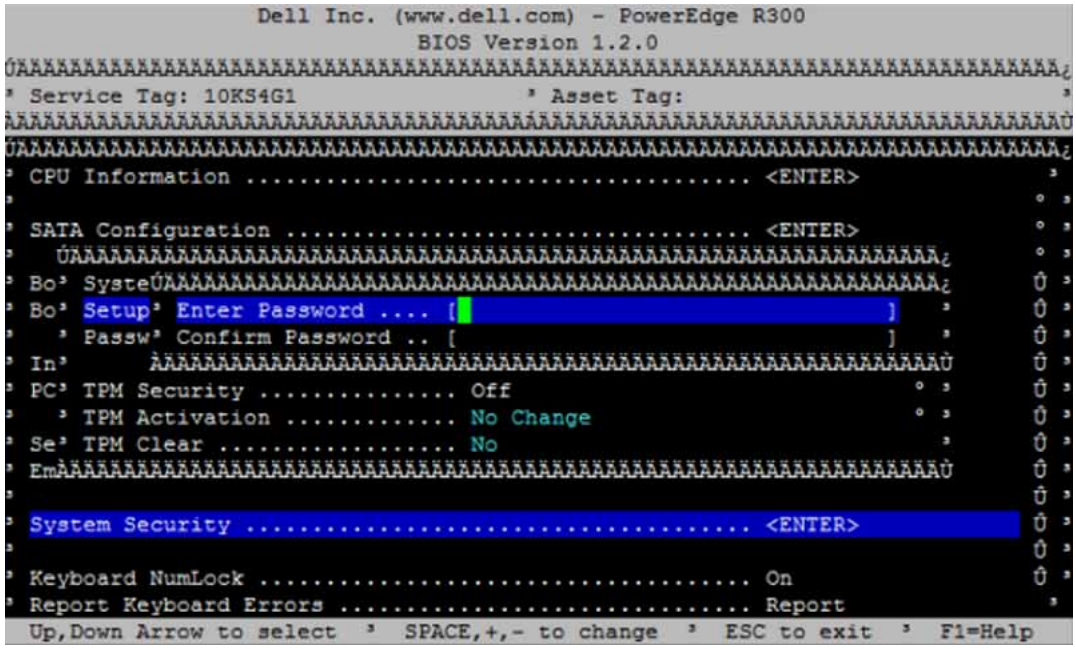
Figure 150
System Security menu



3 In the System Security menu, select **Setup Password** and press **Enter**.

The password entry screen appears, as shown in Figure 151 "Password entry window" (page 226).

Figure 151
Password entry window

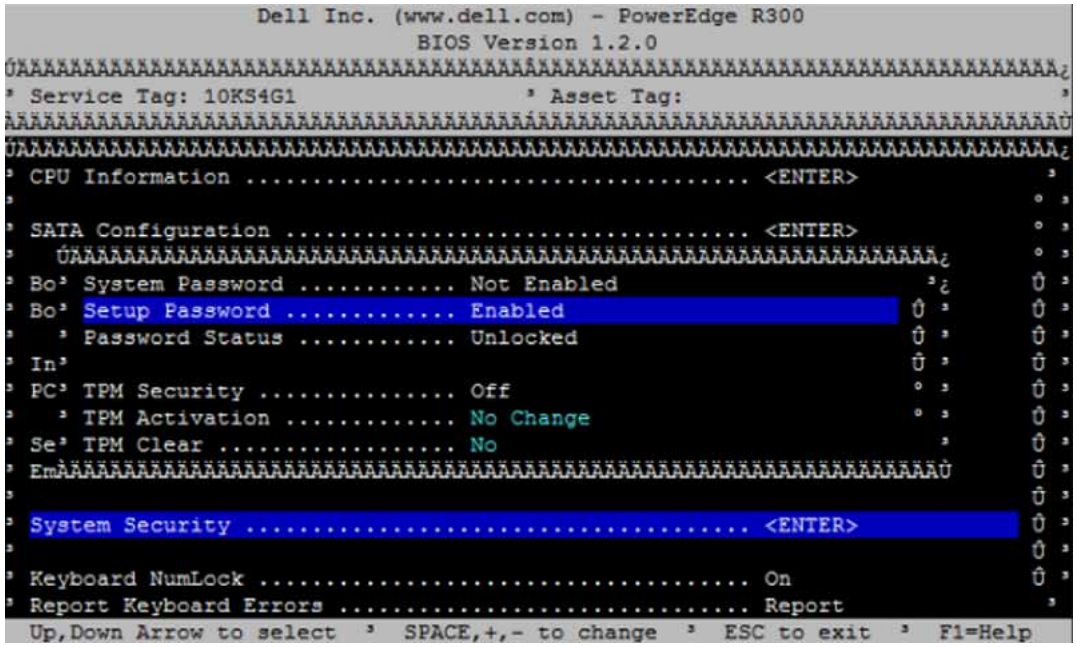


4 Type the new password. Press **Enter** to continue.

5 Type the password again to confirm the values, and then press**Enter**.

The password is now enabled, as shown in Figure 152 "Password enabled window" (page 227).

Figure 152
Password enabled window



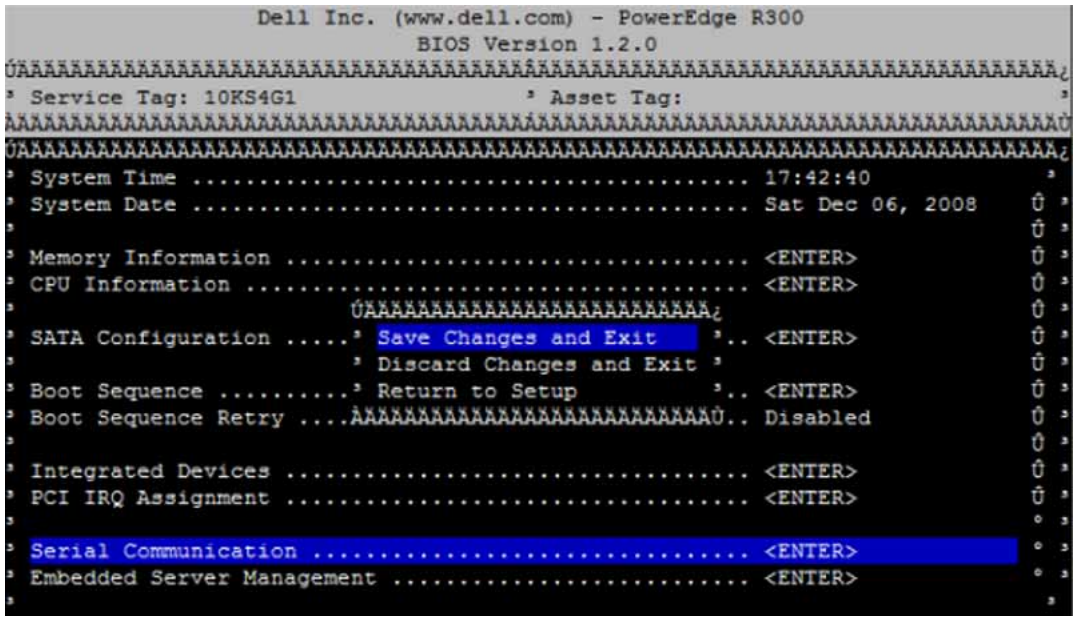
6 Press **Esc** to return to the BIOS configuration main menu.

In the BIOS configuration main menu screen you can perform other changes, or your can exit and save the changes you made.

7 If you want to exit and save your changes, press **Esc**.

A prompt to save changes appears, as shown in Figure 153 "Save changes and exit window" (page 228).

Figure 153
Save changes and exit window



8 Select **Save Changes and Exit**, and then press **Enter**.

--End--

Configuring RAID settings

To configure the RAID settings for the Dell R300 server, go to www.dell.com.

HP DL320 G4 server

The HP DL320 G4 server provides the following features:

- Intel Pentium 4 processor (3.6 GHz)
- Two 80 GB SATA Hard drives (1 configured)
- Four 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

Figure 154 "HP DL320 G4 front view" (page 229) shows the front view of the HP DL320 G4 server.

Figure 154
HP DL320 G4 front view

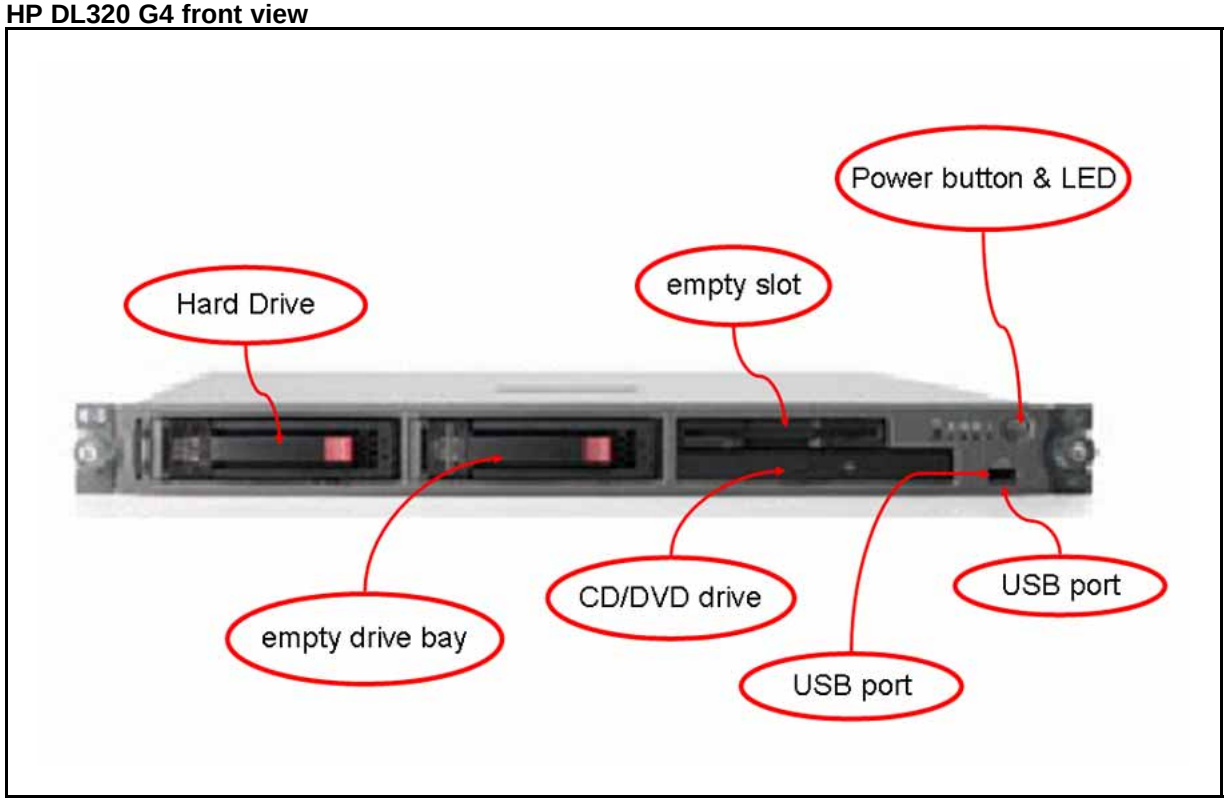


Figure 155
HP DL320 G4 front view: LEDs

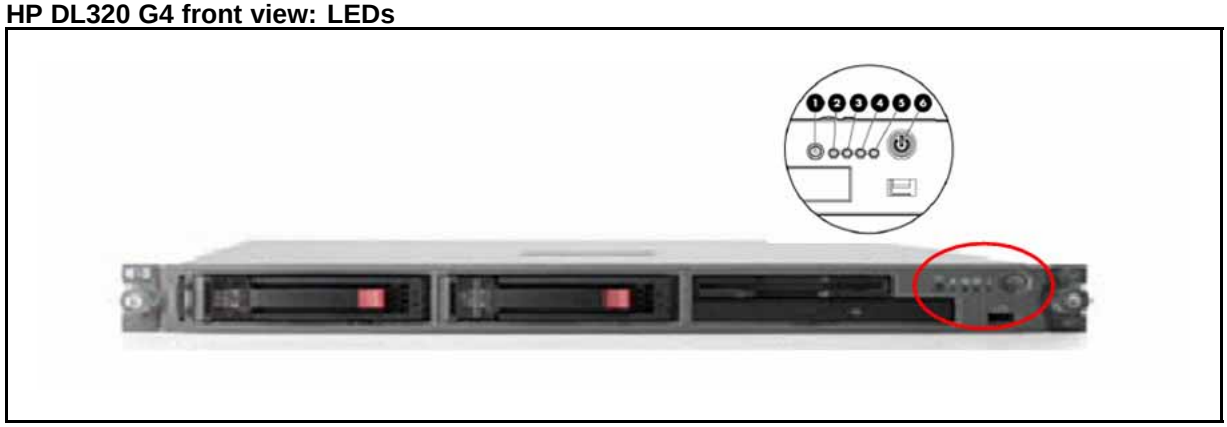
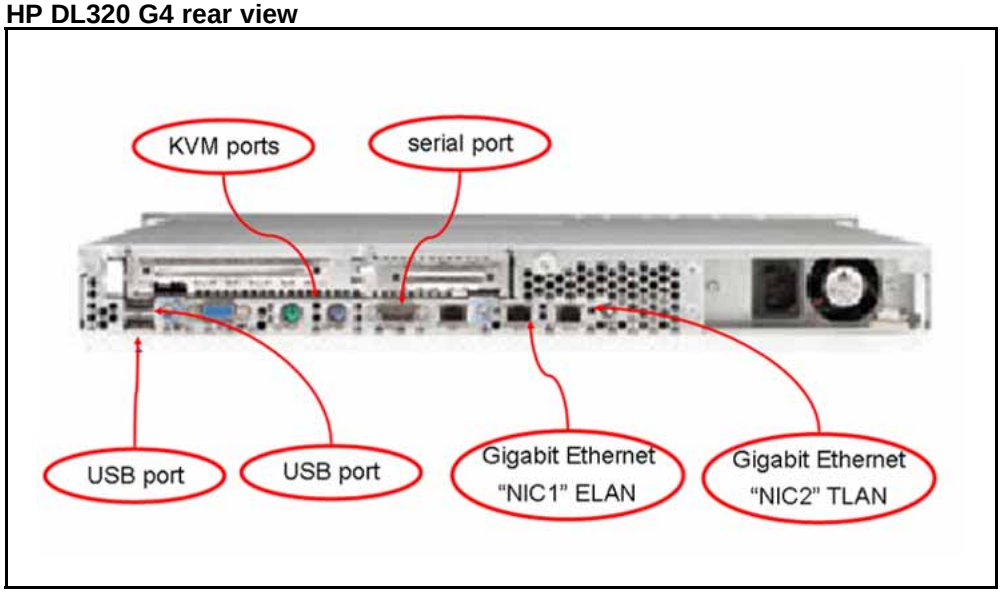


