U.S. Department of Homeland Security

United States Coast Guard

IT "C" School

Unit 1 - Nortel CS1000E Overview

System Architecture – Communicating with Nortel CS1000E – Programming Overlays – Documentation – Call Server Database Backup and Restore

STUDENT GUIDE

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Prepared for:

IT-C School

Training Center Petaluma,

Coast Guard Training Center

599 Tomales Rd, Petaluma, CA

POC: ITC Seth Jackson, (707) 765-7458

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Prepared by:

This material has been prepared by:

IT1 Shane Gunderson and IT1 Jeremy Iacobucci

Notice to Students

Purpose: This course will provide training on Nortel CS1000E installation, programming, troubleshooting and maintenance. The graduate of this course will possess the skills necessary to install and maintain a CallPilot Voice Processing System.

IMPORTANT NOTE: This text has been compiled for TRAINING ONLY. It should NOT be used in place of official directives or publications. The text information is current according to the references listed. You should, however, remember information available for your rating.

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Lesson 1

NORTEL CS1000E OVERVIEW

Overview

Overview

In this lesson you are introduced to an overview of the Nortel CS1000E. The system used in this course is the Nortel CS1000E. It is part of the Nortel Meridian family of products. This system overview provides the big picture of the system. The detail level of installation and features is found in the technical manuals with which you will be provided.

Performance Objectives

Upon successful completion of this lesson, you will be able to:

1.1 ASSEMBLE the components of the Nortel CS1000 and associated equipment with 100% accuracy as evidenced by a functioning Call Server.

- **1.1.1 REVIEW** manufacturer’s documentation
- **1.1.2 COMPLETE** network and Call Server documentation

1.2 PERFORM system administration with 100% accuracy as evidenced by a positive function check.

- **1.2.1 REVIEW** manufacturer’s documentation
- **1.2.2 MANAGE** Unified Communications Manager (UCM) user accounts
- **1.2.3 MANAGE** Unified Communications Manager (UCM) Elements
- **1.2.4 MANAGE** Security Services within Unified Communications Manager (UCM)
- **1.2.5 PERFORM** administrative commands using Command Line Interface (CLI)
- **1.2.6 PERFORM** a function check.

1.3 PERFORM a Call Server database backup with 100% accuracy.

- **1.3.1 REVIEW** manufacturer’s documentation
- **1.3.2 COMPLETE** Call Server documentation

1.4 PERFORM a Call Server database restore with 100% accuracy as evidenced by a positive function check.

- **1.4.1 REVIEW** manufacturer’s documentation
- **1.4.2 COMPLETE** Call Server documentation
- **1.4.3 PERFORM** a function check

Overview (References), continued

Performance Evaluations

The performance evaluations for these tasks are scheduled immediately following this lesson. These performance evaluations will be delivered via a work order. These work orders will test the performance objectives you have just completed in this lesson. These work orders will build in complexity based on previous tasks from previous lessons. These performance evaluations are in a separate workbook from this Student Guide. Your instructor will hand out these workbooks out in class. Please do not complete these work orders prior to the instructor assigning them to you. You will work in your booth with your partner. Your instructor will sign off these performance evaluations as you complete each task.

References

Northern Telecom Publications (NTPs) is the documentation for the CS1000E system. These publications provide reference tools and information that is related to the various features and options of the system.

Document	**Document #**
Communication Server 1000E Planning and Engineering	NN43041-220
Communication Server 1000E Installation and Commissioning	NN43041-310
Nortel Communication Server 1000 Circuit Card Reference	NN43001-311
Communication Server 1000E Maintenance	NN43041-700
Communication Server 1000 Software Input Output Reference - Administration	NN43001-611
Communication Server 1000 Software Input Output Reference - System Messages	NN43001-712
Communication Server 1000 Software Input Output Reference - Maintenance	NN43001-711
Unified Communications Management Common Services Fundamentals	NN43001-116
Element Manager System Reference – Administration	NN43001-632
Security Management Fundamentals	NN43001-604

Overview, continued

Tools and Equipment

The tools and equipment used for this lesson are:

- Nortel CS1000E
- Terminal Emulation Software

Job Aids

The job aids for this lesson are:

- How to Set Up SDI Port for Communication
- Hoe to Set Up System Date and Time
- How to Setup Terminal Emulation Software
- How to Enter Data

Handouts

Your instructor will provide you with the following handout:

- Nortel Quick Reference Guide (QRG)

Key Terms

Review the following key terms before you begin the reading assignment:

Term	Definition
IPE	Intelligent Peripheral Equipment

Pre-Lesson Work

There is no pre-lesson work for this lesson.

Lesson Content: System Architecture

Introduction

The Nortel CS1000E is part of the Meridian 1 family of Private Branch Exchanges (PBXs). A PBX’s main function is to interface between users, allowing them access to telephone services optioned by the installer. This lesson provides a basic overview of the CS1000E system, giving you an understanding of how the cards and software interact with each other to make the PBX work.

IPE Card

In order to connect phones and trunks to the PBX, some type of hardware is needed. This hardware is specialized for the type of service you need and comes in the form of interchangeable cards. In the CS1000E, these cards are called Intelligent Peripheral Cards (IPE) cards. This term means that each card has intelligence enabling it to identify itself and its status to the Call Processor Pentium Mobile Card (CPPM). IPE cards are also all **Hot Swappable** and **Interchangeable.** The PBX also has **Common Equipment Cards**, which are **NOT** hot swappable and are required to make the PBX operate.

The IPE cards installed in the system are optioned (programmed) for services based on the type of card.

Card Types

Below is a list of the different types of cards used in the Nortel CS1000E.

Card Type	Functions
Media Gateway Card (MGC) NTDW60 or NTDW98	Provides a gateway controller for MG 1000E IP media gateways in a CS 1000E system. The MGC only functions as a gateway controller under control of a CS 1000E Call Server. The MGC card has two expansion sites to accommodate Digital Signal Processor (DSP) daughterboard’s (DBs). Can only be installed in Slot 0 of a CS1000E system. **NOT Hot Swappable.**
Common Processor Pentium Mobile (CPPM) NTDW61	The system hardware for the Common Processor Pentium Mobile (CPPM) card provides a platform for applications including call and signaling server, storage of system and customer data and they provide various 10/100/1000 BaseT Ethernet interfaces. Gateway functionality and shelf container functionality are delivered by the Media Gateway Controller (MGC) card and its Digital Signal Processor (DSP) daughterboard. Can be installed in any slot EXCEPT slot 0 of CS1000E, usually located in Slot 1. **NOT Hot Swappable.**
Common Processor Media Gateway Card (CPMG) NTDW59	Integrates a Common Processor, a Gateway Controller, and a non-removable Digital Signal Processor (DSP) resources into a single card for use in a CS1000E system.

Lesson Content: System Architecture, continued

Card Types, contd.

Card Type	Functions
Analog Message Waiting Line	This card provides 16 analog telephone circuits and the option of signaling a telephone equipped with a message waiting feature. This card can be installed in Slots 1 through 10 of the main cabinet or in Slots 11 through 50 in the expansion cabinets.
Digital Line	This card provides 16 digital communication links between the system and the Meridian digital telephones. The card supports voice-only or simultaneous voice (Ports 0–15) and data (Ports 16–31) over a single twisted pair. This card can be installed in Slots 1 through 10 of the main cabinet or in Slots 11 through 50 in the expansion cabinets.
Universal Trunk	This card provides 8 circuits that can be configured as any of the following types of trunks: • Central Office (CO) • Foreign Exchange (FX) • Wide Area Telephone Service (WATS) • Direct Inward Dial (DID) • Direct Outward Dial (DOD) • Tie • Page • Recorded Announcement (RAN) This card can be installed in Slots 1 through 10 of the main cabinet or in Slots 11 through 50 in the expansion cabinets.
1.5 MB TMDI DTI/PRI	This standard-size IPE circuit card provides a 1.5 MB ISDN primary rate interface and digital trunk interface capability. This card can be installed in Slots 1 through 9 of the main cabinet.

Lesson Content: System Architecture, continued

Co Resident

Communication Server 1000 Release 6.0 software introduced the CP PM Co-resident CS1000E system. This allows the CS1000E to run the Call Server software, the Signaling Server software, and System Management software on the same hardware platform operating under RedHat Linux, instead of multiple independent servers.

For CS 1000 Release 6.0, the only supported hardware platform for the Co-resident system is the Call Processor-Pentium Mobile (CP PM) platform.