Table 9
HP DL320 G4 LED item description and status

Item	Description	Status
1	UID button LED (Unit Identification)	**Blue** – Identification is activated. **Flashing blue** – System is remotely managed. **Off** – Identification is deactivated.
2	Internal health LED	**Green** –- System health is normal. **Amber** – System is degraded. To identify the component, check the system board LEDs. **Red** – Critical. To identify the component in a critical state, check the system board LEDs. **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.
4	NIC 2 link/activity LED	**Green** –Network link exists. **Flashing green** – Network link and activity exist. **Off** – No link to network exists.
5	Drive activity LED	**Green** – Drive activity is normal. **Amber** – Drive failure occurred. **Off** – No drive activity.
6	Power button and LED	**Green** – System is on. **Amber** – System is shut down, but power is still applied. **Off** – Power not available.

Figure 156
HP DL320 G4 rear view



ATTENTION
The TLAN and ELAN port positions are reversed (L and R, 1 and 2) compared to the IBM x306m server.

HP DL320 G4 BIOS settings

The Basic Input Output System (BIOS) settings on the HP DL320 G4 server shipped through Nortel are correct. The BIOS settings do not require adjustment unless they are reset due to a fault or through maintenance. If a reset of the BIOS settings occurs, check the serial port option. The HP DL320 G4 BIOS settings can be seen at Table 10 "HP DL320 G4 default BIOS settings" (page 231). The HP DL320 G4 servers provide a physical COM1 serial port and a virtual (ILO) COM2 serial port. If the setting for the serial console port is Auto, output can be directed to either the COM1 port or COM2 ILO port. Set the serial console port option to COM1 to ensure the console output goes to the physical COM1. See for instructions.

The HP DL320 G4 server shipped through Nortel has a default baud rate of 9600 bits per second and does not require a reset. If an error occurs and you want to reset the baud rate, or if you want to change to another baud rate, see for instructions.

For information about how to enable or disable the BIOS password on the HP DL320 G4 server see “Setting the HP DL320 G4 server BIOS password” (page 235).

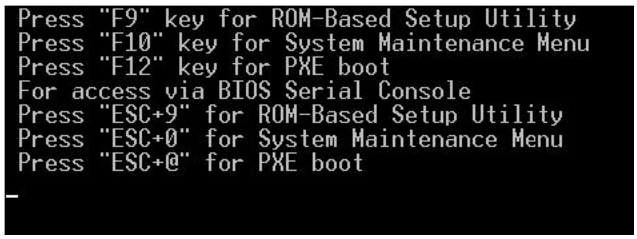
Table 10
HP DL320 G4 default BIOS settings

BIOS value	Default setting
Devices and I/O port - serial port A	Enabled
Devices and I/O port - baud rate	9600 baud
Devices and I/O port - type of connector	9-pin serial female
Start options - legacy USB support	Disabled

Configuring the COM1 serial port on an HP DL320 G4 server

Step	Action
1	Press **Power** to boot the server. The server boots and the HP DL320 G4 boot screen appears.

Figure 157
HP DL320 G4 server boot screen



Note: If the server is already up and running, power the server off and on to restart and receive the HP DL320 G4 boot screen.

2 Press **F9** to invoke the ROM-based setup utility (RBSU) menu screen.

The RBSU menu screen appears.

Figure 158
HP DL320 G4 server RBSU menu

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

A BIOS Serial Console & EMS configuration menu screen appears.

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

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

- 1 | Auto
- 2 | Disabled
- 3 | COM1
- 4 | COM 2

5 Navigate to the **COM1** option and press **Enter**.

This configures the COM1 port as the serial port for communicating with the connected maintenance terminal.

The BIOS Serial Console & EMS configuration menu screen reappears.

6 Press **ESC** to exit the BIOS Serial Console & EMS configuration menu screen.

The RBSU menu screen reappears.

7 Press **ESC** to exit the ROM-based Setup Utility.

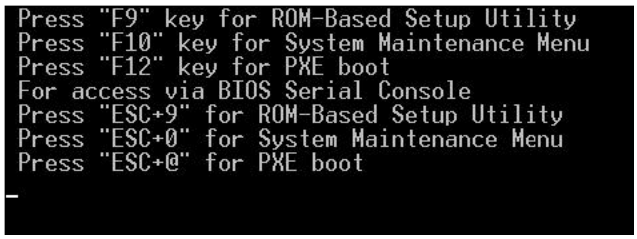
--End--

Changing the baud rate on an HP DL320 G4 Signaling Server

ATTENTION
The HP DL320 G4 server shipped through Nortel has a default Baud rate of 9600 bits per second and does not require a reset. Use this procedure only if you want to use another Baud rate, or to correct the Baud rate after it is reset due to an error.

Step	Action
1	Press **Power** to boot the server. The server boots and the HP DL320 G4 boot screen appears.

Figure 159
HP DL320 G4 server boot screen



Note: If the server is already up and running, power the server off and on to restart and receive the HP DL320 G4 boot screen.

2 Press **F9** to invoke the ROM-based Setup Utility (RBSU) menu screen.

The RBSU menu screen appears.

Figure 160
HP DL320 G4 server RBSU menu

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

A BIOS Serial Console & EMS configuration screen appears.

4 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

5 Navigate to the **9600** setting and press **Enter**.

This configures the serial port speed to 9600 bits per second.

The BIOS Serial Console & EMS configuration menu screen reappears.

6 Press **ESC** to exit the BIOS Serial Console & EMS configuration menu screen.

The RBSU menu screen reappears.

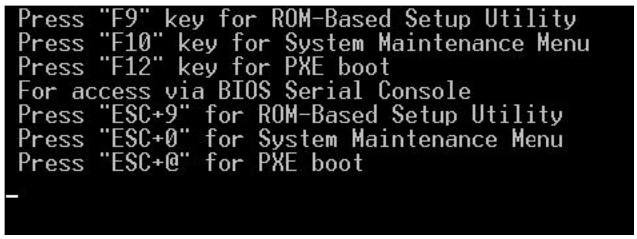
7 Press **ESC** to exit the ROM-based Setup Utility.

--End--

Setting the HP DL320 G4 server BIOS password

Step	Action
1	Press **Power** to boot the server. The server boots and the HP DL320 G4 boot screen appears.

Figure 161
HP DL320 G4 server boot screen

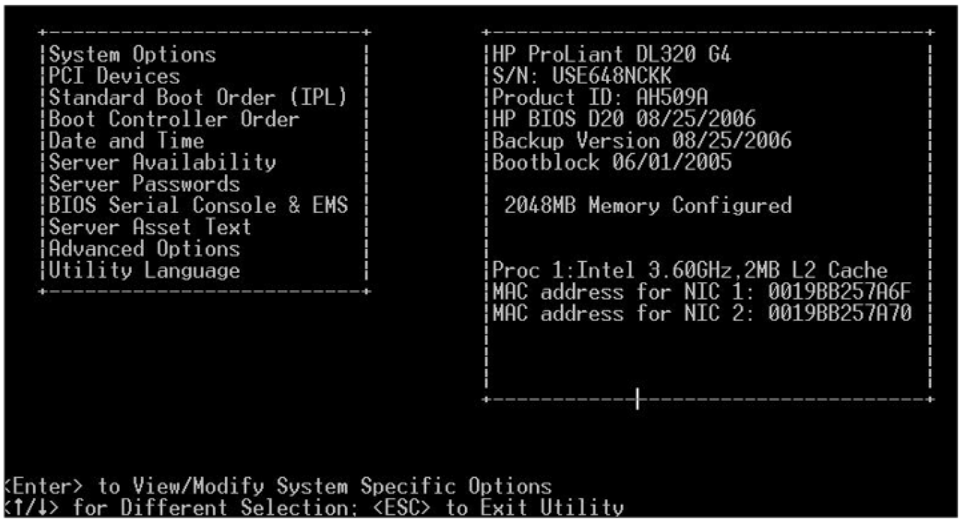


Note: If the server is already up and running, power the server off and on to restart and receive the HP DL320 G4 boot screen.

2 Press **F9** to invoke the ROM-based setup utility (RBSU) menu screen.

The RBSU menu screen appears.

Figure 162
HP DL320 G4 server RBSU menu



3 Select the Server Passwords option and press **Enter**.

4 Select the Set Admin Password option and press **Enter**.

5 At this point refer to the manufacturer's manual for specific instructions on how to enable or disable the BIOS password.

--End--

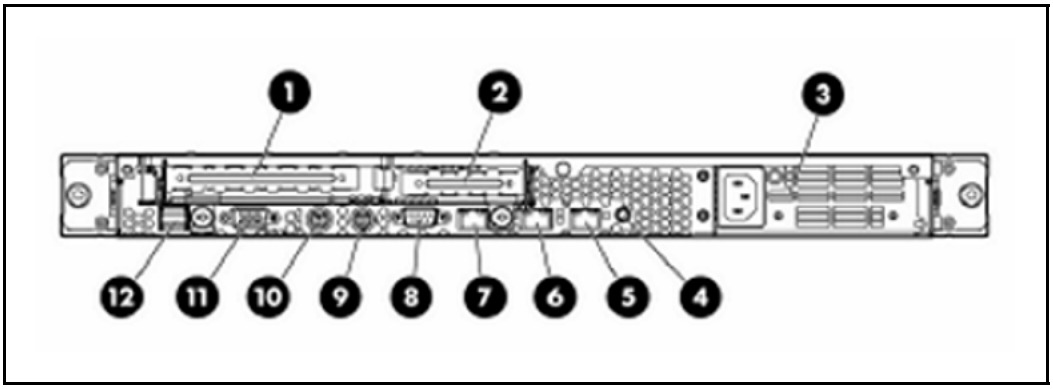
For additional operating information see the Server Product Guide on the resource CD-ROM shipped with the HP DL320 G4 server .

Connecting an HP DL320-G4 Signaling Server

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

The following figure depicts the back of an HP DL320-G4 server.

Figure 163
Back of 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 “Configuring the COM1 serial port on an HP DL320 G4 server” (page 231) for instructions.
6	Set the baud rate for the COM1 serial port on the Signaling Server to 9600 bits per second.

See “Changing the baud rate on an HP DL320 G4 Signaling Server” (page 233) for instructions.

Note: The HP DL320-G4 Signaling Server ships with the serial port configured to 9600 bits per second.

7 Configure the connected maintenance terminal.

--End--

IBM x306m server

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
  - — You use this 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 button

For complete details and specifications about the IBM x306 server, visit the manufacturer's Web site at www.ibm.com.

Figure 164
IBM x306m front view

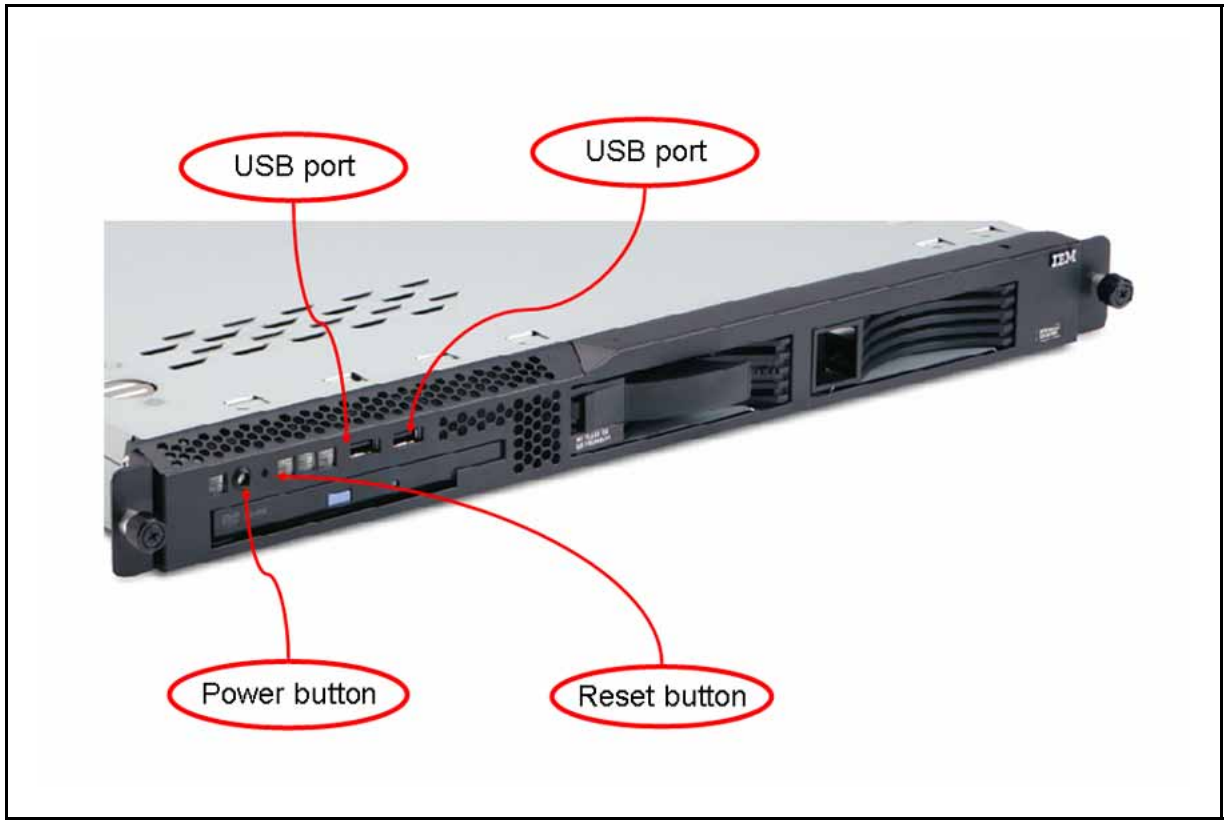


Figure 165
IBM x306m front view: LEDs

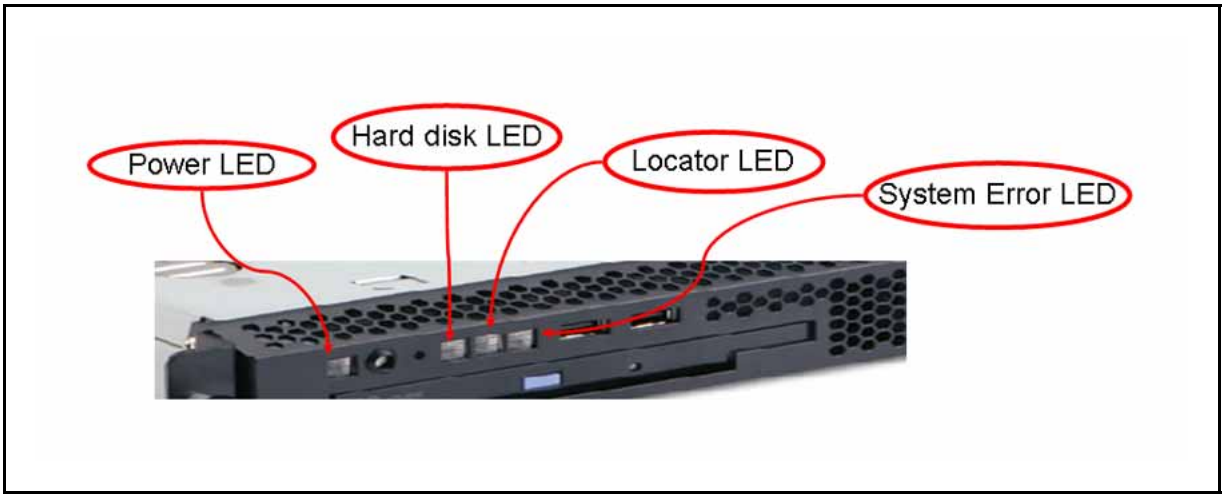
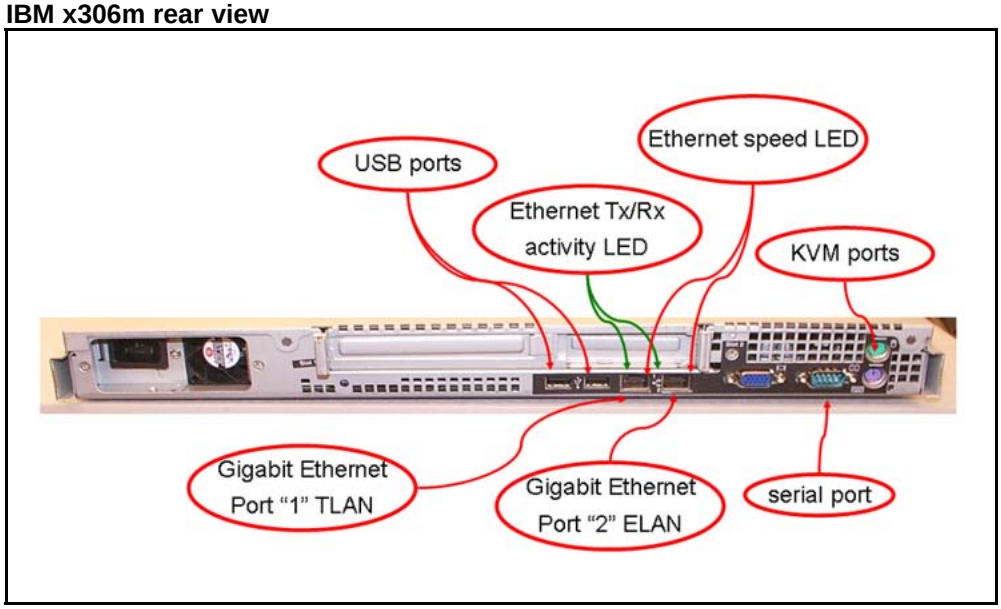


Table 11
IBM x306m LED description and status

Description	Status
Power LED	If this LED is lit, it indicates that the server is turned on. If this LED is off, it indicates that AC power is not present, or the power supply or the LED itself failed.
Hard disk LED	If this LED is lit, it indicates that a hard disk drive is in use.
Locator LED	When this LED is lit, it is lit remotely by the system administrator to aid in visually locating the server.
System Error LED	If this LED is lit, it indicates that a system error occurred.

Figure 166
IBM x306m rear view



ATTENTION
The TLAN & ELAN port positions are reversed (L and R, 1 and 2) compared to the HP DL320 server.Ethernet speed LED:

- Lit indicates Ethernet network speed of 1 Gbps.
- Off indicates Ethernet network speed is 10/100 Mbps.

IBM x306m BIOS settings

The following BIOS settings are for the IBM x306m server that are shipped through Nortel.

Table 12
IBM x306m default BIOS settings

BIOS value	Default setting
Devices and I/O port - serial port A	Enabled
Devices and I/O port - baud rate	9600 baud
Devices and I/O port - console type	PC ANSI
Devices and I/O port - flow control	Off
Devices and I/O port - continue C.R. after POST	On
Devices and I/O port - type of connector	9-pin serial female
Start options - legacy USB support	Disabled

The IBM x306m server default BIOS settings can be changed by a BIOS reset or other maintenance activity. To return the BIOS settings to the appropriate values, see"Changing the baud rate on an IBM X306m Signaling Server" (page 246) for instructions.

For information about how to enable or disable the BIOS password about the IBM x306m server, see "Setting the IBM x306m server BIOS password" (page 244).

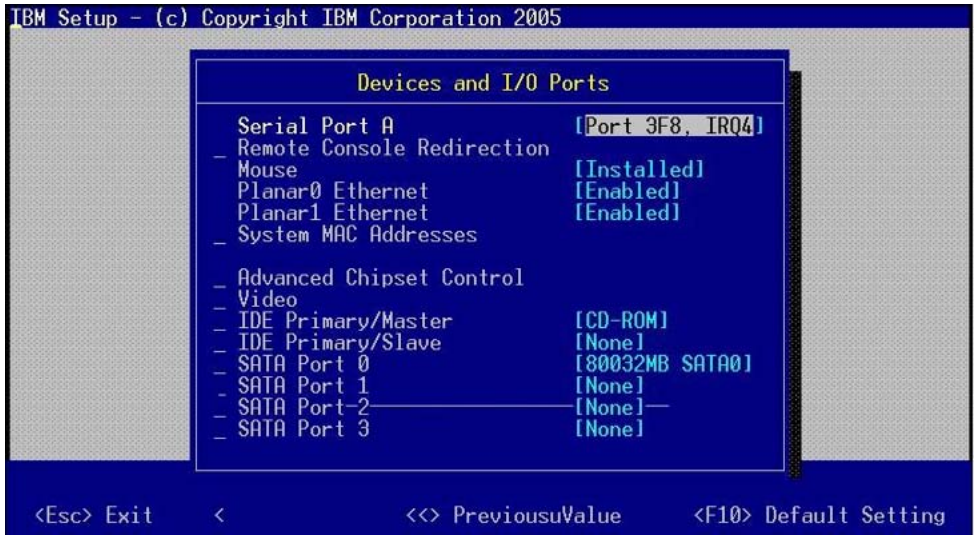
Changing the BIOS settings on an IBM x306m server

Step	Action
1	Press the Power switch to boot the server. The server boots and the Press F1 for Configuration/Setup message appears on the maintenance terminal. ***Note:*** If the server is already up and running, power the server off and on or press the reset button to restart 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 167
IBM x306m server Configuration/Setup Utility menu

3	Navigate to the **Devices and I/O Ports** option and press **Enter**. The Devices and I/O Ports menu screen appears.

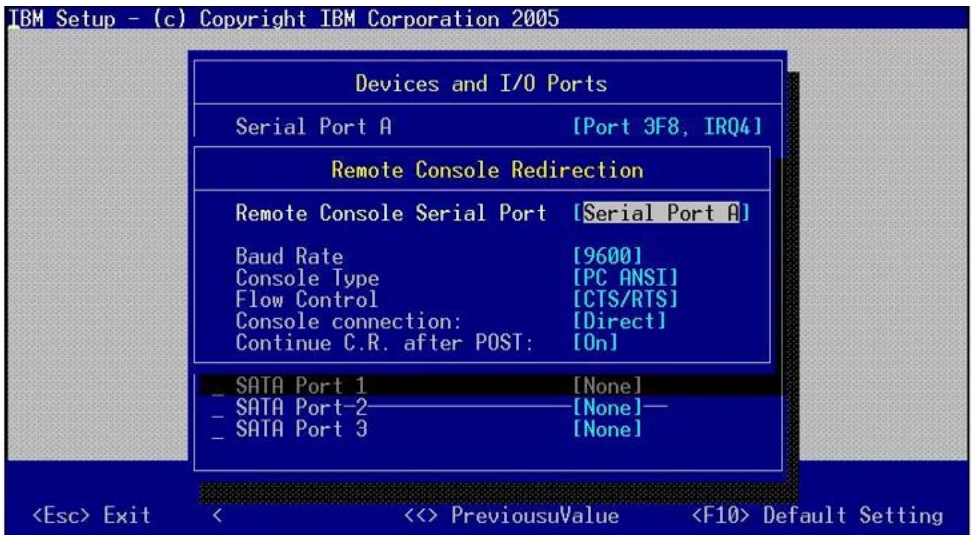
Figure 168
Devices and I/O Ports menu



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

The Remote Console Redirection screen appears.

Figure 169
IBM x306m server Remote Console Redirection



5 Navigate to the option you wish to change and enter the appropriate value.

6 Press **Enter** to change the setting.

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 restart automatically.

--End--

Setting the IBM x306m server BIOS password

Step	Action
1	Press the Power switch to boot the server. The server boots and the Press F1 for Configuration/Setup message appears on the maintenance terminal. ***Note:*** If the server is already up and running, power the server off and on or press the reset button to restart 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 170
IBM x306m server Configuration/Setup Utility menu

3 Select the System Security option and press **Enter**.

4 Select the Administrator Password option and press **Enter**.

5 At this point refer to the manufacturer's manual for specific instructions on how to enable or disable the BIOS password.

--End--

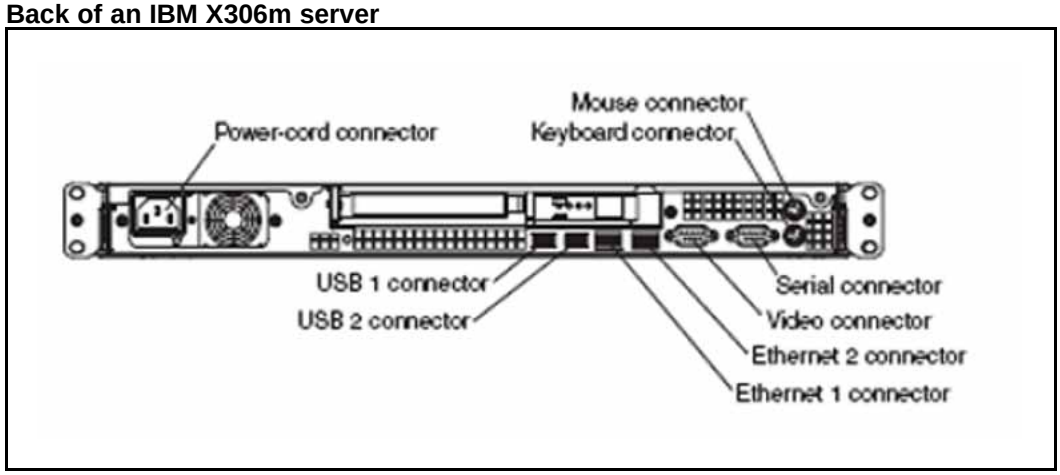
For additional operating information see the Server Product Guide on the resource CD-ROM shipped with the IBM x306m server .

Connecting 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. Use the following procedures to connect an IBM X306m server.