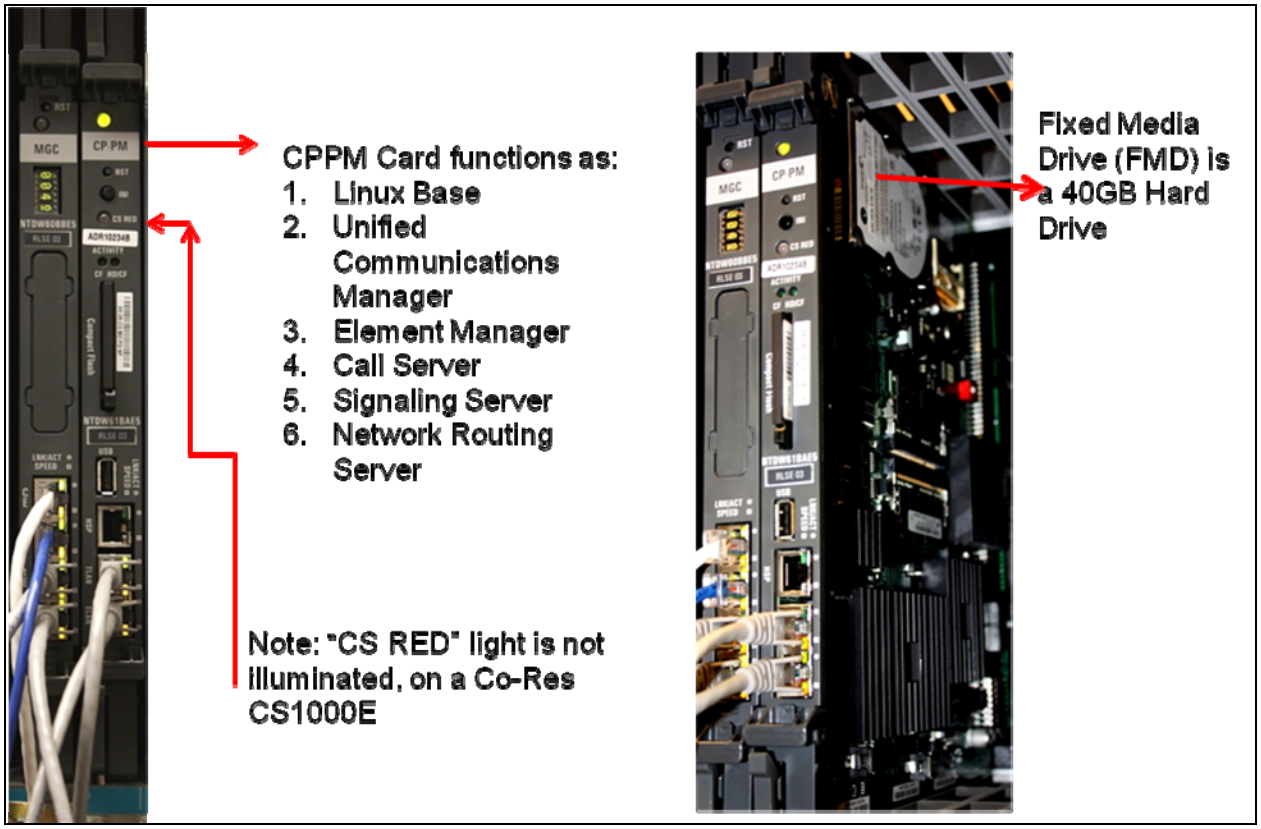


Figure 1.1.1

Lesson Content: System Architecture, continued

Non-Co Resident

Communication Server 1000 Release 6.0 software also introduced the Non-Co Resident CS1000E system. This allows the CS1000E to run the Call Server software on the CPPM card. The Signaling Server and System Management software, operating under RedHat Linux, runs on a separate server platform known as a Commercial Off the Shelf Server (COTS).

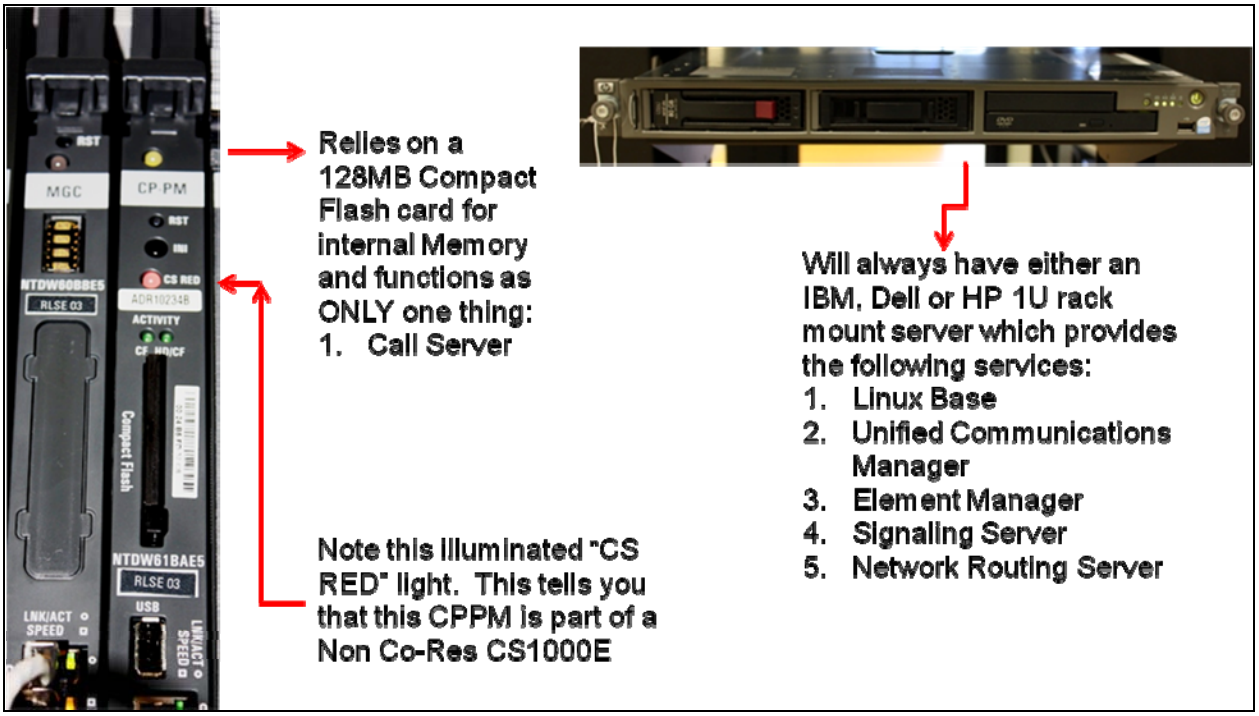


Figure 1.1.2

Lesson Content: System Architecture, continued

Static Strap

All IPE cards are static-sensitive. You need to be SURE you are wearing the static wrist strap provided in the main cabinet. See Figure 1.3

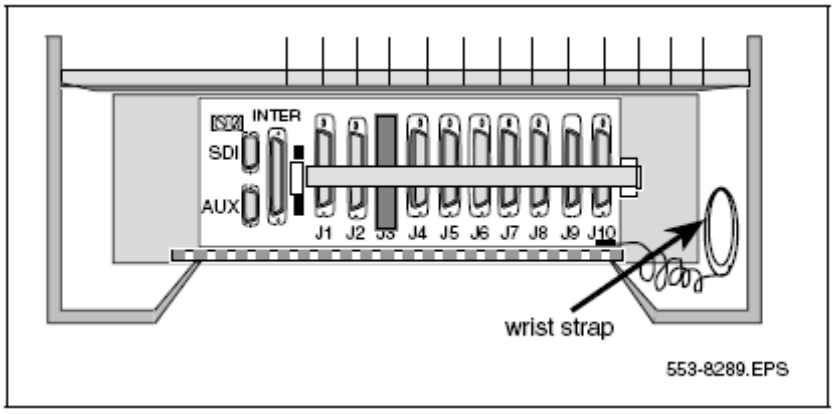


Figure 1.1.3: Static Strap

Guided Practice

Go to your booths and follow along with your instructor as he/she discusses the Nortel CS1000E components. Your instructor will start out on the left side and work his/her way towards the right side. Your instructor will point out the following components:

- Power supply—Not Hot-Swappable (NHS)
- CPPM and MGC cards (NHS)
- IPE cards
- Number of circuits per card
- SDI port
- AUX port
- Amphenol cable location
- TTY ports

Card Locations

The Common Equipment cards and IPE cards are preinstalled in the classroom. Take note of their locations, and document them on the **Card Location worksheet** located on the following page.

Lesson Content: System Architecture, continued

Station Name _____

Card Location Worksheet

Power Supply	
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10 MM1	
MM2	
MM3	

Lesson Content: System Architecture, continued

Software

The CS1000E needs an operating system to tell it how to use the cards installed in it.

This software is programmed by the manufacturer, and can be modified to provide specific users with options as determined by their need.

All of the software you will be modifying is located on the CPPM card, in what is called a **Customer Database**. The customer database resides in these areas of memory described below.

Areas of Memory	Function
Fixed Media Drive or FMD(Hard Drive)	Stores and accesses the active version of customer database, system data and overlay data. This is where our actual changes are going to occur when we modify the customer database. Contains the primary and backup copies of the customer database. This is the drive the system boots from when the first powered up or initialized (rebooted)
Removable Media Drive or RMD (External Compact Flash)	Retains the true backup copy of the customer database. This storage is only reserved for the backup of the database that is currently being stored in the FMD
Gold Drive (Internal Compact Flash)	The drive is not required to be used on an operational system but is used by the manufacturer as a means of installing the software within the PBX. Or if the system has a separate Signaling Server it may be used as the FMD.

Lesson Content: System Architecture, continued

Release Number

Each new version of the operating system is labeled with a release number. This number provides you a reference when adding options or features to the system. Each option or feature in the data block has a release number associated to them. In order for that option or feature to operate, it has to be available in that release or lower.

Our classroom systems are operating on Communication Server 1000 Release 6.0 so all options or features we implement must be supported by Communication Server 1000 Release 6.0 or earlier.

This also affects how commands can be used in the system to assist in its programming and maintenance. As new revisions to the operating system come out, commands may be affected as well.

The data blocks allow each individual system to be tailored to specific customer needs. These data blocks contain all site-specific data such as routes, trunks, 500/2500 sets, digital sets, and other features.

Programming the CS1000E for new services such as telephones or trunks is performed by modifying the current Customer Database. The *Communication Server 1000E Installation and Commissioning* will provide you with the basics of how this is accomplished.

Review Activity: System Architecture

Directions

Using the information you have learned in this module of instruction, answer the following questions.

Questions

1. Which of these IPE cards provides a maximum of eight ports?

   A. Digital Line Card
   B. Analog Message Waiting Line Card
   C. Universal Trunk Card
   D. DTI/PRI Digital Trunk Card

2. What slot(s) can the CPPM card be installed in?

   A. Slot 1
   B. Slot 0
   C. Slot 10
   D. Any slot except 0

3. Which IPE card provides digital trunk interface with the T1?

   A. Digital Line Card
   B. E&M Trunk Card
   C. Universal Trunk Card
   D. TMDI Card

4. What of the three areas of memory contains the TRUE backup copy of the customer database?

   A. C: Drive
   B. FMD
   C. RMD
   D. PCMCIA

Lesson Content: Communicating with Nortel CS1000E

Overview

This section covers setting up communications and the basics of programming the Nortel CS1000E. The system software resides on the CPPM card, usually as an application of the installed Linux Base OS in a Co Resident environment. The Admin PC is connected to the Nortel PBX through a **serial data interface** (**SDI**) port, using the web based interface **“Element Manager”,** or via Secure Shell using an Ethernet connection.

There are 2 SDI ports available (0, & 1) on the CPPM card. However, we will only use **Port 0** in this class. Port 1 is used for remote access or connection to a printer.

The following steps show a summary of the procedure for setting up communications, and beginning to program the system.

Step	Action
1	Set up the SDI port.
2	Set up the PC.
3	Log into the Call Server.
4	Set up the program overlays.
5	Log out of the Call Server.
End of procedure	

Step 1: Setting up SDI Port

SDI ports are used to communicate with the CS1000E, until it is fully functional and **Element Manager** can be turned on.

See Configuring a Terminal and SDI Ports of the *Communication Server 1000E Installation and Commissioning* guide (NN43041-310).

Follow the steps below to set up the SDI port for your Nortel system.

HOW TO SETUP THE SDI PORT FOR COMMUICATIONS	
Step	**Action**
1	Locate SDI connector for SDI port 0 on the cable interface connected to the CPPM Card.
2	Connect cable from the PC serial port to SDI port 0.
End of procedure	

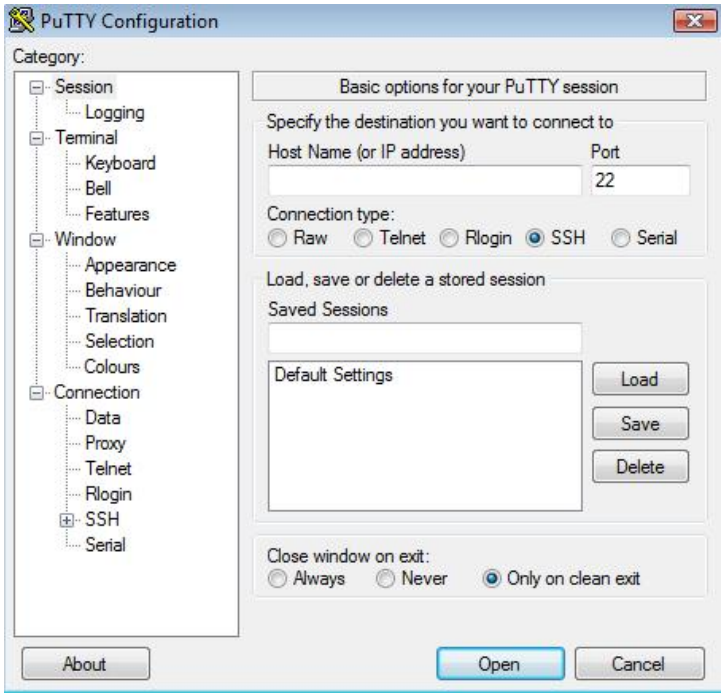
Lesson Content: Communicating with Nortel CS1000E, continued

Step 2: Using PC as a Terminal

The CS1000E Call server software resides on the CPPM card. A PC can be used to view the Call Server system software, as well as make changes to it. The PC uses a terminal emulation software application. These applications allow the computer to be used as an input/output device for the system software.

Terminal Emulation Setup

Use the procedure below to set up the HyperTerminal software:

HOW TO SETUP PUTTY	
Step	**Action**
1	Click **Start** > type **PuTTY** in the search box and click on the program in the search results.
2	The **PuTTY Configuration** dialog box appears. Select the appropriate connection type (SSH or Serial).
3	Enter connection settings as required by connection type (IP address or Com port).
SSH	

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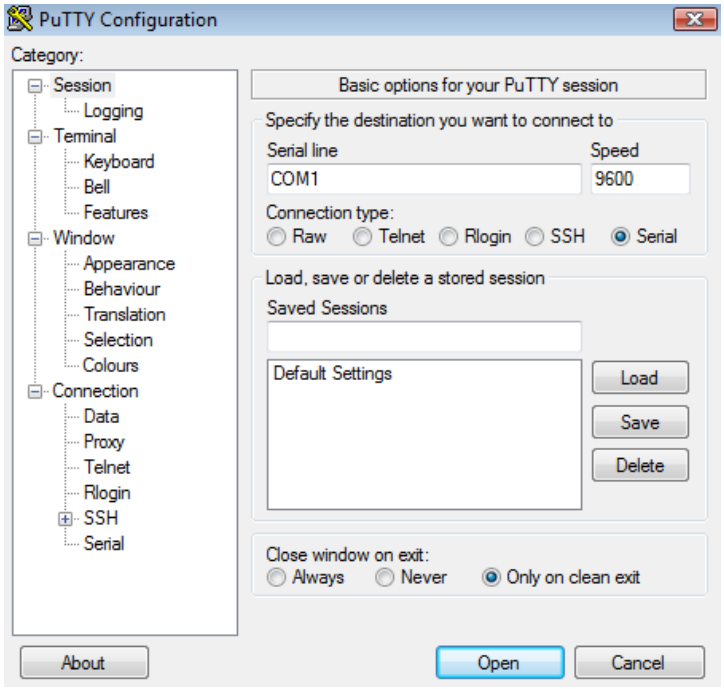
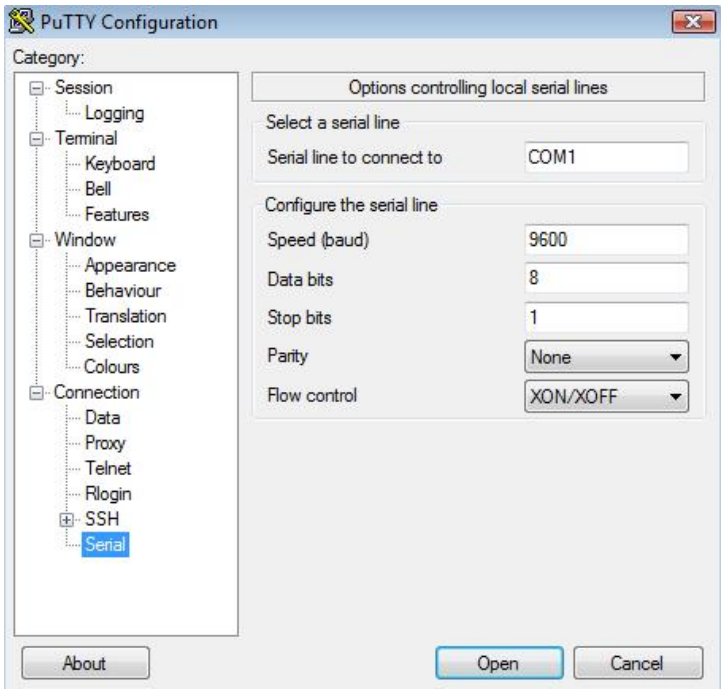
Lesson Content: Communicating with Nortel CS1000E, continued

Terminal Emulation Setup, cont’d

HOW TO SETUP PUTTY, CONTINUED	
Step	**Action**
Serial	
Serial Settings	
4	Click **Open**
End of procedure	

Lesson Content: Communicating with Nortel CS1000E, continued

Modem Configuration

To dial in remotely to the Nortel CS1000E, you will use a US Robotics modem. The modem must have dip switches 3, 5, and 8 down (in the ON position). See Figure 1.4

Figure 1.1.4: Modem Configurations

Lesson Content: Communicating with Nortel CS1000E, continued

STEP 3: Log into the Call Server

To access the system through a system terminal (PC), a login procedure is required.

NOTE

All system passwords in class are set as **Password1!** **Do NOT** change the system password

PBX Application Login Procedure

In the classroom we run Co Resident CS1000E’s just as many of your units will. This setup requires a few additional setups not described in any one procedural chart.

1. At the Linux login prompt use the username “**admin**” and the password **Password1!**
2. At the “[admin@BoothX ~] $” prompt type: **cslogin**
3. Follow procedure 1 steps 1-3 in the *Communication Server 1000 Software Input Output Administration guide. NN43001-611.*

NOTE: To return to Linux base (Bash Prompt) from Call Server application, use the following key sequence minus quotes. “~.”

Practice

Follow the steps listed in this procedure to log in to your system software.

Lesson Content: Programming Overlays

Step 4 and 5: Enter Data and Log Out

Entering data into the overlays involves the following steps:

<table>
<tr><th>STEP</th><th>ACTION</th><th>BY TYPING</th></tr>
<tr><td>1</td><td>Load overlay program.</td><td>LD XX (where XX represents the overlay program number).</td></tr>
<tr><td>2</td><td>Perform tasks.</td><td>Commands or responses to the prompts, as listed in Software Input/Output Guides.</td></tr>
<tr><td>3</td><td>Exit an overlay program and reserve the overlay area for another program.</td><td>**** in response to the prompt REQ.
Press “ENTER ↵.
System responds with “></td></tr>
<tr><td>4</td><td colspan="2">Do you have more overlays to program?
<table>
<tr><th>IF</th><th>THEN</th></tr>
<tr><td>Yes</td><td>Go to step 1.</td></tr>
<tr><td>No</td><td>Go to step 5.</td></tr>
</table></td></tr>
<tr><td>5</td><td>Log out.</td><td>LOGO</td></tr>
</table>

Continued on Next Page

Lesson Content: Programming Overlays, continued

Correcting Data Entry Errors

The backspace key doesn’t work as it is normally used in keyboards. The system will see it as an input character that doesn’t mean anything. Instead of backspacing or deleting lines of data, you can use system variables that when the program sees them, it skips that line.

To	Enter	System Response
Disregards only the current line of data.	* Press, “ENTER ↵.	Repeats the prompt.
Disregards all new data entered into the current data block without exiting the load.	** or *** Press, “ENTER ↵.	The first prompt of the overlay program.

Stopping a Print Routine

To stop a print routine enter ** or *** and press “Enter↵.

This will return you to the first prompt of the overlay program.

Using the *Software Input/Output Guide*

The Software Input/Output Guides contain instructions for programming each overlay program or load (**LD XX**). The instructions for each load are written similarly. Review the instructions for the following loads:

Software Input/Output Administration

- LD 10: Analog (500/2500) Telephone Admin
- LD 22: Print Routine 3

Note the list of basic commands, prompts and responses at the beginning. These are followed by instructions for specific tasks in that load using the prompts and responses and basic commands.