The following figure depicts the back of an IBM X306m server.

Figure 171
Back of 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 you use 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 left side of the server back panel. Plug the male end of the AC power cord into the AC power source (wall outlet).

5 Configure the baud rate for the serial port on the Signaling Server to 9600 bps. See "Changing the baud rate on an IBM X306m Signaling Server" (page 246) for instructions.

Note: The IBM X306m Signaling Server ships with the serial port configured to 9600 bps.

6 Configure the connected maintenance terminal.

--End--

Changing the baud rate on an IBM X306m Signaling Server

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

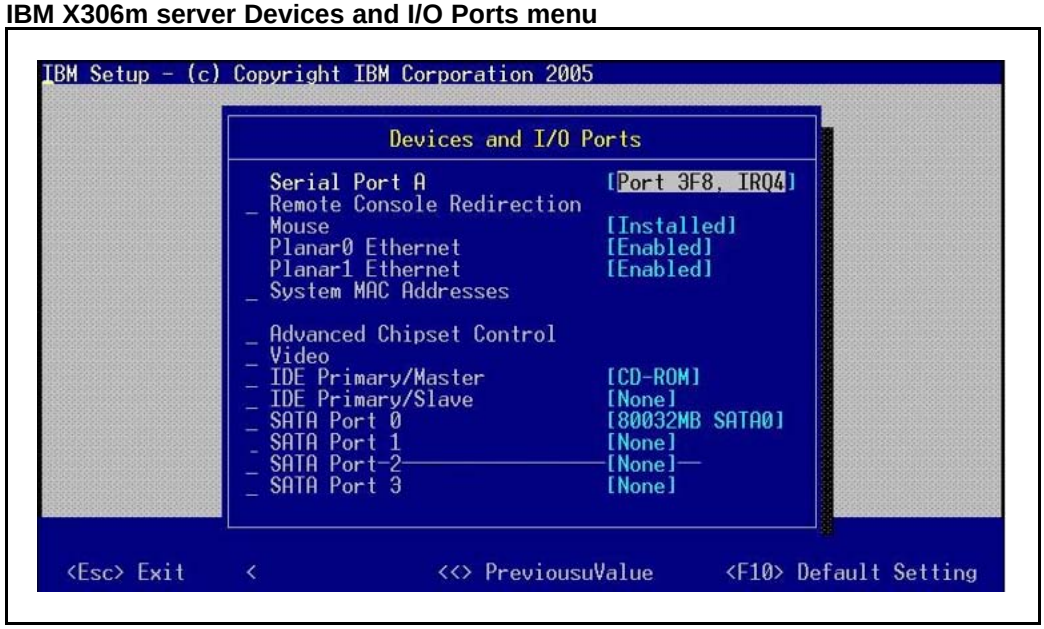
Step	Action
1	Press the Power switch to boot the server. The server boots and a **Press F1 for Configuration/Setup** message appears on the maintenance terminal. ***Note:*** If the server is running, press the **Reset** button on the front of the IBM X306m server to restart and receive the **Press F1 for Configuration/Setup** message.
2	Press **F1** to invoke the IBM X306m server Configuration/Setup Utility. The Configuration/Setup Utility menu screen appears.

Figure 172
IBM X306m server Configuration/Setup Utility menu

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

The Devices and I/O Ports menu screen appears.

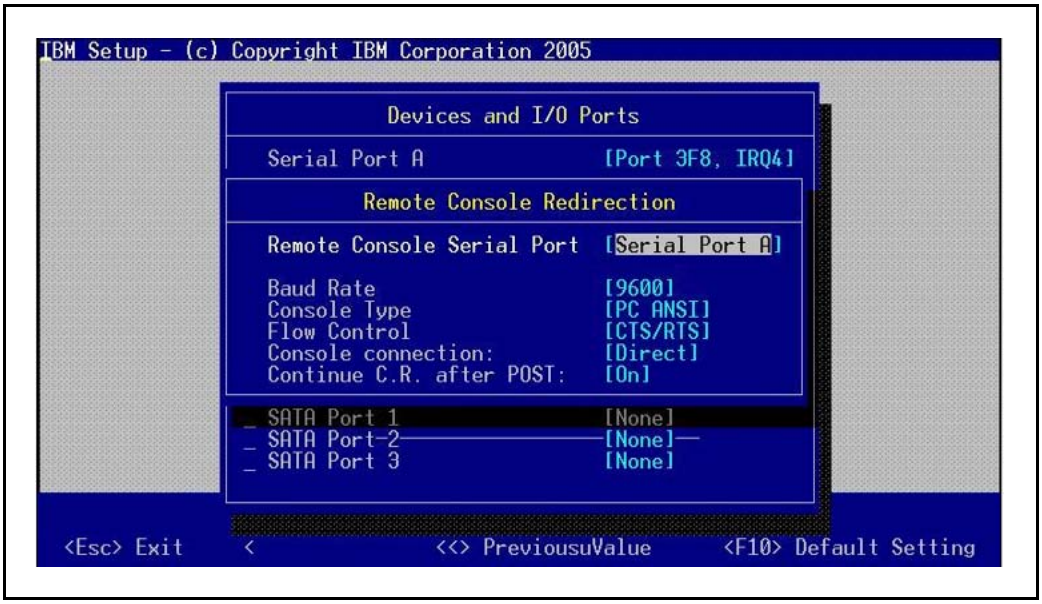
Figure 173
IBM X306m server Devices and I/O Ports menu



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

The Remote Console Redirection screen appears.

Figure 174
IBM X306m server Remote Console Redirection



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

6 Press **Enter** to change the serial port speed to 9600 bits per second.

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 restarts automatically.

--End--

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

IBM x3350 server

The IBM x3350 server provides the following features:

- Intel Core 2 Quad CPU –2.66GHz
- 250 Gbyte RAID 1 array (2x 250 Gbyte hard drives, hot-swappable)
- 4 Gbyte memory
- CD-RW/DVD drive
- Redundant power supply (hot-swappable)
- Dual GigaBit ethernet ports
- BIOS and RAID settings preconfigured for Nortel applications

For complete details and specifications about the IBM x3350 server, visit the manufacturer's Web site at www.ibm.com.

Figure 175
IBM x3350 server front view

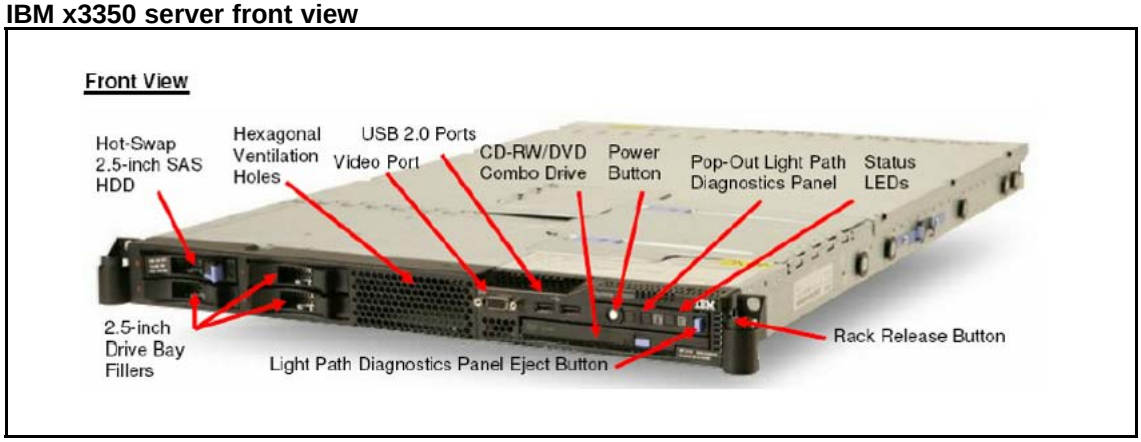
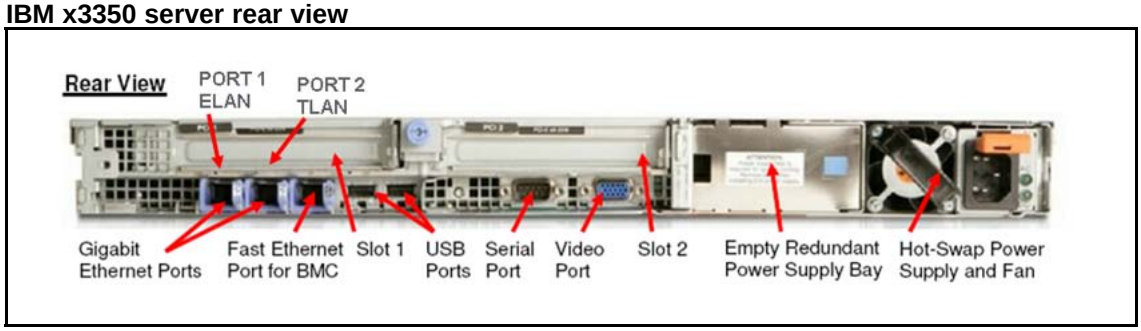


Figure 176
IBM x3350 server rear view



If you connect to the IBM x3350 server with a terminal for setup, the server does not function with the serial cable that was previously shipped with the ISP 1100 or other COTS platforms. The IBM x3350 server requires the new NTRX26NPE6 9 pin female to 9 pin female null modem cable, as shown in the following figure.

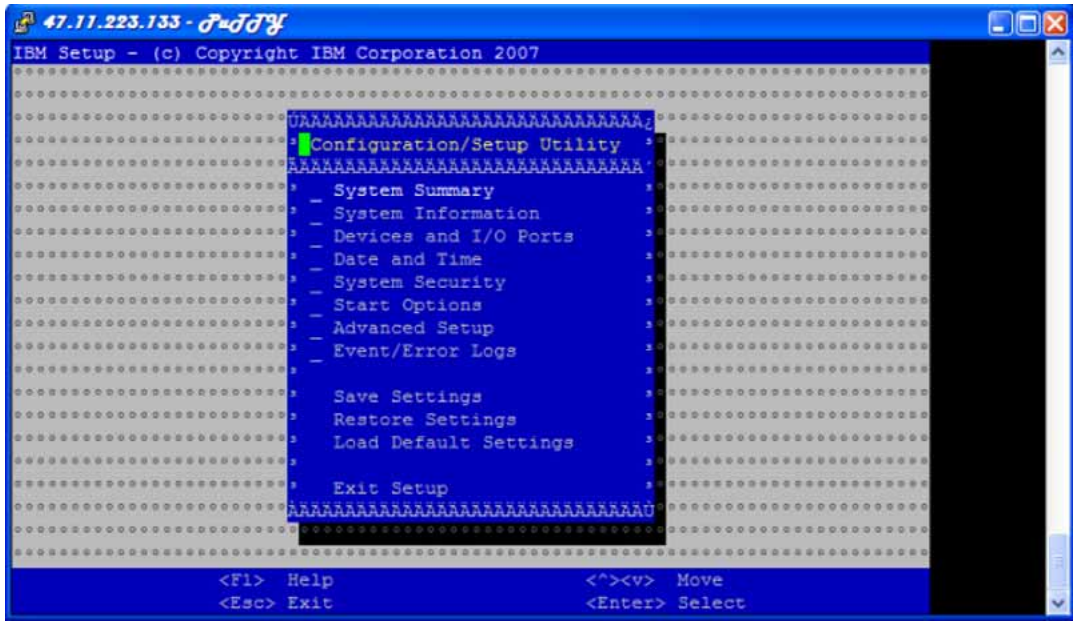
Figure 177
NTRX26NPE6 9 pin female to 9 pin female null modem cable

Configuring COM port settings for the IBM x3350 server

Perform the following procedures for configuring the BIOS settings.

Step	Action
1	Press **F1** to navigate to the BIOS configuration main menu screen using a Keyboard Video Monitor (KVM) terminal. **OR** Press **ESC-1** to navigate to the BIOS configuration main menu screen using the console terminal. The BIOS Configuration/Setup Utility main menu screen appears, as shown in Figure 178 "BIOS Configuration/Setup Utility main menu window" (page 251).