Continued on Next Page

Lesson Content: Programming Overlays, continued

Practice

STEP	ACTION	BY TYPING
1	Load program overlay	LD 22
2	Enter command for Software issue and release	ISS
3	Observe output	
4	Enter command for System Packages	ISSP
5	Observe output	

Using the instructions listed above:

- Use Program Overlay (LD) 22 to determine the CS1000E System Software Release, Issue, Keycodes and Packages.

Set Date and Time (CO-RES)

1. At the Linux login prompt use the username “admin” and the password PASSword1! As listed above
2. At the “[admin@BoothX] $” prompt type: datetimeconfig
3. Follow the onscreen prompts to set your local date and time settings.

Set Date and Time (Non CO-RES)

This procedure assumes you have logged into the Call Server using the procedure listed below in the “Call Server Application Login Procedure”.

1. At the OVLY000 type LD 2 to enter Load 2
2. At the “.” Prompt type STAD DD MM YYYY HH MM SS where DD MM YYYY HH MM SS equal day, month, year, hour, minute, second.
3. To print the newly set time and date type TTAD at the prompt.

Lesson Content: Programming Overlays, continued

Data Blocks

Each CS1000E is defined in terms of size, configuration, features, and services by blocks of data stored on the compact flash/hard drive and loaded into memory, which is located on the CPPM. The data blocks allow each individual system to be tailored to specific customer needs. These data blocks contain all site-specific data, such as routes, trunks, 500/2500 sets, digital sets, and other features.

Blocks of data are “built” or changed using service change overlay programs. These overlay programs are often referred to as “overlays” or “loads” (LDs). Changes to data are entered on a terminal device, TTY or via Element Manager.

Data Block Hierarchy

Data blocks are structured in a hierarchy, meaning that certain blocks of data may be dependent on previously-created blocks. When the Nortel CS1000E executes a feature, it searches for data programmed in a certain sequence in the hierarchy. If some data is not in place, the feature will not work. The data block hierarchy is divided into three categories:

(See Figure 1.1.5 for a diagram of the data block hierarchy.)

Order	Level Name	Description
1	System	Data blocks that apply to the switch as a whole. These include: Configuration records (LDs 17, 97) Digitone receivers (LD 13) Speed call lists (LD 18)
2	Customer	Data blocks that apply to each individual customer on the switch. These include: Customer Data (LD 15) Trunk Routes (LD 16) Trunks (LD 14) Flexible Feature Codes (LD 57) Call Party Name Display (LD 95) Call Park (LD 50)
3	Station	Data blocks that apply to individual stations. These include: Digital Set (LD 11) Analog Set (LD 10) Attendant Console (LD 12)

Lesson Content: Programming Overlays, continued

Meridian 1
Basic Data Block Hierarchy

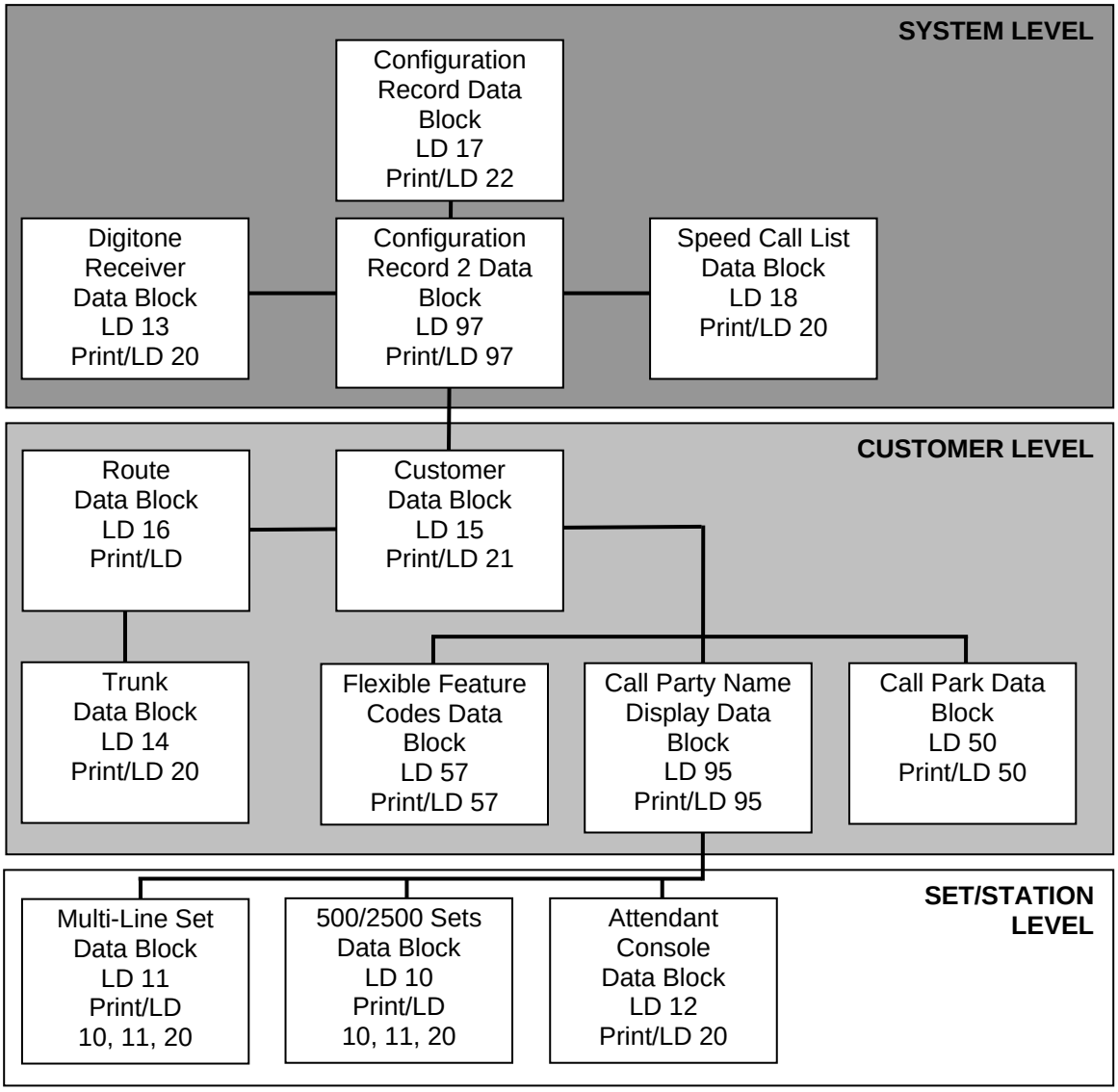


Figure 1.1.5: Meridian 1 Basic Data Block Hierarchy

Review Activity: Programming Overlays

Directions

Using the information you have learned in this module of instruction, answer the following questions.

Questions

1. Following the data block hierarchy, which level of programming do you start with?

   A. Set/Station Level
   B. Customer Level
   C. System Level
   D. Station Level

2. If you have a work order to install a new analog telephone extension, which level do you program it in?

   A. Data block Level
   B. Customer Level
   C. System Level
   D. Set/Station Level

3. If you have a work order to install a new trunk, which level do you program it in?

   A. Set/Station Level
   B. Customer Level
   C. System Level
   D. Station Level

4. Following the data block hierarchy, which of the following data blocks would you program first?

   A. Configuration Data Block
   B. Call Park Data Block
   C. Meridian Digital Telephone Data Block
   D. Call Pilot Data Block

5. Which overlay do you program an analog extension in?

   A. LD 02
   B. LD 10
   C. LD 17
   D. LD 43

Lesson Content: Unified Communications Manager (UCM)

Overview

The UCM solution provides an intuitive, common interface to manage and run managed elements. UCM is a container that stores several system management elements in a single repository. You have access to all network system management elements under the Unified Communications Management solution. You need to sign in only once to access the elements. A single sign-on eliminates the need for you to re-authenticate when a system management application starts.

UCM Security Services simplifies security control for managed elements and system management applications. UCM Security services manage secure access to Web applications and provide authentication and authorization with a single unified Common Service. UCM secures the delivery of essential identity and application information.

With UCM Common Services, administrators can control which users have access to specific managed elements. They can assign users to roles and map the permissions to those roles to control which operations a user can perform on an assigned managed element. Users can access only assigned elements and perform only the tasks specific to their assigned role and permissions for an element.

With UCM Common Services, the integration of managed elements within a single container provides users with centralized security, user access control, simplified management tasks, improved workflow efficiency, convenience, and time-saving advantages.

UCM Deployment Manager provides two methods for software deployment:

- centralized software deployment
- local software deployment

UCM Common Services supports Microsoft Internet Explorer 6.0 and 7.0. Other versions and browsers are not tested or supported.

UCM Common Services runs on all commercial off-the-shelf (COTS) servers and Linux base CP PM servers. The following is a list of the supported platforms:

- IBM x306m. NTDU99AAE5
- HP DL320 G4. NTDU97AAE5
- IBM x3350. NTDW40AAE5 (see Attention box below)
- Dell Power Edge R300. NTDW41AAE6
- CP PM Version 1.0

You require only one primary security server for each secured domain. A network supports only one backup security server. Replication is unidirectional from the primary to the backup. You can perform all administrative changes, for example, security configuration and identity management, on the primary security server.

Lesson Content: Unified Communications Manager (UCM), continued

Logging In to UCM

Use the following procedure to log on to UCM for the first time.

Step	Action
1	In the Web browser **Address** bar, type **https://<FQDN>** and press Enter. For example, https://BoothX.nortelc.com.
2	Type a valid User ID and password.

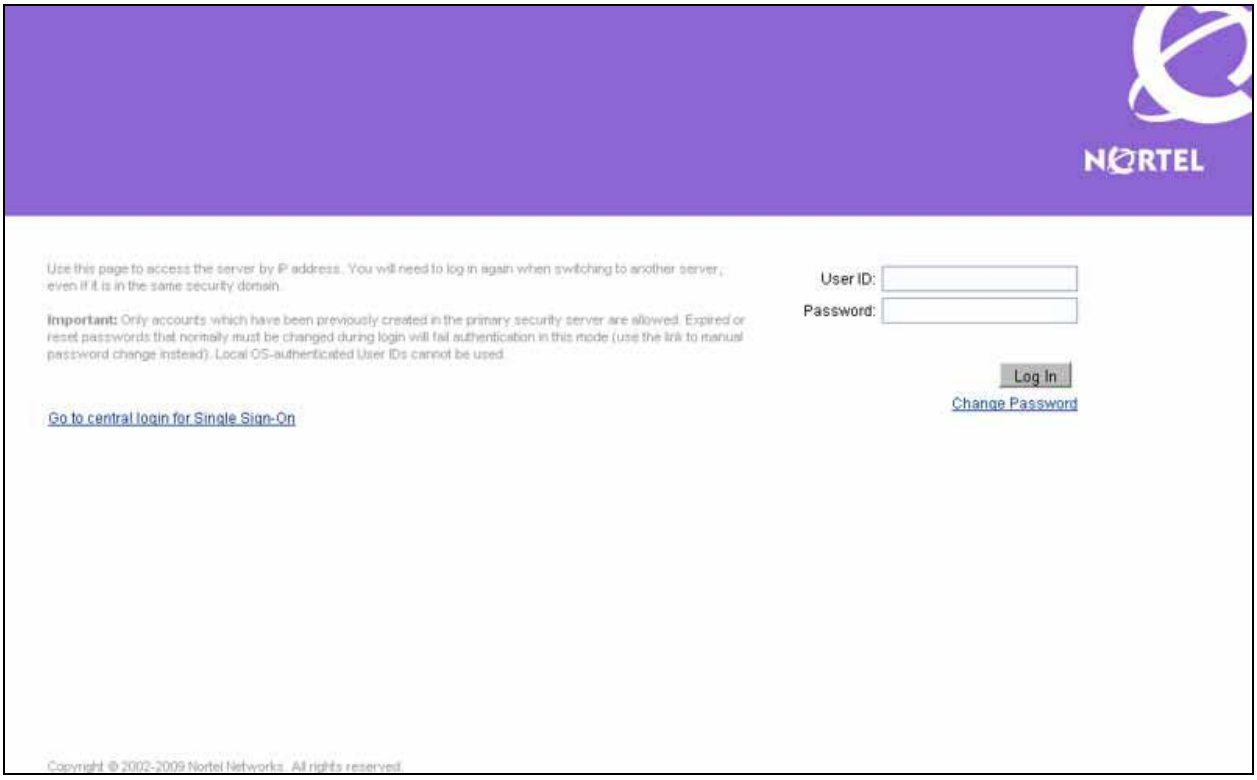


Figure 1.1.6

Lesson Content: Unified Communications Manager (UCM), continued

Reviewing Administrative Users

In the User Services branch of the UCM navigation tree, click **Administrative Users**. The Administrative Users Web page appears.

Administrators with the NetworkAdministrator role can perform the user management tasks required to manage users within UCM.

Reviewing existing users
View the users that are configured for UCM access.

Step	Action
1	Log on to UCM as an administrator.
2	In the navigation tree, click **User Services**, **Administrative Users**.

The Administrative Users Web page lists users configured for access to UCM. The User ID, Name, Roles, Type, and Account Status are displayed, as shown in the following figure.

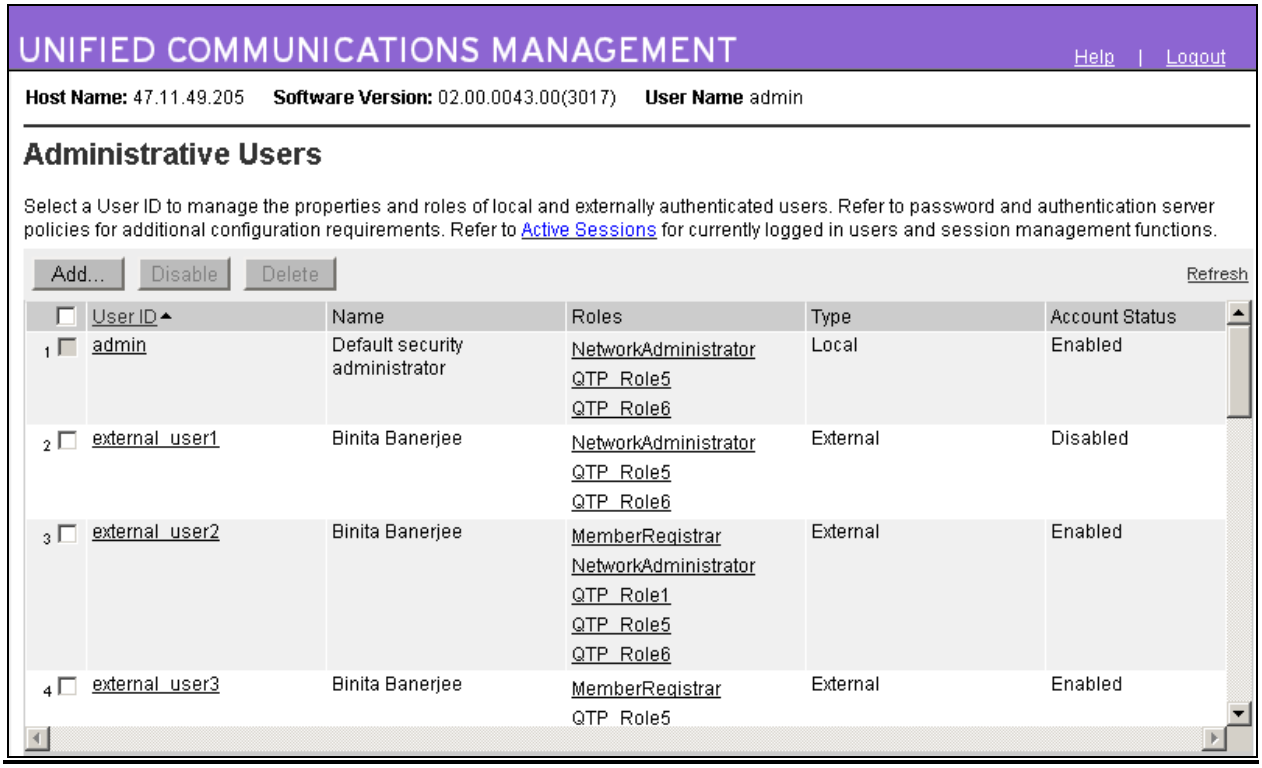


Figure 1.1.7

--End--

Lesson Content: Unified Communications Manager (UCM), continued

Adding Administrative Users

Adding a new local or external user

Use the following procedures to create a new user of UCM and to assign roles to the new user.

Step	Action
1	Log on to UCM as an administrator.
2	In the navigation tree, click **User Services**, **Administrative Users**.
3	Click **Add**. The Add New Administrative User Web page appears, as shown in the following figure.

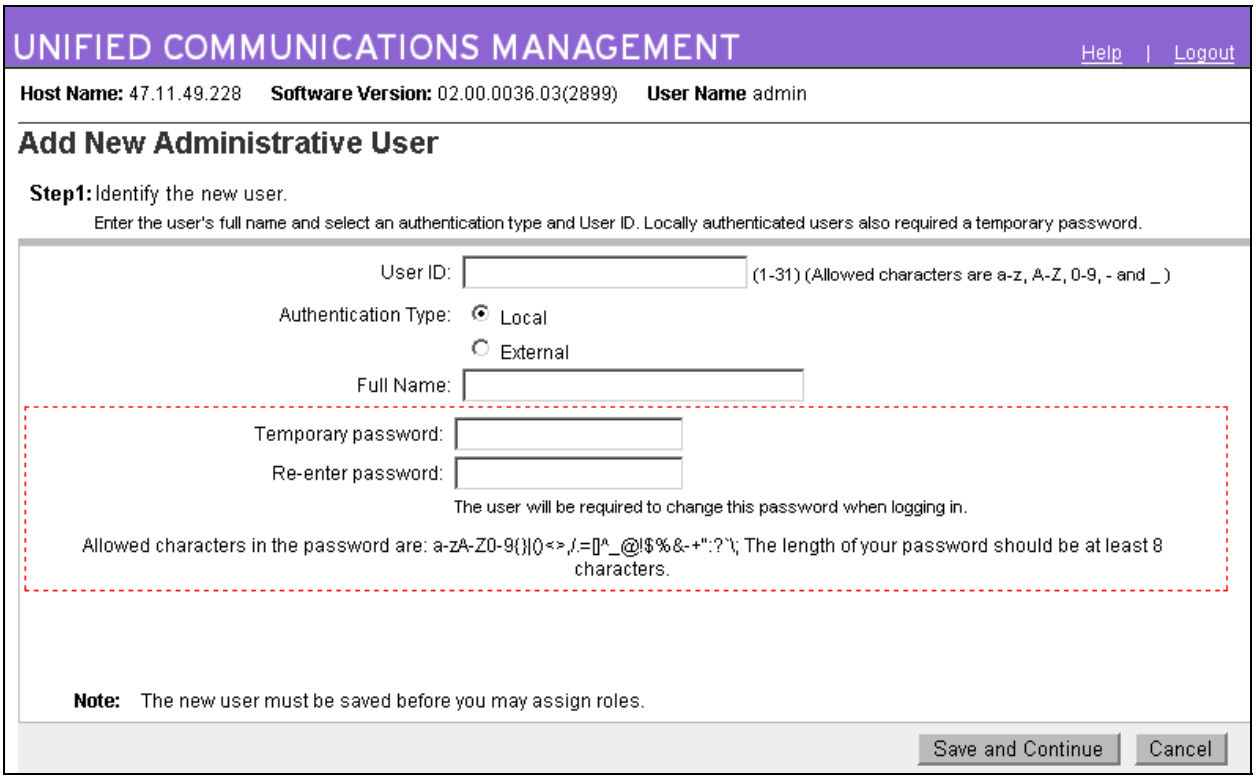


Figure 1.1.8

4	In the **User ID** field, type the User ID. The User ID can be up to 31 characters in length.
5	In the **Authentication Type**, select **Local** or **External**.
6	In the **Full Name** field, type the name of the user.
7	In the **Temporary password** field, type the new password.
8	In the **Re-enter password** field, type the new password.
9	Click **Save and Continue**.