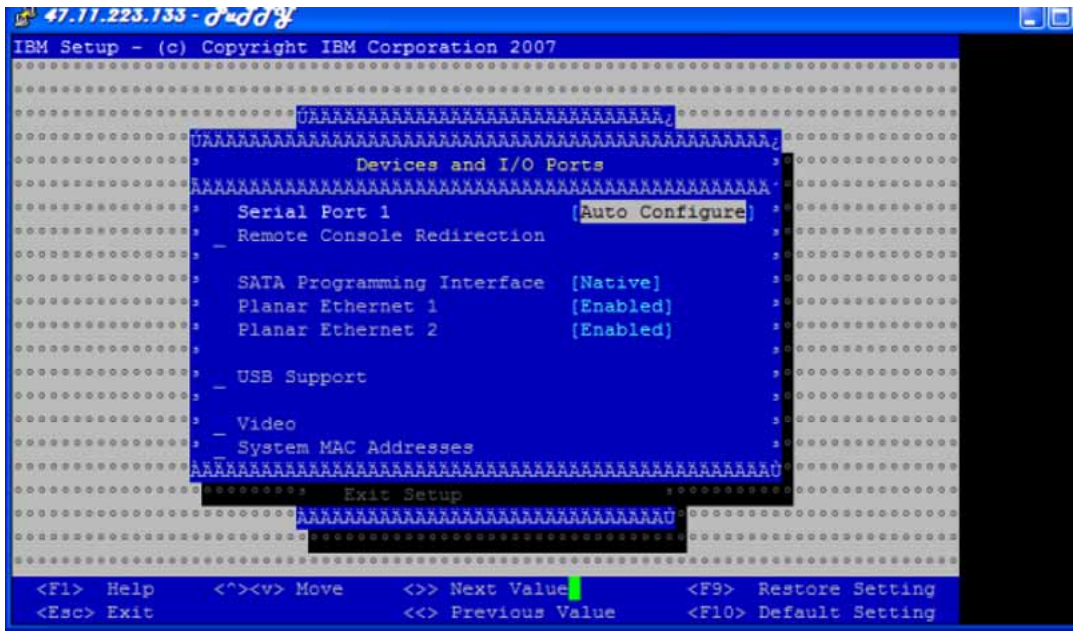
Figure 178
BIOS Configuration/Setup Utility main menu window



2 In the BIOS Configuration/Setup Utility main menu select **Devices and I/O Ports** and press **Enter**.

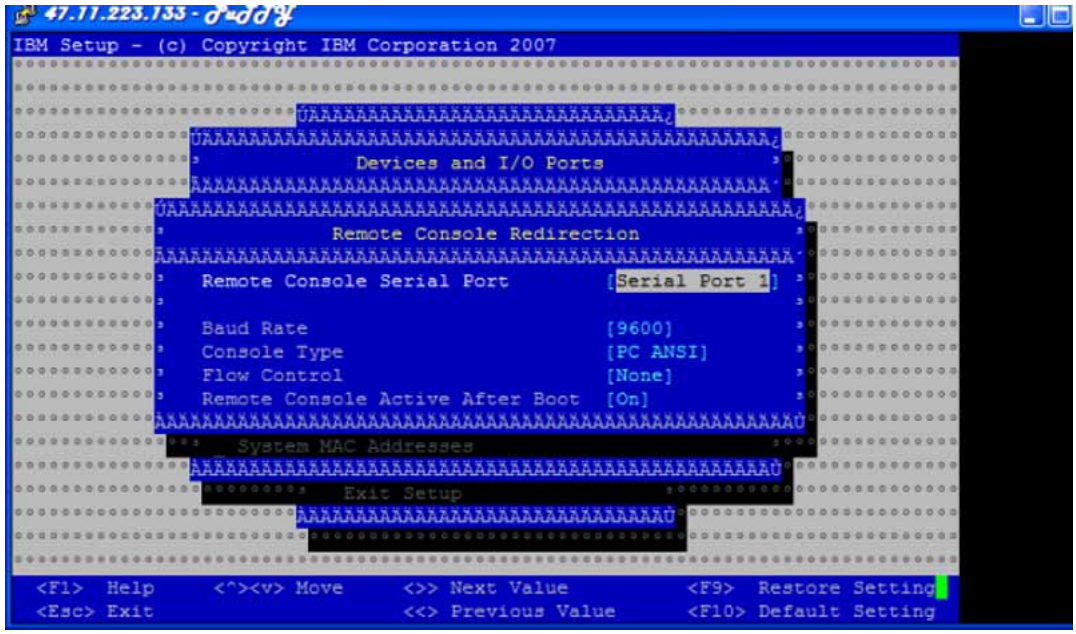
The Devices and I/O Ports screen appears, as shown in Figure 179 "Devices and I/O Ports window" (page 251).

Figure 179
Devices and I/O Ports window



3 In the Devices and I/O Ports screen, select **Remote Console Redirection** and press **Enter**. The Remote Console Redirection screen appears, as shown in Figure 180 "Remote Console Redirection window" (page 252).

Figure 180
Remote Console Redirection window



4 Navigate to Remote Console Serial Port and type **Serial Port 1**.

5 Navigate to Baud Rate and type **9600**.

6 Navigate to Console Type and type **PC ANSI**.

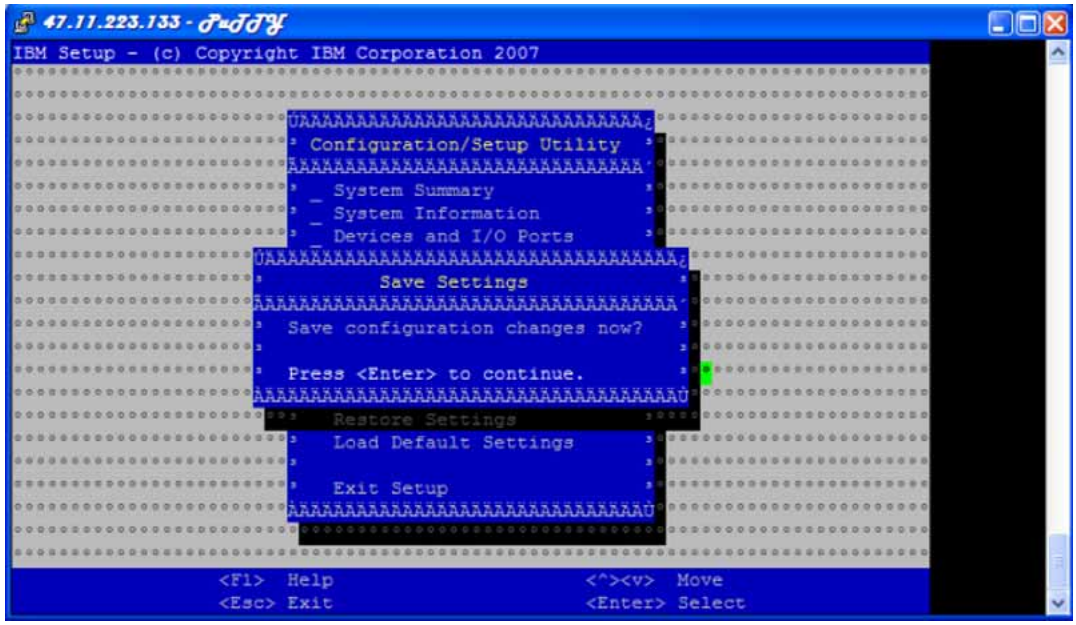
7 Navigate to Flow Control and type **None**.

8 Navigate to Remote Console Active After Boot and type **On**.

9 Press **Esc** twice to return to the BIOS Configuration/Setup Utility main menu.

10 In the BIOS Configuration/Setup Utility main menu screen, select **Save Settings** and press **Enter**. A confirmation prompt appears, as shown in Figure 181 "Save Settings confirmation window" (page 253).

Figure 181
Save Settings confirmation window



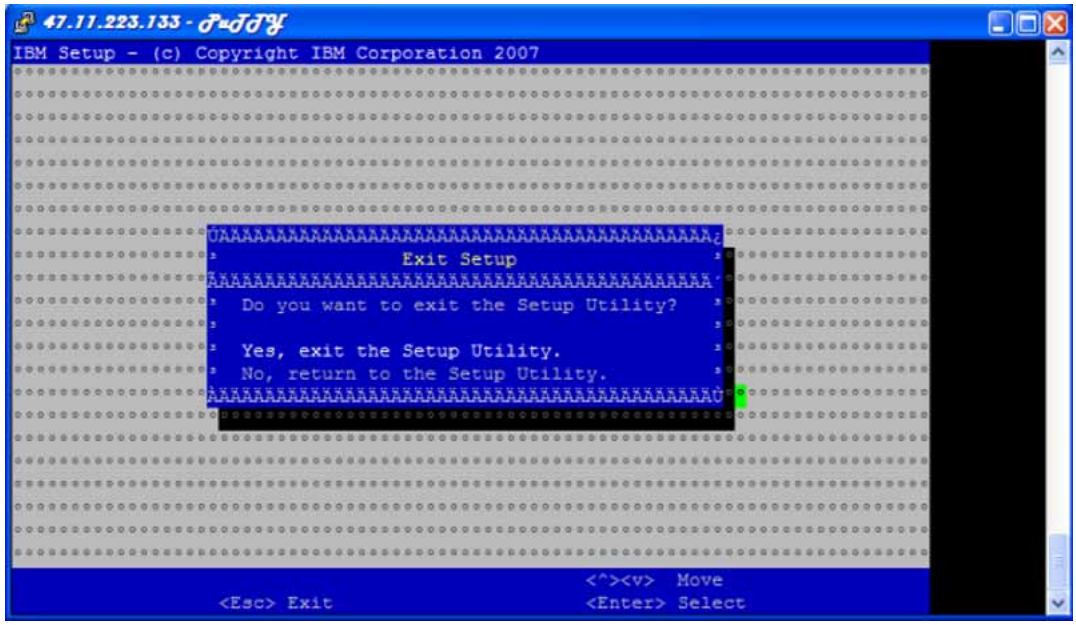
11 In the Save Settings confirmation screen press enter to confirm your changes.

The BIOS Configuration/Setup Utility main menu screen appears.

12 Press **Esc** to exit the BIOS Configuration/Setup Utility main menu.

A confirmation screen appears, as shown in Figure 182 "BIOS Configuration/Setup Utility main menu exit confirmation window" (page 254).

Figure 182
BIOS Configuration/Setup Utility main menu exit confirmation window



13 Navigate to **Yes, exit the Setup Utility** and press **Enter**.

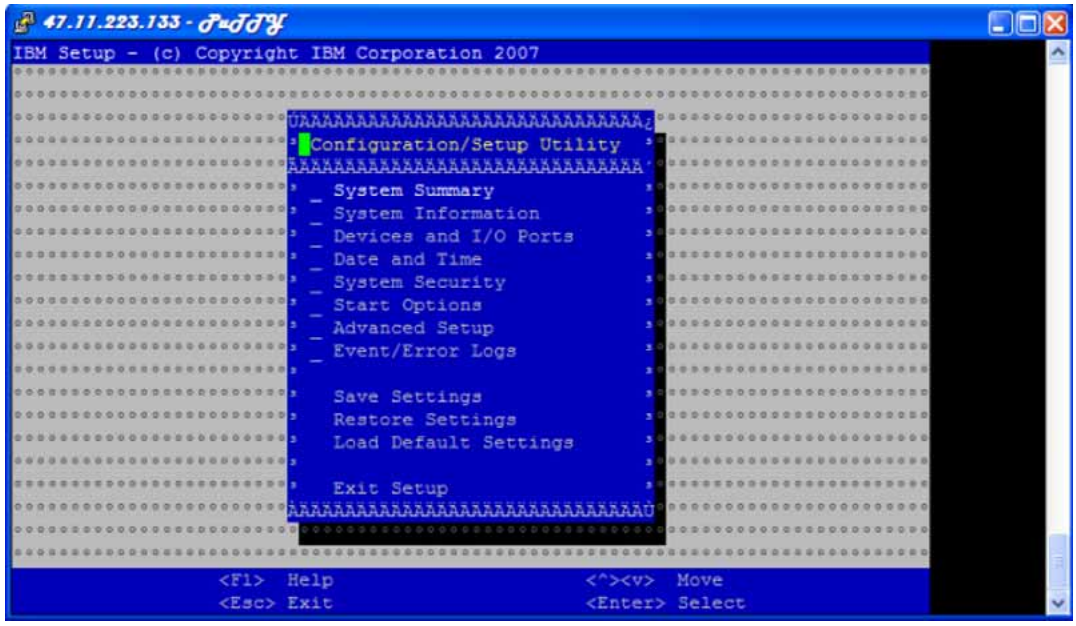
--End--

Setting the BIOS password for the IBM x3350 server

Perform the following procedure for setting the BIOS password.

Step	Action
1	Press **F1** to navigate to the BIOS configuration main menu screen using a Keyboard Video Monitor (KVM) terminal. **OR** Press **ESC-1** to navigate to the BIOS configuration main menu screen using the console terminal. The BIOS Configuration/Setup Utility main menu screen appears, as shown in Figure 183 "BIOS Configuration/Setup Utility main menu window" (page 255).

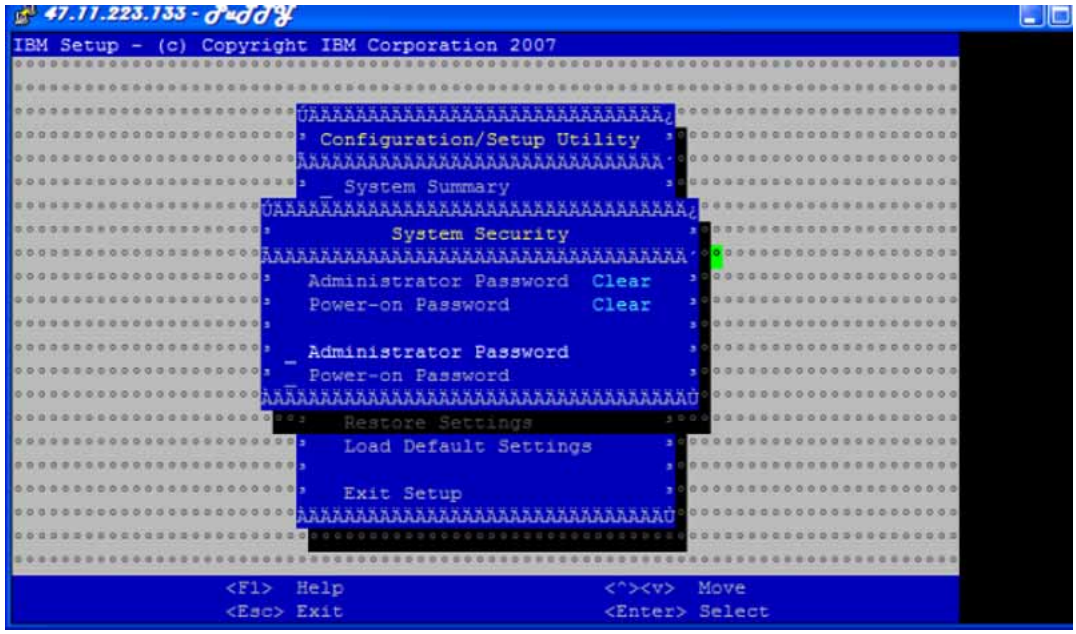
Figure 183
BIOS Configuration/Setup Utility main menu window



2 In the BIOS Configuration/Setup Utility main menu screen, select **System Security** and press **Enter**.

The System Security menu appears, as shown in Figure 184 "System Security menu" (page 255).