Continued on next page

Lesson Content: Unified Communications Manager (UCM), continued

Adding Administrative Users, cont.

The Add New Administrative User Step 2 Web page appears, as shown in the following figure.

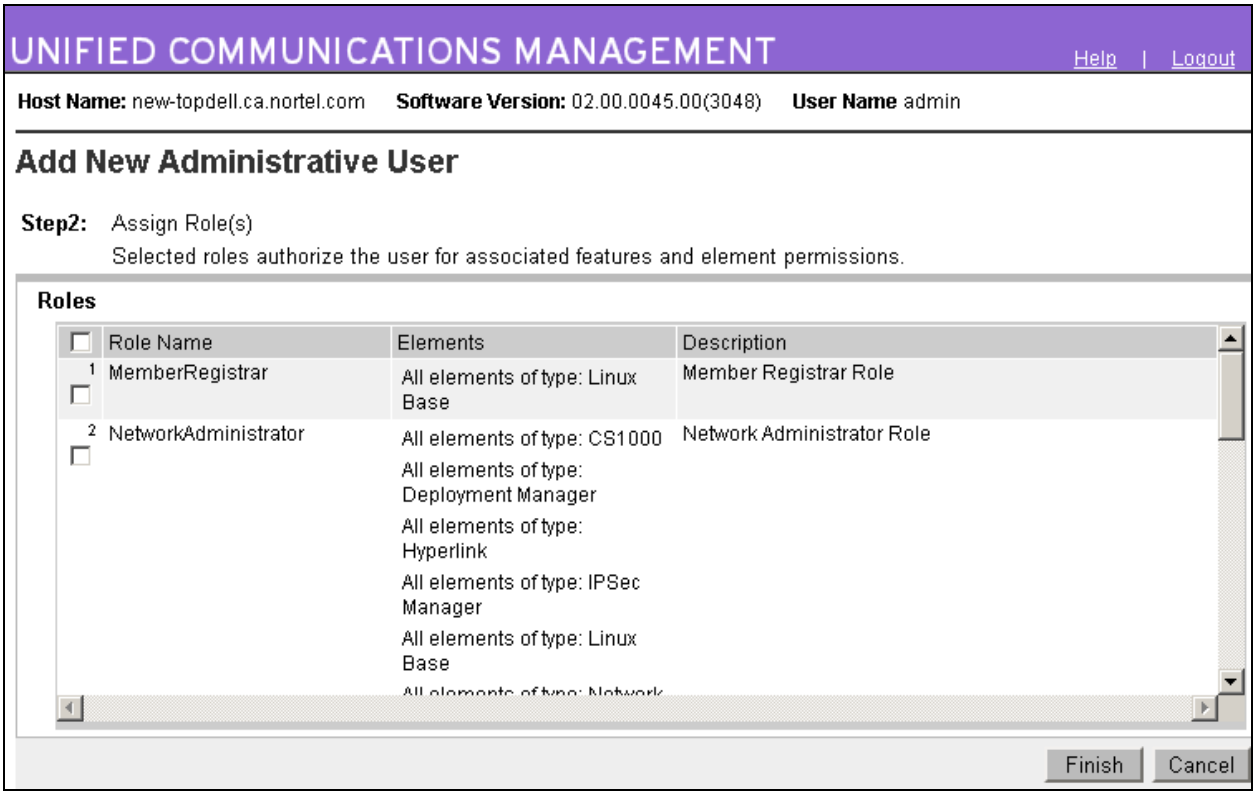


Figure 1.1.9

Step	Action
10	Assign roles to the new local user by selecting one or more **Role Name** boxes.
11	Click **Finish.**

The Administrative Users Web page appears.

--End--

Lesson Content: Unified Communications Manager (UCM), continued

Reviewing Security Policies

In the Security branch of the navigation tree, click **Policies.** The Policies Web page appears. A network administrator can configure the Password policy (for locally authenticated users), Security Settings, and the Single Sign-on (SSO) Cookie Domain.

Reviewing security policies
Review the currently configured security policies within the UCM.

Step	Action
1	Log on to UCM Common Services as a network administrator.
2	In the navigation tree, click **Security**, **Policies**.
3	Review the policy settings currently in UCM.

The Policies Web page appears, as shown in the following figure.

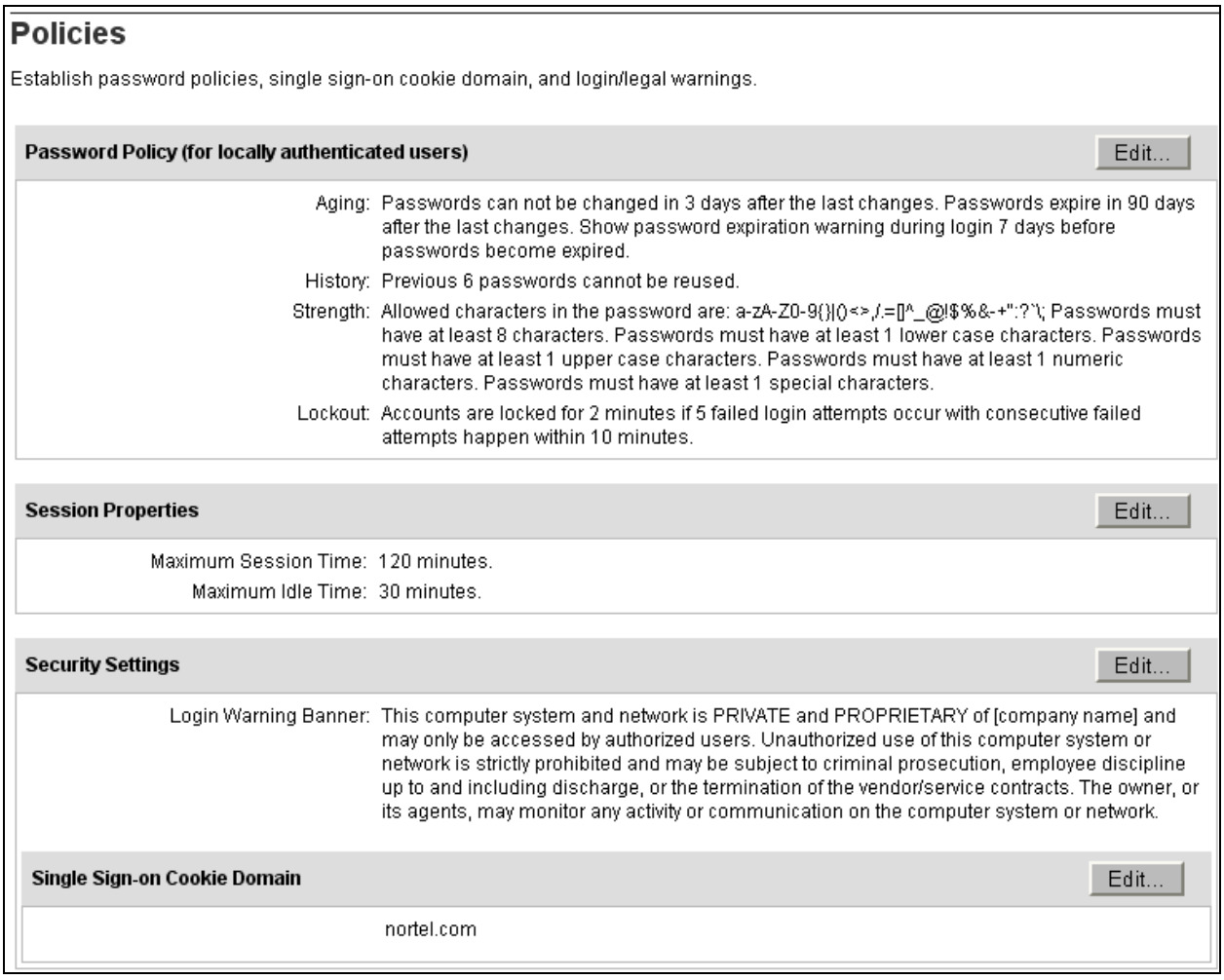


Figure 1.1.10

--End--

Lesson Content: Unified Communications Manager (UCM), continued

Accessing Elements

The Elements page is the default Web page that opens when UCM Common Services starts. The Elements section contains links to the managed elements (application plug-ins and bookmarks). From this Web page users can add a new element or edit or delete an existing element.

Users can add, edit, or delete elements within Security Services. The following is a list of the supported element types:

- Linux base (Base Manager)
- CS 1000 (Call Server/Element Manager)
- Network Routing Service Manager (NRSM)
- Media Gateway Controller (MGC)
- Hyperlink to any web based management application (ex. CallPilot)

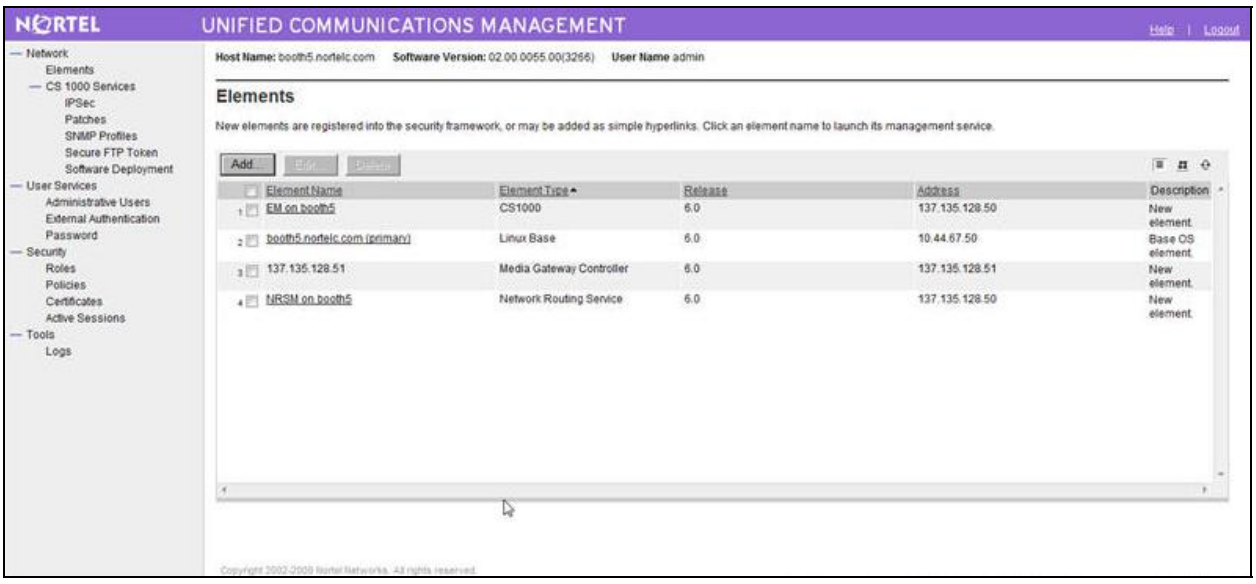


Figure 1.1.11

Lesson Content: Element Manager (EM)

Element Manager

Element Manager is a simple and user-friendly Web-based interface that supports a broad range of system management tasks, including:

- configuration and maintenance of IP Peer and IP Telephony features
- configuration and maintenance of traditional routes and trunks
- configuration and maintenance of numbering plans
- configuration of Call Server data blocks
- maintenance commands, system status inquiries, backup and restore functions
- patch upload, patch activation, firmware download

Element Manager has many features to help administrators manage systems with greater efficiency. Examples are as follows:

- Web pages provide a single point-of-access to parameters that were traditionally available through multiple overlays.
- Parameters are presented in logical groups to increase ease-of-use and speed-of-access.
- The *hide or show information* option enables administrators to see information that relates directly to the task at hand.
- Full-text descriptions of parameters help administrators reduce configuration errors.
- To simplify response selection, configuration screens offer preselected defaults, lists, checkboxes, and range values.
- To simplify the importing of phones to the database a Comma Separated Value (CSV) file can be used.

Note: We will be discussing Element Manager in greater detail later in this course.

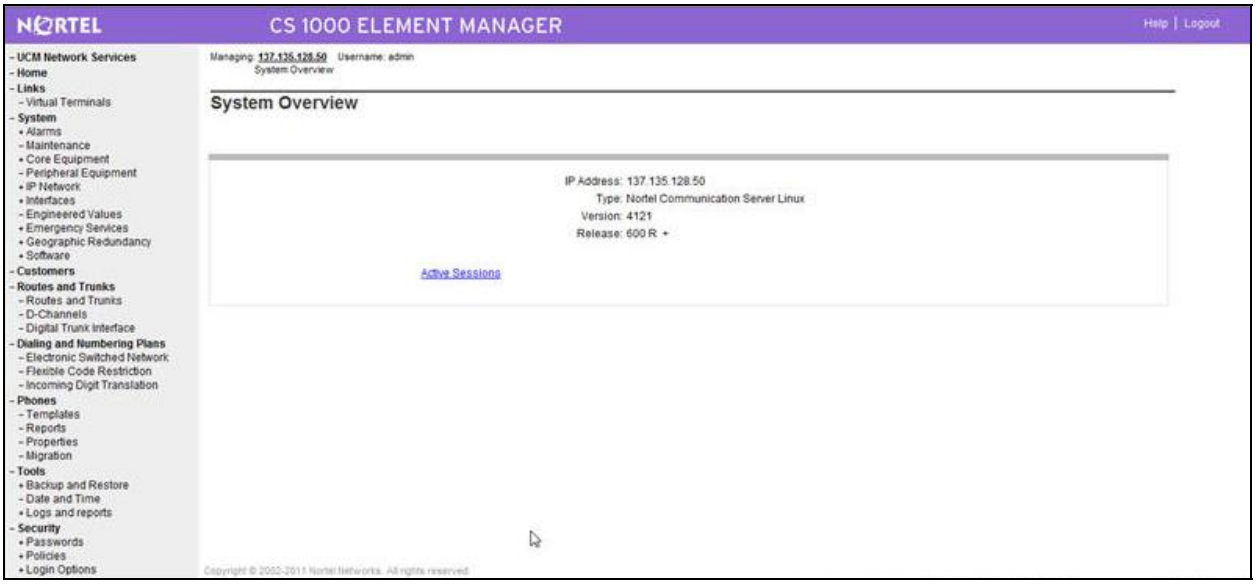


Figure 1.1.12

Lesson Content: Call Server Database Backup/Restore

Call Server Maintenance

Call Server maintenance primarily consists of performing routine backups of the Call Server. The backup is then stored, generally at two locations. One at the unit the system is located and an extra copy is taken back to the supporting unit ensuring there are two valid backups of the Call Server. The backups are stored in separate locations to ensure there is a reliable backup in case of a major catastrophe like a fire or earthquake and one copy is destroyed. These backups contain a complete copy of the programming for the Call Server and are used to restore the Call Server to a working state in the event of a complete failure of the Call Server.

When to Backup

Backups are scheduled events. The unit supporting the Call Server will have a maintenance program that provides the times the backups will be performed. Backups are also done when changes are made to customer data and after a major programming change in a Call Server. For example, if a unit has recently had their Call Server software upgraded then a backup of the new system database will be performed.

References

The *Communication Server 1000E Maintenance Guide* (NN43041-700) is the main resource used to develop this module.

Backup Procedure

A backup of the Call Server database is performed by copying the current database used in the Call Server to a file, then verifying that file with the database used in the Call Server to ensure the backup is valid. Use procedure 9 in the *Communication Server 1000E Maintenance Guide* (NN43041-700) to perform a backup of the configuration database.

Note: Backup may be written to a USB Flash drive instead of the compact flash Removable Media Drive. However the USB takes priority over the compact flash when both are installed in the system.

Note: The Database Backup procedure does NOT backup the Linux Base. Full system restorations will require re-installation of the Linux software before the Call Server Database can be restored.

Restore Procedure

To restore a database in a Call Server, the backup database is loaded into the Call Server. Use the *Communication Server 1000E Software Input Output - Maintenance* (NN43001-711) to restore a backup of the configuration database.

Lesson Content: Call Server Database Backup/Restore, continued

Backup to Internal and External Local Flash Memory (LD 43)

This procedure copies the configuration data from the Fixed Media Drive (FMD) to a file, to the Removable Media Device (RMD) Compact Flash card, or a USB Flash drive if present.

Note: This will be your most used backup command and works on both CO-RES and Non CO-RES.

Prompt	Response	Explanation
EDD000 .	 **EDD**	 Begins Data Dump (wait for completion)
CCBR .. OK RMD .. OK		Internal/External backup completed successfully
Data dump Complete .	 ********	Approx 2-3 minutes to complete. Exit LD 43

Restore from External Media (RMD) (LD 43)

This procedure restores the configuration data files from an external CF card (RMD) or USB to the Fixed Media Drive (FMD) of an operating CS1000E.

Note: This will be your most used restore command and works on both CO-RES and Non CO-RES.

Prompt	Response	Explanation
.	**RES XXX**	Config Restore Begins XXX can be RMD or USB
OK	(none)	Restore Complete

CAUTION: The database on the FMD is erased at the first stage of this step. If a time-out or other problem occurs during the restore procedure; DO NOT leave the CS1000E in this state. Enter the command EDD in LD 43 to data dump the current data from the CS1000E memory to the FMD backup file, then return to the RES.

Lesson Content: Call Server Database Backup/Restore, continued

Complete Restore (LD 135)

This procedure finishes the restore process by loading the configuration data into the Active Data Base from the FMD backup file.

SYSTEM WILL LOSE SERVICE FOR 5-7 MINUTES!!

Note: This applies regardless of what restore command was used!

Prompt	Response	Explanation
.	**SYSLOAD ACTIVE** <CR>	Prepares for SYSLOAD
ENTER (Y)ES TO CONFIRM…	**Y** <CR>	Are You Sure?
…DTA 021 1 (or similar)	Takes 5-7 minutes	SYSLOAD COMPLETE

Save Configuration EDD (LD 43)

Prompt	Response	Explanation
EDD000 **.**	**EDD**	Begins data dump
DATA DUMP COMPLETE **.**	********	Exit LD 43.
OVL000 **>**	**LOGO**	Exit system.

Lesson Content: Backup and Restore with Element Manager (EM)

Accessing Backup/Restore with EM

The Backup and Restore link of the Tools branch of the Element Manager navigator provides access to Call Server Backup and Restore functions, as well as Personal Directories Backup and Restore functions.

Call Server

In the Services branch of the Element Manager navigator, click Backup and Restore > Call Server. The Call Server Backup and Restore Web page opens.