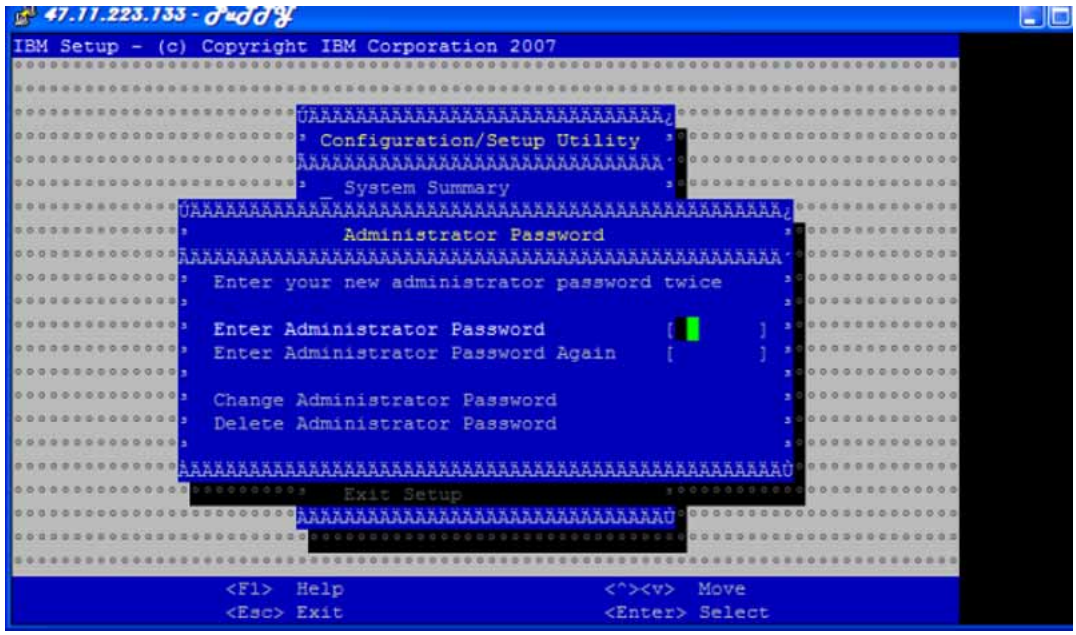
Figure 184
System Security menu



3 In the System Security menu, navigate to **Administrator Password** and press **Enter**.

The Administrator Password menu screen appears, as shown in Figure 185 "Administrator Password menu window" (page 256).

Figure 185
Administrator Password menu window



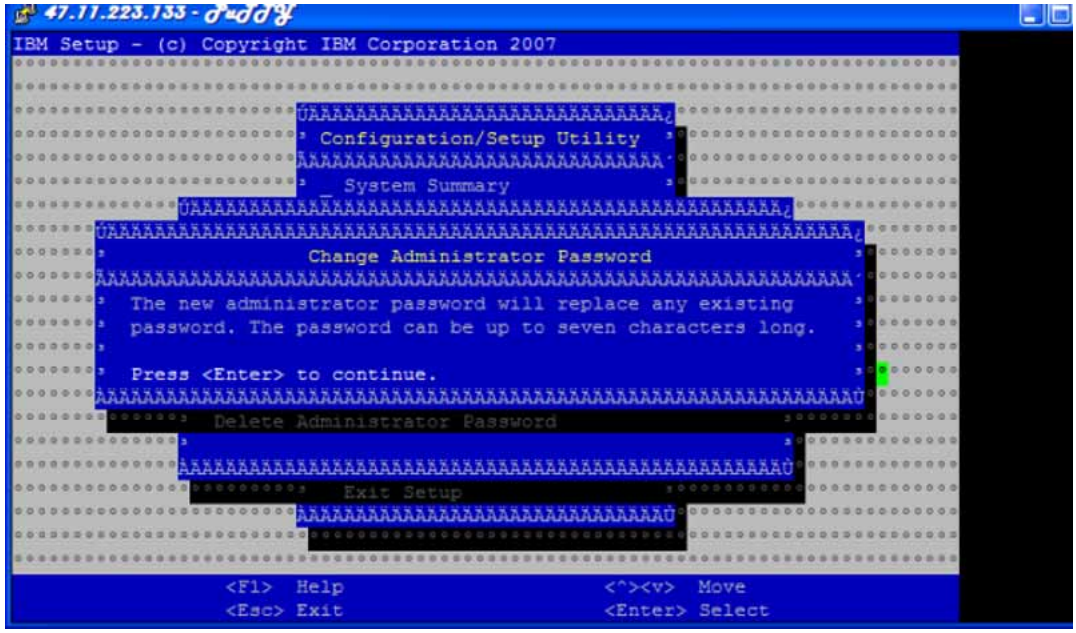
4 In the Administrator Password menu screen, navigate to **Enter Administrator Password** and type a password.

5 Navigate to **Enter Administrator Password Again** an retype the password.

6 Navigate to **Change Administrator Password** and press **Enter**.

The Change Administrator Password confirmation screen appears, as shown in Figure 186 "Change Administrator Password confirmation window" (page 257).

Figure 186
Change Administrator Password confirmation window



--End--

Appendix Installation times

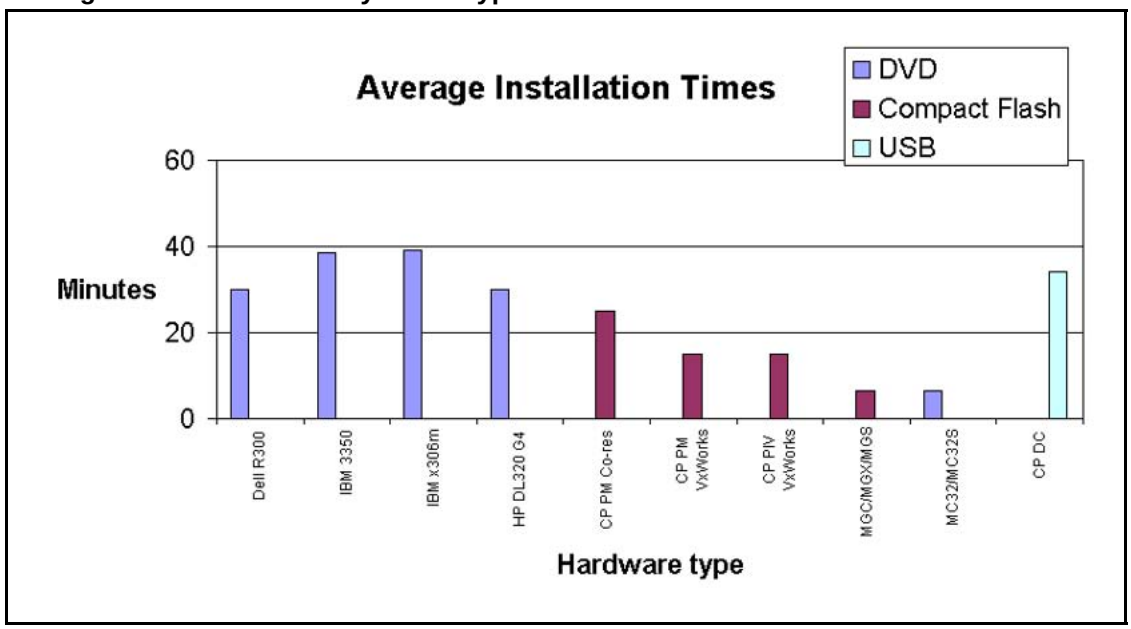
This section contains the average installation times using a variety of installation methods.

Average installation times by media type

Note: The numbers in the following table are approximate and actual times can vary according to network characteristics and other factors.

The following table provides the average Linux Base installation times on the supported hardware platforms by media type.

Figure 187
Average installation times by media type

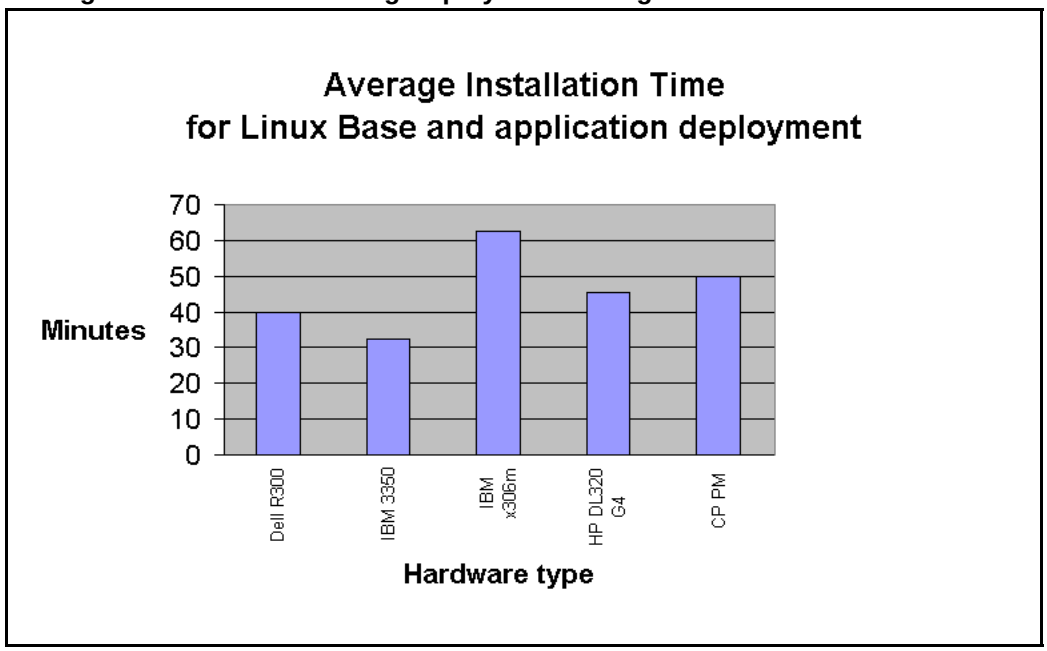


Linux Base and application deployment—average installation time

Note: The numbers in the following table are approximate and actual times can vary according to network characteristics and other factors.

The following table provides the average installation time using Deployment Manager. Deployment Manager includes a system upgrade of the Linux Base installation and application deployment.

Figure 188
Average installation time using Deployment Manager



Appendix
Media Application Server

This section is for information related specifically for Media Application Server (MAS).

Checklist for adding a new maintenance release for MAS

The following checklist describes how to up-issue a new MAS software load (.nai file). If a new maintenance release for MAS is available, you can reinstall the MAS .nai file. You are not required to perform a complete Communication Server 1000 Release 7.0 member upgrade.

1. Using Element Manager, backup your MAS data to a remote FTP server. For more information about MAS data backup using Element Manager, see *Media Application Server Administration and Security* (NN44471-600). For a list of MAS technical documents, see “MAS technical documentation ” (page 20).
2. Log on to the Primary UCM (Deployment Server) using an account with the NetworkAdministrator role assigned, as described in “Logging on to Unified Communications Management” (page 102).
3. Delete the MAS service for the server being up-issued, as described in “Deleting a Network Service” (page 124).
4. Undeploy the MAS application, as described in “Undeploying a server” (page 136).
5. Delete the MAS .nai file, as described in “Deleting a software load” (page 106).
6. Load the up-issued MAS .nai file from the Deployment Manager library, as described in “Software loads” (page 104).
7. Recreate a new MAS service to the server where you want to install MAS, as described in “Adding a MAS service” (page 120).
8. On the Deployment View page, choose **Servers** from the **View** list, and click **Commit**.

9. Deploy the MAS application, as described in “Deploying applications on a server” (page 137).
10. Restore the MAS data from the Element Manager MAS data backup location.

Appendix
Nortel Linux Base CLI commands

"Nortel Linux Base CLI commands" (page 263) contains a list of the command line interface (CLI) commands used in Nortel Linux Base. Type **`(linuxbase-command) -h | --help | help`** at the command prompt to display a brief summary of the CLI command, as shown in Table 13 "Linux CLI command help" (page 263). Type **`man (linuxbase-command)`** at the command prompt for a more detailed description, as shown in Table 14 "Linux man command example" (page 264).