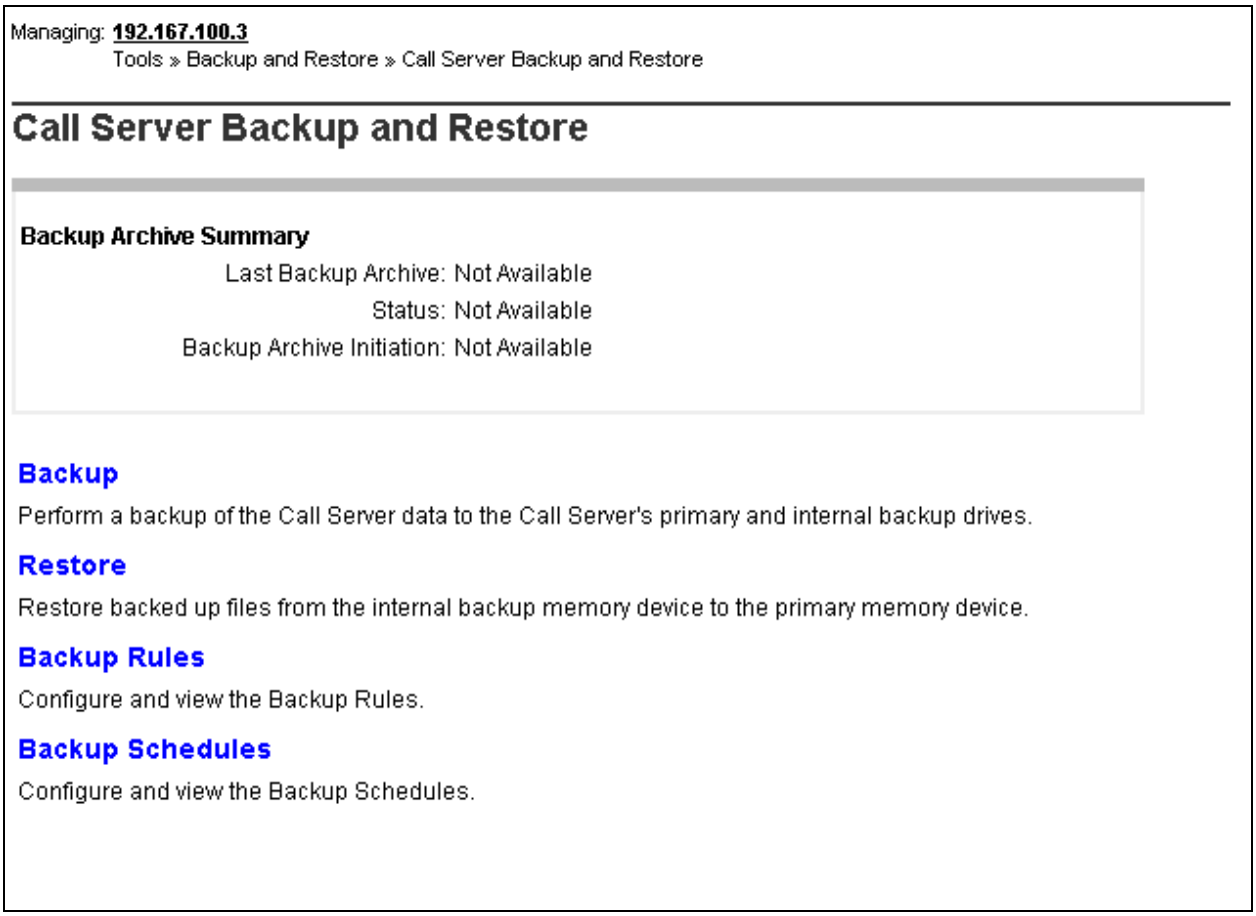


Figure 1.1.13

Continued on next page

Lesson Content: Backup and Restore with Element Manager (EM)

Backup with EM

Backup

To back up the Call Server, click the **Backup** link on the Call Server Backup and Restore Web page. The Call Server Backup Web page opens.

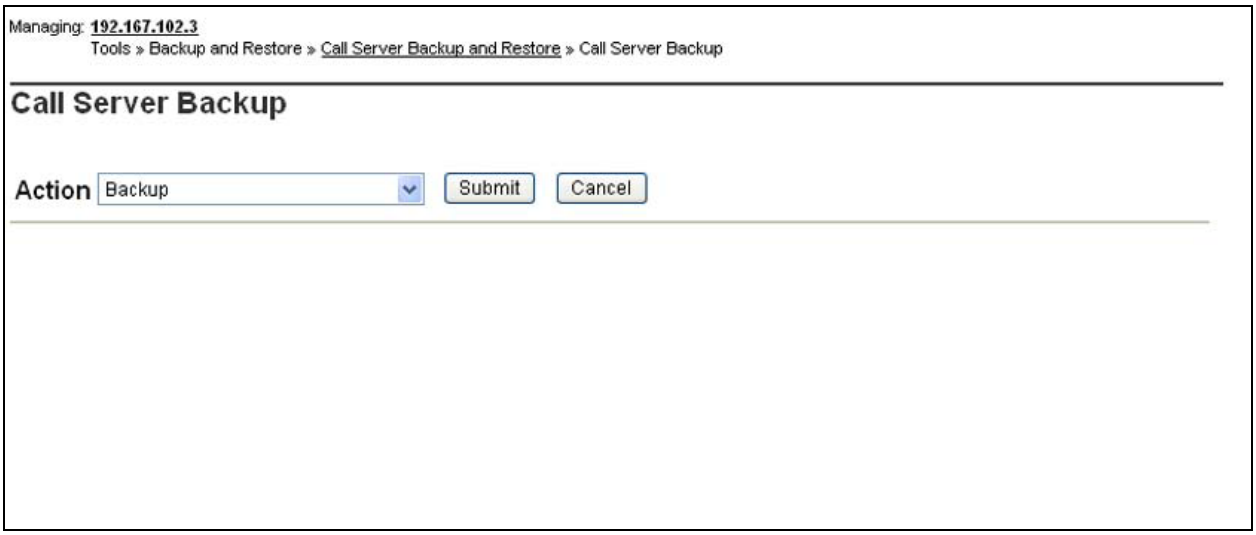


Figure 1.1.14

Select **Backup** from the **Action** drop-down list and click **Submit**. The **Call Server Backup Waiting** Web page opens to indicate that the backup is in progress.

The Backup function invokes a data dump and writes the Call Server data to the primary and internal backup drives. The Backup function performs the same task as the EDD CLI command traditionally configured in LD 43.

A summary of the results of the EDD appears at the bottom of the **Call Server Backup** Web page.

Lesson Content: Backup and Restore with Element Manager (EM)

Restore with EM

Restore

To restore the Call Server, click the **Restore** link on the Call Server Backup and Restore Web page. The Call Server Restore Web page opens.

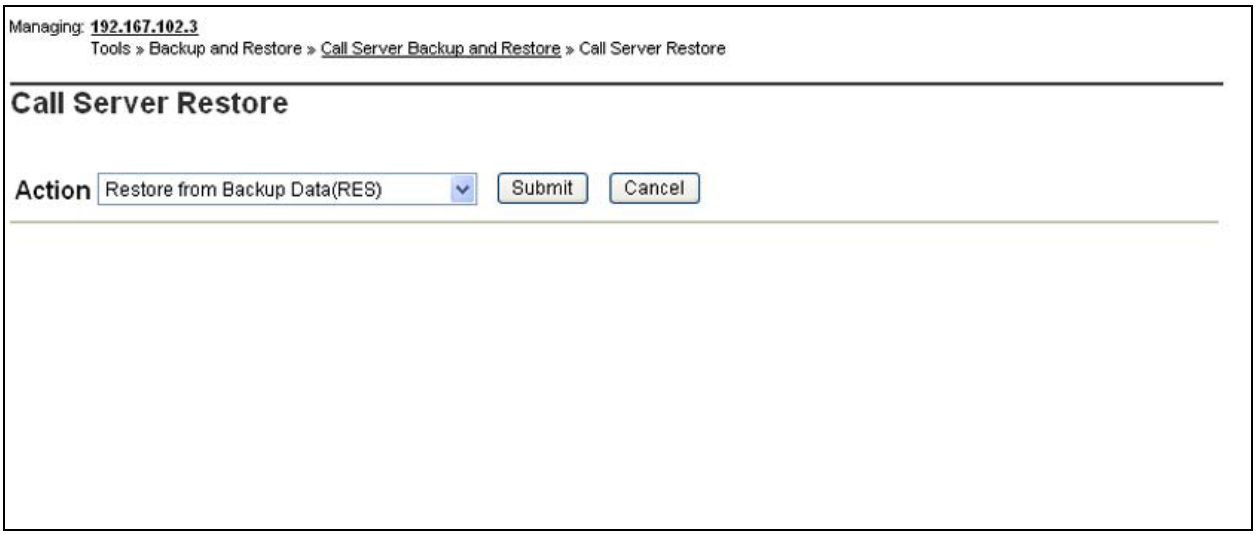


Figure 1.1.15

Select **Restore from Backup Data (RES)** in the **Action** drop-down list, and click **Submit**.

For information about the server databases and when they were created, select **Database issue and creation date** in the **Action** drop-down list, and click **Submit**. The information is displayed in the text area below the command.

The Call Server Restore function restores the backed-up files from the internal backup device to the primary device. The Restore function performs the same task as the CLI RES command traditionally configured in LD 43.

--End--

Summary

Lesson Summary

In this lesson, you reviewed the Nortel CS1000E system architecture, set up communication with the Nortel CS1000E, reviewed supporting documentation, performed system administration using Unified Communications Manager, programmed overlays and performed Backups and Restores. Upon completion of this student guide, and after the lesson presentation and practice exercise, you should be able to:

1.1 ASSEMBLE the components of the Nortel CS1000 and associated equipment with 100% accuracy as evidenced by a functioning Call Server.

- **1.1.1 REVIEW** manufacturer’s documentation
- **1.1.2 COMPLETE** network and Call Server documentation

1.2 PERFORM system administration with 100% accuracy as evidenced by a positive function check.

- **1.2.1 REVIEW** manufacturer’s documentation
- **1.2.2 MANAGE** Unified Communications Manager (UCM) user accounts
- **1.2.3 MANAGE** Unified Communications Manager (UCM) Elements
- **1.2.4 MANAGE** Security Services within Unified Communications Manager (UCM)
- **1.2.5 PERFORM** administrative commands using Command Line Interface (CLI)
- **1.2.6 PERFORM** a function check.

1.3 PERFORM a Call Server database backup with 100% accuracy.

- **1.3.1 REVIEW** manufacturer’s documentation
- **1.3.2 COMPLETE** Call Server documentation

1.4 PERFORM a Call Server database restore with 100% accuracy as evidenced by a positive function check.

- **1.4.1 REVIEW** manufacturer’s documentation
- **1.4.2 COMPLETE** Call Server documentation
- **1.4.3 PERFORM** a function check

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