Table 13
Linux CLI command help

```
$ poos --help
Usage:
poos (patch_id)|-app *(app_name)*|--help,-h

Options:
(patch_id)
Deactivate patch with (patch_id) handle.

-app *(app_name)*
Deactivate all patches for the application (app_name).

--help
Print this help message and exit.
```

Table 14
Linux man command example

```
$ man poos

POOS(1) User Contributed Nortel Documentation POOS(1)

NAME
poos - Put a patch out of service.

SYNOPSIS
poos (patch_id)| -app (app_name) | --help,-h

DESCRIPTION
Remove a patch from service. The patch is removed from service from all processes in which it
was in service.

OPTIONS
(patch_id)
Deactivate patch with (patch_id) handle.

-app (app_name)
Deactivate all patches for the application (app_name).

--help Print this help message and exit.

EXAMPLES
Deactivate patch with 2 handle
$ poos 2
Patch handle: 2
Please ensure that the application solid is stopped before proceeding patch un-installation.
Do you want to continue patch un-installation? (Y/N) [N]? y
Performing the uninstallation:
Performing uninstall RPM patch...
Preparing... ########################################### [100%]
1:nortel-cs1000-solid ########################################### [100%]
executing Solid DB post install...
Installation nortel Solid database server completed.
Unstalling the Solid database server package done

Done.
The RPM patch uninstallation is completed.
The patch 2 has been deactivated successfully.

Deactivate all sunAm patches
$ poos -app sunAm
Patch handle: 0
Performing the uninstallation:
```

```
The patch 0 has been deactivated successfully.

SEE ALSO pload, pout, pins, pstat, plis

5.50 2007-12-18 POOS(1)
```

Nortel Linux Base uses common (no access restrictions) CLI commands plus 8 categories of CLI commands that correspond to the 8 Nortel Linux Base user groups. The 8 categories of CLI commands are shown in the following list:

- backupadmin
- dbadmin
- logadmin
- maintadmin
- patchadmin
- securityadmin
- systemadmin
- timeadmin

Table 15
Common CLI commands

Command	Description
appVersionShow	Print the application software version for the server.
baseVersionShow	Print the Base software version for the server.
echo	
find	
ftp	
ifconfig	
ls - ll	
man	
printenv	
scp	
sftp	
ssh	
su	
swVersionShow	Print the server's software version.

Command	Description
telnet	
whoami	

Table 16
backupadmin CLI commands

Command	Description
sysbackup	Perform a system backup (both base and applications).

Table 17
maintadmin CLI commands

Command	Description
consoleShow	
gnome-system-monitor	
gryphon	Control script for Apparent Network AppCritical OEM.
netstat	Print network connections, routing tables, interface statistics, masquerade connections, and multicast memberships.
pcapConfig	Configure PCAP for Linux.
pcapCtrlRemove	Stops the PCAP for Linux listener interface.
pcapCtrlStart	Start the PCAP for Linux listener interface.
pcapRestart	Restart PCAP for Linux.
pcapStatus	Displays the current status of PCAP for Linux.
pcapStop	Stop PCAP for Linux.
wireshark	
pcap	
ppp	Initiate a PPP connection.
tcpdump	

Table 18
patchadmin CLI commands

Command	Description
issp	Generates a list of installed RPMs, SUs and patches.
pins	Put the patch in service.
plis	Show detailed information about the patch.
pload	Load the patch into the system database.

Command	Description
poos	Put the patch out of service.
pout	Unload the patch from the system database.
pstat	Show a list of installed patches.
spins	Put a Service Pack into service.
spload	Load a Service Pack (bundle of patches and SUs) into the system database.
spout	Unload a Service Pack (bundle of patches and SUs) from the system database.
spstat	Show the installed and in service SPs.

Table 19
securityadmin CLI commands

Command	Description
basefirewallconfig	Configure firewall settings.
checkIPsecStatus	
disableAllTargets	
harden	Command to manage CS 1000 hardening items.
harden audit status	Displays the status of the Linux Audit Daemon.
harden banners set/file	Modify the banner text. The banner text will be replaced by the content from the file.
harden banners status	Enables or disables the pre-login banners.
harden coredumps status	Enables or disables the coredump service.
harden ftp status	Shows that FTP service is turned on or off.
harden help	Displays help information for using the command.
harden nettools status	Enables or /disables the nettools service.
harden nfs help	Displays help information for using the command.
harden nfs on	Enables Network File System (NFS) when deploying the primary security server.
harden nfs off	Disables NFS after deployment is complete.
harden nfs status	Shows that NFS is turned on or off.
harden passwd_days off	Disable previously configured parameters.
harden passwd_days on	Enables previously configured parameters.
harden passwd_days set -max	Configure the value of the PASS_MAX_DAYS parameter. The default value is 90.

Command	Description
harden passwd_days set -min	Configure the value of the PASS_MIN_DAYS parameter. ***Note:*** This parameter must be set to a value >or = 1. The default value is 1.
harden passwd_days status	Provides the current value of the parameters from hardening storage.
harden rlogin	Apply hardening to remote logons. ***Note:*** rlogin is only available in Co-res CS and SS configurations.
harden ssh_filter status	Shows the list of the names of the hosts which are allowed to connect to Linux Base by SSH.
harden status	Retrieve the status of Linux Base Enhanced Hardening options.
harden telnet status	Shows that telnet service is turned on or off.
harden tftp status	Shows that TFTP service is turned on or off.
isssDecom	
isssReset	
isssShow	
masterfirewallconfig	Master firewall configuration.
nfsexportsconfig	
sshconfig	

Table 20
systemadmin CLI commands

Command	Description
appinstall	Install Nortel applications. ***Note:*** Do not use the appinstall command unless you are directed to use it by Nortel support.
appstart	Stop, start, or restart Nortel applications.
arp	Manipulate the system ARP cache.
baseparamsconfig	Configure base parameters.  **WARNING** Do not change the FQDN of the primary or backup security server when you use the baseparamsconfig command.
datetimeconfig	Configure the date and time.
dnsconfig	Configure DNS values.

Command	Description
ecnconfig	Configure Explicit Congestion Notification settings.
hdStat	Displays the size of the hard disk.
hostconfig	Configure the static lookup table for host names.
memShow	Displays available, free, and used server memory.
memSizeShow	Displays the total server memory.
networkconfig	Configure network settings.  **WARNING** Do not change the FQDN of the primary or backup security server when you use the networkconfig command.
ntpconfig	Configure Network Time Protocol settings.
reboot	Restart the entire system.
routeconfig	Configure routing entries. ***Note:*** When you use routeconfig to add a host route you do not need to provide a netmask. If you do provide a netmask, the format must be 255.255.255.255.
stty	Change and print terminal line settings.
sysbackup	Configure system backup.
syslogFacilitySet	Set the facility value.
syslogLevelSet	Set a value for level.
syslogShow	Display syslog processes. ***Note:*** The help key is not valid for **`syslogShow`**. If you want to retrieve help information, you must use the format **`syslogShow -h`** or **`syslogShow -help`**.
sysrestore	Perform a restore of the application data (backed up by sysbackup).
timeadj	Specify system clock parameters.
upgrade	Select the backup data source and reinstall Linux Base.

Note: You might need to add the primary host entry in backup and member servers before you can access them using the **`hostconfig`** command.The command syntax is **`nortel user ---> hostconfig add -ip <PRIMARY SERVER IP> -host <PRIMARY SERVER HOST NAME> -domain <PRIMARY SERVER DOMAIN NAME>`**.

Table 21
timeadmin CLI commands

Command	Description
datetimeconfig	Configure the date and time.
ntpconfig	Configure Network Time Protocol settings.
timeadj	

Appendix Network configuration for Secure File Transfer Protocol (SFTP) data backup

Use the guidelines in this appendix to assist in data backup to an SFTP server. The section “Network configuration” (page 271) provides details on network requirements and the section “SFTP logon” (page 271) provides SFTP logon details. The section “SFTP network configuration requirements” (page 272) provides specific Embedded Local Area Network (ELAN) and Telephony Local Area Network (TLAN) requirements for SFTP network configuration.

Network configuration

The network must be configured correctly for data backup to an SFTP server. In order to configure the network you must understand the difference between the ELAN and the TLAN. The ELAN and TLAN are defined as follows:

- ELAN - The ELAN is a secure local area network. The scope of this network is limited to one subnet or node; however the scope of the ELAN network can be expanded to cover multiple nodes with advanced router (data path) configurations.
- TLAN - The TLAN spans the entire enterprise network. Every node on the TLAN has access to every other node.

  The TLAN supports both IPv4 and IPv6 addresses.

  Note: The definitions of ELAN and TLAN are a subset of the definitions provided in the voice media gateway cards section of *Signaling Server IP Line Applications Fundamentals* (NN43001-125).

SFTP logon

Data backup to an SFTP server requires a user logon, password, and path to access the SFTP server storage. The user logon can contain a maximum of 32 characters comprised of lower and uppercase letters,

numeric digits, and the special characters _ . - and $. You cannot use the character - at the beginning of the logon string and you can use $ only at the end of the logon string.

Nortel Linux Base uses the character / to specify paths in the system. Use the / character when you specify the SFTP directory.

SFTP network configuration requirements

The SFTP option requires an operational ELAN network because the backup and recovery of data must use the ELAN interface. Nortel recommends the destination SFTP server reside on the same ELAN network as the source SFTP server. If the destination SFTP server resides outside the subnet of the source SFTP server, use one of the two options shown in Table 22 "SFTP network configuration requirements" (page 272).

Note: Not all Windows based SFTP servers can be used as SFTP backup servers. The following Windows based SFTP servers can be used:

- ***Sysax Multi Server***
- ***OpenSSH for Windows***

The following Windows based SFTP servers are not supported:

- ***Core FTP mini-sftp-server***
- ***CrushFTP***
- ***freeFTPd***
- ***NullFTP***
- ***TitanFTP***
- ***winSSHD***

Table 22
SFTP network configuration requirements

Option	Details
1	The router connecting the two subnets must be configured to allow pings to pass through. This ensures there is a valid data path between the two subnets If the default gateway is set to the TLAN interface gateway, a routing entry is required to ensure that all ELAN data uses only the ELAN NIC. Use the CLI command **`routeconfig`** to add the routing entry. An example of the **`routeconfig`** command is as follows: routeconfig add -net destination_ip -netmask subnet_mask -gw gateway_ip -dev eth0
2	On the source server set the ELAN interface gateway as the default gateway.

Appendix Troubleshooting

This chapter contains information on troubleshooting application deployment errors.

Deployment errors

The following table provides a list of the possible errors that can appear during application deployment with a description of the possible causes and actions to help troubleshoot the error.

Table 23
Deployment errors

Error Message	Description	Action
Applications are already installed.	Possible causes: Case: deploy is called when Nortel Applications are already installed.	From the **Deployment Actions** list, choose **Deploy**.
Applications are not installed.	Deployment manager status may not have been correct initially. Case: deploy is called when Nortel Applications are already installed. This case supports auto-recovery – the server status should reset to correct one automatically.	No action is required, the server status should be reset to correct value.
Error occurred while backup of target.	Possible causes: General error for any backup failure. Any one of the backup scripts failed. Network problem.	Check your network (on TLAN) between the deployment server and the target. Check your network between the target and the SFTP server. Check permissions on the file system. Check whether the SFTP server has enough free disk space to keep the backup archive.

Error Message	Description	Action
Failed to clear a directory in pre-installation phase.	Possible causes: Generic error. Could be some permission issue.	Check the permissions. Try the operation again.
Failed to create a directory in pre-installation phase.	Possible causes: Generic error. Could be some permission issue.	Check the permissions. Try the operation again.
Input parameter(s) validation failed.	Possible causes: Provided keycode file does not exist (something must have gone wrong during the keycode file upload).	Browse and validate the keycode again.
Can't copy installation xml.	Possible causes: Some permission problem which is disallowing the copy of the install.xml file under the /admin partition.	Check file permissions of the /admin partition. Repeat the operation again.
No configure.xml files found.	Corrupted .nai file. Damaged installation.	Upload the software load again. Try the application installation again. Backup the data, and reinstall Linux Base again.
Please login as a user with valid permissions to use Deployment Manager.	Deployment manager is not running as user nortel.	Make sure that Jboss is running as nortel user. Perform "ps –ef | grep jbossd" and check whether the user is nortel.
Cannot get preconfig data.	Possible causes: Can be set if preconfig data are found on the target but cannot be extracted from an archive file.	Try again, and if problem persists, get Nortel help.
Failed to prepare or transfer deployment data. Make sure the network connection to your target is in working condition. See Help for more details.	Possible causes: Network connection between the deployment server and the target may have some problem Available disk size and permission problem.	Try the operation again. Check available disk space.
Installation data preparations error.	Possible causes: Couldn't create the necessary files for this particular target.	Try again, and if problem persists, get Nortel help.

Error Message	Description	Action
Restore of applications failed.	Possible causes: General error for any restore failure. Any one of the backup scripts failed. Network problem.	Check network connection, permissions and try one more time. Make sure that there is enough space on the server to keep restore archive. Check the linuxbase.log from Base manager.
RPM database is corrupted. Re-installation of Linux Base is required.		
RPM installation failed.	Possible causes: Corrupted .nai file.	Check the appinstall_stderr.log, appinstall_stdout.log and linuxbase.log. Check to see whether there is any dependency problems (which will be indicated in the appinstall_stderr.log). Try the operation again.
RPM uninstallation failed.		
Operation is blocked by another process. Please try again.	Possible causes: Applicable for Deploy, Undeploy, Backup, Restore and Upgrade cases. Indicates that semaphore is busy and operation cannot be started to avoid data integrity corruption.	Wait for sometime and try the same operation again.
Remote script failed.	Possible causes: Generic error. Applicable for Deploy, Undeploy, keycode validate and Upgrade cases. Set if for example, remote script cannot be executed, command is not found, not enough permissions and so on.	Check permission of the file system. Check the connection between the deployment server and the target.
Transfer failed.	Possible causes: SCP operation (remote copy command) failed.	Check your network (on TLAN) between the deployment server and the target.
Undeployment error.	Possible causes: There are some patches that cannot be removed.	Check the appinstall_stderr.log , appinstall_stdout.log, and the linuxbase.log. Check the network connection. Try undeployment again.

Error Message	Description	Action
Undefined parameter.	Possible causes: Some mandatory values are not set in deployment manager properly.	Set all required values, and try the operation again. Seek help from nortel.
Undefined parameter.	Possible causes: Some mandatory values are not set in deployment manager properly.	Set all required values, and try the operation again. Seek help from nortel.
An unexpected error occurred.		Please try the operation again. If not successful seek help from Nortel.
Error occurred while restoring Could not retrieve the information for the target on the deployment server.target.	Please try the operation again. If not successful seek help from Nortel.	
Error occurred while saving target.	Possible causes: Problem in writing the target information on the deployment server. Frequency: Very Low Severity: Major	Please try the operation again. Go to the folder /var/opt/nortel/deployment/deployed/<hostname> and check for any permission or disk space issues that could prevent writing to this folder. If not successful seek help from Nortel.
Could not retrieve UCM elements temporarily. Please refresh the page.	Possible causes: There was a problem retrieving the linux Base element(s) from UCM. Refresh the page by clicking on the refresh link.	Refresh the page by clicking on the refresh link.
Target in an invalid status for requested action.	Possible causes: Someone else may have started another operation on the target. The information on the deployment server is corrupted.	Refresh the page. Try again later. If not successful seek help from Nortel.

Error Message	Description	Action
Error occurred while deploying/upgrading/undeploying target.	Possible causes: Could not make the system call to execute the linux Base commands to perform the deploy/upgrade/undeploy operation.	Seek help from Nortel.
Failed to generate a pre configuration file.	Possible causes: ElementInternalID is blank for the chosen call server. Could not create the cs1000.properties file. Error while writing to the cs1000.properties file. Could not create the csinst.ini file. Could not create the preconfiguration directory.	Check the file system for disk space and permissions.
Maximum number (3) of simultaneous deployment reached.	There are already 3 deployment operations in progress.	Wait for at least one deployment to complete before starting a new deployment.
Could not validate keycode. Error occurred during validation process.	Could not make the system call to run the keycode validation base command.	Check whether the keycodeValidate API exists on the server. Also check whether executable permissions are set properly.
Keycode file missing on target, or can't read the file.	There has been some problem in the keycode uploading process.	Browse and validate the keycode again. Check whether the keycode is of non-zero size.
Version in keycode does not match software version to be installed.		Make sure that the Release and Issue of the keycode are matching the version of the software to be installed. Obtain a proper keycode or use the proper software version.
System type in keycode does not match the hardware type.		Browse and validate the keycode again. Obtain a proper keycode or use the proper software version.
Keycode file corrupted.		Browse and validate the keycode again. If it does not work, try regenerating the keycode.

Error Message	Description	Action
Can't detect dongle, dongle missing or can't read the dongle.	Dongle is not installed (or not properly installed) on the system. Dongle is hot-plugged in without restarting the server. Dongle is bad.	Make sure the dongle is properly installed. Restart the server with the dongle installed. Replace the dongle with a good one.
Keycode does not match dongle.	Keycode maybe invalid. Dongle maybe invalid.	Make sure the keycode is right and the dongle is right, and they match.
Keycode file contains invalid load build cycle.	The load build cycle on the keycode is not valid. Only valid load build cycle is "MR (market release)".	Obtain a keycode with a valid load build cycle.
Could not validate keycode. Error occurred during validation process.	Could not execute the keycode validation software.	Make sure that the kcv software is present, and with executable permission.
Could not mount software load: Invalid mount point. Restart the server and try again.		
Could not find a valid software load. File or media may be invalid.	Software load .nai file maybe corrupt.	Try uploading the .nai file again.
Software load could not be copied to the deployment server.		Check whether there is enough disk space on the deployment server to copy the .nai file.
Software Load media is not accessible. Media not present or busy.		Check whether the CD/DVD or Compact Flash is inserted properly in the drive. Check whether the CD/DVD or Compact Flash has the application software or customer database, whichever you are trying to upload.
Could not determine hardware type of this server.	The h/w type is not in the baseOs.properties file.	Check the /admin/nortel-linuxbase-info file for the SYSTEM_HW_PLATFORM field. If it is proper, then do a system restart, otherwise seek help from Nortel.

Error Message	Description	Action
Failed to get Software Load information - install.xml file does not exist.	Install.xml file is missing in the load (i.e. corrupted software load)	Try uploading the software load .nai file again. Check the directory /var/opt/nortel/deployment/app_loads/<app_load>/ to see whether the install.xml file is present. Check whether the .nai file you got is of expected size.
Failed to get Software Load information - Could not read install.xml.	Could not read install.xml file. Must be corrupted.	Try uploading the software load .nai file again. Check whether the .nai file you got is of expected size.
Failed to access software load data file. Please try again.	Could not access the software load .nai file.	Check whether you can access this file on your PC or the CD/DVD or compact flash that you are trying to upload from. Check whether it has the right permissions.
Software load add is already in progress.	Another user has started a software upload process.	Refresh the page. This should show the same page as the other user is getting. Wait until the other upload is done before initiating the software add.
Software load already exists. If you would like to replace the existing load, please delete it from the table and add again.	The software load that you are trying to upload already exists on the deployment server.	As suggested, first delete the software load from the table. Then try the add again.
Failed to create the preconfig directory for call server configuration.	Could not create the directory /var/opt/nortel/deployment/deployed/<hostname>/preconfig/cs or /var/opt/nortel/deployment/deployed/<hostname>/preconfig/em. Could be disk space issue or permission issue.	Check the disk space and permissions for the above mentioned directory.
Unable to retrieve target server details. Please cancel and try again.		
Maximum number (3) of software loads reached on this server. Please delete one of the loads before proceeding with an add operation.		

Error Message	Description	Action
Cannot delete the selected software load(s). Make sure all deployment and upgrade operations are completed before deleting a load.	Some other user maybe performing a deployment or upgrade which uses this load.	Wait till other operations are done (can check on the deployment targets page), and then retry the deletion.
Backup file is null or the file type is invalid.	Possible causes: Backup file is empty, or the extension is not .tar.gz as expected. Severity: Minor	Browse an appropriate backup file.
Backup file not found.		
An I/O error occurred while uploading backup file.		
Unexpected error occurred while uploading backup file.		
Backup file name is invalid.	Backup filename extension is not .tar.gz as expected.	Make sure that proper backup file is being used.
Keycode file is null or the file type is invalid.	Keycode file that was browsed is empty or the extension is not .kcd as expected.	Choose a proper keycode file that ends with .kcd.
Keycode file not found.	Keycode file upload had some issues.	Browse and validate the keycode again. Make sure that the keycode is valid.
An I/O error occurred while uploading keycode file.	Keycode file upload had some issues.	Browse and validate the keycode again. Make sure that the keycode is valid.
Unexpected error occurred while uploading keycode file.	Keycode file upload had some issues.	Browse and validate the keycode again. Make sure that the keycode is valid.

Error Message	Description	Action
An I/O error occurred while uploading customer database file.	Customer database file upload had some issues.	Browse and upload the customer database again. Make sure that the customer database is valid.
Unexpected error occurred while uploading customer database file.	Customer database file upload had some issues.	Browse and upload the customer database again. Make sure that the customer database is valid.
An I/O error occurred while extracting customer database archive file.	Customer database file upload had some issues.	Browse and upload the customer database again. Make sure that the customer database is valid.
Failed to extract customer database from the archive file.	Customer database file upload had some issues.	Browse and upload the customer database again. Make sure that the customer database is valid.
Software version delete failed for one/more selected loads.		
Error occurred while backing up target.	Could not make the system call to execute the base commands appBackup.	Check whether the appBackup script exists on the server, with executable permission.
Error occurred while restoring target.	Could not make the system call to execute the base commands appRestore. System call got interrupted for some reason.	Check whether the appRestore script exists on the server, with executable permission.
Invalid IPv4 format.		
Maximum number of backups reached. Please delete any of the existing backups for the same target using Backups management.	Only 3 backups are allowed to be stored on the deployment server, per target.	
Failed to delete one/more backups.		Try refreshing the page, and try the delete again.
Maximum number (3) of simultaneous restores reached.	Only 3 restore operations are allowed simultaneously.	Wait for sometime, and then try the restore operation.

Error Message	Description	Action
Maximum number (3) of simultaneous backups reached.	Only 3 backup operations are allowed simultaneously.	Wait for sometime, and then try the backup operation.
Selected file does not match required format(.tar.gz).		
Server path cannot be empty.		
Required fields cannot be empty.		
Server IP address cannot be empty.		
Username cannot be empty.		
Password cannot be empty.		
Not enough disk space available for backup. Please ensure that the /var partition has at least 20% space available, and try the backup again.		
Could not validate size of the disk. Please try again.		
Note - An automatic status update was not available. Click the refresh link (above, right) to verify current status.	Could not retrieve information from UCM regarding the targets. This is a temporary problem due to concurrent access and race conditions.	As suggested, refresh the page again.
Failed to delete elements on this target. Please manually delete the elements from UCM elements table.	After undeployment, DM deletes the associated elements (CS 1000, NRSM, Subscriber manager depending on what was deployed). For some reason, it couldn't delete these elements.	Go into UCM elements page, and find the corresponding elements and delete them.
Call server ELAN IP cannot be empty or invalid IPv4 format.		

Error Message	Description	Action
Call server tape ID cannot be empty.		Check the tape ID on the call server's dongle.
Call server tape ID must be alphanumeric		Check the tape ID on the call server's dongle. It cannot have any special characters.
MAC address format is invalid.		
The target is performing an operation launched from another deployment server. Please try again later.	If you are performing a operation centrally, then it could be that some other user is performing some operation locally on the box and vice versa.	Make sure that no one else is performing any operation on the box from anywhere else.
Cannot find install.xml file.	Corrupted .nai file.	Upload the software load again.

Linux Base installation errors

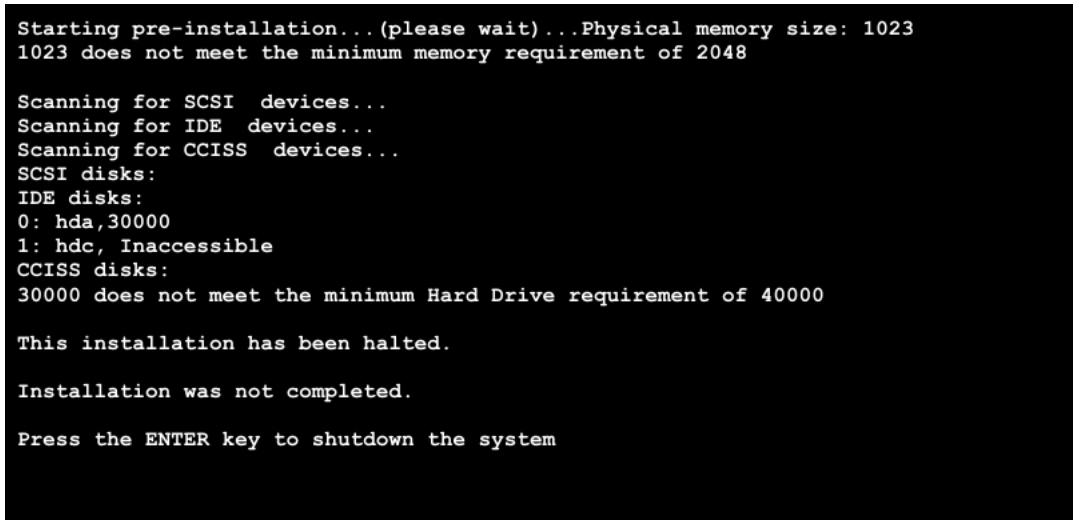
The following list contains information to help you troubleshoot errors during the Linux Base installation. For more information about hard drive, memory, and BIOS requirements for the COTS and CP PM platforms, see "Hardware platforms" (page 195).

Insufficient hard drive capacity

The platform must meet the hard drive and memory requirements; otherwise, the Linux Base installation fails and the server returns to the previous state.

If the hard drive is less than 40 GB, the following screen appears:

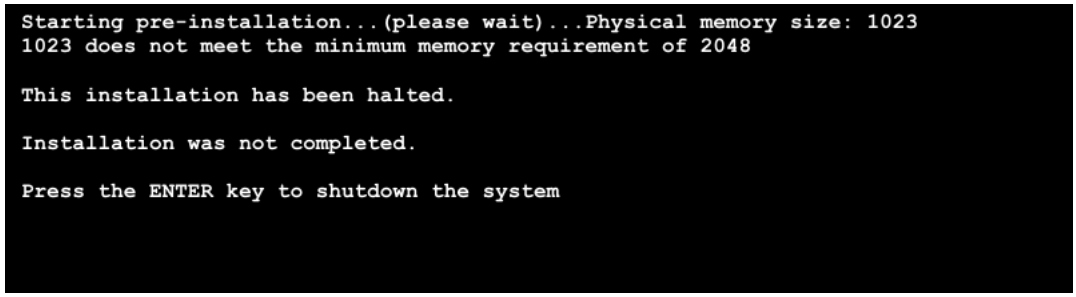
Figure 189
Insufficient hard drive capacity



Insufficient memory size

If there is less than 1 GB of memory available, the following screen appears:

Figure 190
Insufficient memory size



Log file

If the status of the Linux Base version does not change during a new installation and applications did not deploy, you can check the /var/log/nortel/linuxbase.log file. If the logs shows that the applications deployed properly but it is not reflected in Deployment Manager, this means that UCM registration was not successful. You can also use the swVersionShow command to see if deployment was successful.

Appendix Passthrough end user license agreement

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Do not contact Red Hat for technical support for your Nortel version of the Linux Base operating system. If you require technical support, contact Nortel technical support through your regular channels.

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Nortel Communication Server 1000

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